NEPTUNE ROWING CLUB
Create a Web Site and Database for Neptune Rowing Club

28th March 2011

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The aim of this project is to redesign a website and to develop and incorporate a database into it. A web site was constructed using PHP, HTML, JavaScript and CSS through Joomla® Content Management System (CMS). There were three main sections to this project: defining the requirements of the web site, researching and designing the web site and developing the web site. The site was successfully designed, developed and implemented and can be viewed at www.neptunerowingclub.com. It was hosted on a Linux web server with a MySQL database.
The client for this project was Neptune Rowing Club, the most successful rowing club in Ireland. The main client contact throughout the project was Mr. Desmond O’Hara. In this report he will be referred to as ‘the client’ and Neptune Rowing Club will be referred to as ‘the club’.

Neptune Rowing Club is the most successful rowing club in Ireland. It was founded in 1908 and is one of two clubs in Dublin which is not affiliated to an institution. The previous web site for the club was created using out-dated software and techniques; MS Frontpage was used and the site was created through several frames and tables. The web site lacked functionality and purpose. A screenshot of the old web site is provided in Appendix D, p.D.2. It essentially became a web site devoted to pictures and videos of races, resembling a social networking site. It was not fully utilised by the members of the club and did not portray the club in a professional manner.

A new web site was successfully designed, developed and implemented. It can be found at www.neptunerowingclub.com. All of the terms of reference were satisfied and additional requirements, which were requested by the client during the creation of the web site, were also fulfilled. The final web site increased the overall functionality and navigation of the old web site. The additional requirements consisted of a back-up system, so that in the event of a crash or a fault occurring in the web site a back-up would exist. Increased security measures were added to protect the administrative end of the web site along with information stored on the web site.

Several problems occurred throughout this project most of which occurred during the development phase of the web site. These problems were usually solved by editing code or fixing permissions of files. The main problem that occurred involved hosting the site. The club uses Host Ireland as its web host provider. When the account was initially created in the year 2000 an error occurred. The site was hosted on a Windows server however the hosting plan was for a Linux server; meaning that when the web site was uploaded a database error occurred as Joomla! web sites cannot be hosted on Windows servers. The problem was solved by switching the server to Linux.

I would like to thank Mr. Desmond O’Hara and Mr. Alan Ludlow of Neptune Rowing Club for their help with this project. Des was passionate and encouraging throughout the course of the project, always offering suggestions and advice. Alan as the webmaster of the previous web site provided all of the information and contacts that were required at the offset of this project. Finally, I would like to show my appreciation to my project supervisor, Dr. Rozenn Dahyot, who supported and advised me throughout the project.
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GLOSSARY OF TERMS USED

REFERENCES
INTRODUCTION AND SUMMARY

The purpose of this chapter is to introduce the client, provide the project background and the terms of reference that have been agreed with the client. A summary of the remaining chapters is also included.

1.1 The Client

Neptune Rowing Club, founded in 1908, is located on the northern bank of the River Liffey at Islandbridge, Dublin. It is one of the largest clubs in Ireland and is one of only two clubs in Dublin which is not affiliated to an institution. Neptune has a strong history in competitive rowing. It has accumulated more National Championship titles than any other Irish club with 150 titles since 1914, and wins at a number of Henley Regatta and other international events. The club currently has a very large and active group of members competing at all levels, from novices to top internationals.

The members in the club range between the ages 13 to 32. In total there are about 50 active members in the club with nearly half of these being new junior rowers, under the age of 18. In today's wired society it is safe to assert that all of the members in the club use and have access to computers and mobile phones.

The members of the club use the old web site to view photos and videos and to read the odd piece of club news. The old, then current, web site did not offer the member interesting content that was regularly updated or contained useful features. Content is the primary reason why people visit a web site and continue to come back. The aim of the new site is to create a site that will offer unique and interesting content through an attractively designed web site. This website will be viewable on both mobile devices and computers.

1.2 The Project Background

The club currently has a web site although it is basic and provides little functionality to the members or to the club. The old web site was created over eleven years ago and has not undergone an update since its creation. A complete update of the web site is proposed with the incorporation of a database to maintain information on members of the site. The new web site needs to offer members of the club more interesting content and useful features.

A considerable amount of this project will be to identify the requirements of the web site. The original project outline contains some of the requirements but it is not a definitive list. Through discussions with the client during the development of the web site additional requirements were identified.

This project entailed a large degree of creativity to establish an attractively designed web site that would act as a resource for the club and general club development. The web site has to not only function properly and completely, it must also represent the club in a professional manner.
1.3 Terms of Reference

The final terms of reference for the project agreed with the client:

- Create and design a web site that will act as a resource to the clubs initiatives and general club development;
- Increase the navigation and functionality of the website through the addition of several useful features;
- Create separate areas for members, visitors and potential members of the web site;
- Advertise the function room and bar area of the club in an appropriate manner;
- Move the pictures and videos into a secure members area;
- Ensure the website adheres to w3c requirements;

Additionally, the project has exceeded the original terms of reference, including:

- Adding additional web site security;
- Ensuring that the site is search engine friendly;
- Ensuring that back-ups of the site exist;
- Creating an email account for the webmaster;

This project has received ethical approval by Trinity College Dublin. Ethical approval was required to move the images from the old web site to the new web site.

1.4 Summary of the Remaining Chapters

- Chapter 2 provides a system overview. It describes the purpose and objectives of the system and summarises the technical environment that was used to develop the web site. It also provides an overview diagram of the site.

- Chapter 3 describes the work that has been completed throughout the project. It identifies the methodology that was used in the creation of the web site, including the software and the extensions that were used. It details the development of the web site from design through to testing and implementation. It also describes the problems and issues that were encountered during the project and the future for the site.

- Chapter 4 presents a summary of the conclusions and recommendations that were drawn from the project.
2 SYSTEM OVERVIEW

This chapter provides an overview of the system. It is divided into the following sections:

- **System objectives**: In this section the objectives of the system are described.
- **Technical environment**: This section outlines the software necessary to design, develop, implement and maintain the web site.
- **System overview diagrams**: A UML use case and sequence diagram are provided along with an overview diagram, in the form of a flowchart, to describe the system.

2.1 System Objectives

The current club web site is poorly designed, lacks organisation and interesting content. The landing page is a disorganised collection of information, pictures and videos. The web site does not differentiate between its users, visitors and members. It is not fully utilised by the club to reach out to its members, advertise its new function room and bar or attract potential new members. By offering more content, improved navigation and additional features the new web site will achieve all of these goals and in whole act as a resource to the club's initiatives and general club development.

The new web site will be more dynamic with regularly updated information and content, such as news and events. This will be achieved through the user friendly administrative back-end of the site which enables quick and easy updating of content on the site. The navigation will be usable, easily accessible, and consistently placed to aid the visitor in their navigation of the web site. This will be achieved through the following conventions of navigation:

- **Universal navigation**: Navigation which appears on every web page of the site. This will be represented by a navigation bar at the top of the web site.
- **Placement consistency**: The navigation will appear in the same location. Some of the web pages have an individual menu and in each case the menu will be located in the same location for each page. This ensures that the visitor does not get confused or lost at anytime.
- **Feedback on location**: The visitor will be provided with a breadcrumb pane which will enable them to identify which page they are on and how they got there.

The web site will be visually appealing with the club colours, green and black, being incorporated as the main theme of the website. An attractive design is required as most visitors judge a web site by its design. If the web site appears amateur or unprofessional the visitors are likely to leave without looking at the content.

An internal aspect is required to offer current members of the club more functionality. The idea behind a member's area is to increase the amount of knowledge in the club. The member’s area will be a private area where photos and videos of races and training sessions can be displayed out of the public domain, training information and programmes can be displayed to the different crews and topics such as technique and safety can be displayed.
The club has social networking accounts which are used to post images and videos of races. The aim of the new web site is to promote the club and to provide useful rowing content to its members. The social networking aspect of the club will be left to its social networking accounts. In this respect the new web site will not compete in posting videos and pictures of races, rather links to these photos and videos will be provided through the web site. Only a few actual photos and videos will be uploaded to the site.

2.2 Technical Environment

The web site has to be hosted on a Linux server as it is the hosting account that the club has. Visitors and members can access the site from any web enabled device by going to the URL, www.neptunerowingclub.com. The website has been tested on a wide range of web browsers and operating systems, see section 3.4 for details. The ideal web browsers to view the site are Internet Explorer, Google Chrome and Mozilla Firefox.

A wide selection of different programming languages, software packages and Joomla! extensions were used to create the web site. An extension is described as any template, module, component or plugin that extends the Joomla! installation. The programming languages included HTML, PHP, JavaScript and CSS. The vast majority of work did not require coding with these languages but a knowledge of each was essential. The purpose for this was to edit code which was a regular occurrence. Joomla! Content Management System (CMS) was used to create the entire web site from development, including site design and layout, to the implementation of the database for member’s login. A list of all of the software packages and Joomla! extensions that were used to create the web site can be found in section 3.1.

An accompanying MySQL database was created with the web site. A PHPMyAdmin interface was used to interact with the database. The database had to be created using MySQL version 5.0.77 as it is the version that the server supports. To create a Joomla! web site a database is required. The database is required as the CMS uses the database to store all of the web sites information. A separate table was created to store member’s account information on the site.

2.3 System Overview Diagrams

Site Map Diagram for Neptune Rowing Club’s Web Site

Figure 2.3.1 is an overview diagram of the web site. The contents of each of the main sections are detailed below:

- **Home**: This is the main page of the web site and the landing page for visitors. This page is designed to appear clutter free and uncomplicated. It has a welcome message from the club and explains its background and current activities. It links to the club news, a list of the championship titles that the club has won, a prospective member’s form, a map providing the location of the club and to the hiring of the
function room and bar. The home page displays several features which occur throughout the main pages. These features include a weather forecast system, a display of the tide times for the River Liffey, the member’s login form, a latest events module which exhibits the latest rowing, club and general yearly events for the current month and a links section to relevant external web sites.

- **About Neptune**: This page provides a small club history and the current status of the club. It contains quick links to a page on how to get to the club and a list of the previous championship wins.

- **Prospective Members**: This section contains relevant information for potential members of the club. A form is provided in this section which aims to provide the first step in getting new members to contact and possibly join the club. The content includes an introduction to rowing and a motivational piece about rowing for Neptune.

- **Visitors Area**: This page acts as an area for visitors of the web site. It provides links to all of the other pages, the prospective members area, the function room hire, the contacts page and the page of how to get to the club.

- **Function Room Area**: This section provides information with regard to the club’s function room and how visitors can hire it. The page provides photos of the function room and past events that the club has catered for. A link is provided on how to reach the club and how to contact the club to arrange a viewing or booking the hall. The club is not allowed to advertise the bar to non-members of the club due to the particular liquor licence that it has, therefore no mention of the word bar appears on the site.

- **Calendar**: The calendar displays all of the upcoming rowing events, club events and general calendar events. It aims to keep members up to date with current events in rowing and in the club.

- **Contact**: This page provides contact details for the committee of the club and the head coaches. An email can be sent directly from the site from all visitors to any of the listed contacts.

- **Members Area**: This area of the web site is designed so that only members of the club can access it. A login page is provided so as to verify member’s identities. This area contains a member’s notice board, several pages of club information with regard to rowing technique and training exercises, videos and photos of races are displayed in this section and a content submission page is provided to those that have been granted access; coaches and committee members only.
FIGURE 2.3.1 – Site Map of the System.
UML Use Case Diagram for Neptune Rowing Club’s Web Site

Figure 2.3.2 is a UML Use Case diagram of the web site. The contents of each of the main users of the system are detailed below:

- **Webmaster**: The webmaster has complete control over the system. He/She has the ability to access the backend of the web site. They can change or delete the layout and design of the web site, add or remove content and provide or remove members from accessing the member’s area.

- **Author**: The authors are those individuals who have been provided upgraded privileges on the web site. These individuals are the coaches and committee members of the club. The main difference between an author and member is that authors can submit content to the web site and members cannot. This is an attempt to have more interesting and unique content on the site.

- **Member**: The member represents a current member of the club who has been granted access to the member’s area. Members can view all of the content on the web site. The method by which members are provided access to the member’s area is detailed in Figure 2.3.3.

- **Visitor**: Visitors are those individuals who are not members of the club and therefore do not have access to the member’s area. Visitors can view all of the content that the site has to offer outside of the member’s area.

FIGURE 2.3.2 – UML Use Case Diagram for the System.
UML Sequence Diagram for Neptune Rowing Club’s Web Site

Figure 2.3.3 is a UML Sequence diagram for the web site. The sequence diagram illustrates the sequence of events by which members are provided access to the member’s area.

The member visits the home page of the web site. They are provided with a login section on the home page which secures the member’s area. The member is requested to enter a username and password to access the member’s area. Once provided the credentials are verified against the information that they provided when the account was created which is stored in the database. If the information is correct the member is free to access the member’s area. If the information is incorrect the member is prompted to enter the correct information. When the member logs out of the member’s area they are redirected to the home page. If the member forgets their username or password links are provided which will email this information onto the member through the email address that they provided.

Member’s who do not have an account can create one through a link that is provided on the member’s login section. They are requested to enter information such as their name, email address, a username and a password. A verification email is then sent to the member and to the webmaster. The account is not activated until both the member and the webmaster activate the verification link. This method of creating an account on the web site ensures that only members are granted access to the member’s area. The information that the member provides is stored in the clubs database which is linked to the site. All of the information is encrypted before it is sent. This feature ensures security of the web site. The encryption key is changed automatically every month.
FIGURE 2.3.3 – UML Sequence Diagram for the System.
3. DESCRIPTION OF WORK

This chapter provides a description of the work completed throughout the project. It is comprised of the following sections:

- **Definition of the Requirements**: A description of the process of how the key features of the web site were identified.
- **Design**: Describes the process of how the web site was designed.
- **Development**: Outlines the methodology involved in developing the web site and database.
- **Implementation and Testing**: Describes the process of implementing and testing the web site.
- **Problems Encountered**: Identifies the problems that were encountered during the process of creating the web site and how these problems were overcome.
- **Future of the web site**: Outlines the future intentions of the site.

3.1 Definition of the Requirements

The requirements phase was one of the most important tasks to be carried out before the design of the web site began. The requirements for the web site had to be decided before designing or developing the web site. The requirements were decided through frequent meetings with the client and through research of other rowing clubs’ web sites.

**Meetings with the Client**

An initial set of requirements were created during the first meeting with the client, Mr. Desmond O’Hara. Potential ideas were listed and the feasibility of each of these were discussed with the project supervisor, Dr. Rozenn Dahyot. Research was then conducted into the possibility of adding extra features to the web site. This involved viewing other rowing clubs’ web sites and identifying what content and features they offer. Another meeting was arranged with the client to discuss in further detail the feasibility of the initial requirements and the possibility of additional features that could be incorporated into the web site. It was agreed that general promotion of the rowing club including the ability to help recruit new members to the club along with creating a secure member’s area were the two main requirements. A more professional layout and better navigation throughout the web site was also identified as a priority.

**Research of Other Rowing Clubs’ Web Sites**

Research of other rowing clubs’ web sites mainly in Ireland, England and America was undertaken. This research identified several features that could be used in Neptune’s new web site. These features include a prospective member’s form, a weather forecast display, an erg calculator and the use of club colours as the main theme of the web site.

Many of the rowing clubs’ web sites include a news section which is regularly updated and a calendar of upcoming races and club events. It was decided that these features should be added to the new web site so as to increase the amount of useful content that would be
available to members. The news section would also act as a promotional tool to help the club advertise club events and fundraisers to visitors and members alike.

3.2 Design

After the main features of the web site were agreed the site had to be designed. This part of the project involved translating the requirements into an attractive, professional and user friendly web site. The main factors that were taken into consideration during the design of the website were the appearance and the structure of the site. An incremental model was used to design the site, an illustration of which is provided in Appendix D, p.D.1. This ensured that the client was satisfied with each and every structure and feature of the site.

Appearance of the Web Site

With the requirements agreed a suitable appearance of the site was necessary. The web site’s appearance had to resemble a professional site and the navigation had to greatly improve on the old web site. Each page had to be consistent with the next; for this reason a template was required. The following sections are present on the template:

- A header and footer section
- A navigation pane and breadcrumbs pane.
- Sidebars on either side of the main content.
- A blank space in the centre for the main content of each page.

A free template was downloaded from Allrounder.com. This template was selected after viewing many others as it is the most customisable and it is free. The club colours were selected as the main colour scheme. The template can be viewed in Appendix D, p.D.3. The client was provided access to the template to ensure that it was suitable. This template at this stage did not contain any content just blank sections which represented where certain aspects of content would reside. The client was pleased with the design of the web site although some minor changes were requested such as the text size and a slightly darker shade of green. These changes were completed to ensure that the client’s requirements were fulfilled.

The site can be broken down into the different sections of the template. The header contains a picture of the club, the club name and links to the clubs social networking sites. The footer is used to resemble the end of the site content. The footer contains a “scroll-up” feature to increase ease of navigation on long pages. Both the header and the footer have a gradient colour effect to appear more dynamic in comparison to solid colours.

The navigation pane remains static throughout all of the pages and displays the main pages of the web site. The navigation pane also uses dropdown menu features to increase navigation. A breadcrumbs pane located beneath the navigation pane shows the user what page they are currently on and how they got there.

The sidebars on either side of the main content contain different features. The features are the same for each of the main pages a weather forecast system, a display of the tide times
for the River Liffey, the member’s login form, a latest events module which exhibits the latest rowing events for the current month and a links section to relevant external web sites.

The main content of each page exists in the middle. The background of this section is white and the text is black. The text is Arial 12 point with 1.5 line spacing. The aim of this is to ensure that every visitor can read the text displayed on the site.

**Structure of the Web Site**

The structure of the web site was designed through the use of wireframes. Wireframes represent mock-ups of the intended design of the individual pages of the web site. The main pages are:

- Home Page
- About Neptune
- Prospective Members
- Visitors Area
- Function Room Hire
- Calendar
- Contact
- Members Area

A description of these individual pages can be found in section 2.3. A wireframe was created for each of the main pages of the web site, these are provided in Appendix D, p.D.4. These wireframes were produced and subsequently approved by the client before any of the web pages were actually designed.

The home page and the visitor’s page were created as static pages with the aim of directing the visitor to their desired page. Both contain links to the more important aspects of the site such as the prospective members form, hiring of the function room, latest news and the member’s area. Links are also present to the more formal pages such as the history of the club, an introduction to rowing and a list of the championship titles held by the club.

The member’s area, news section and latest events were designed to be the dynamic sections of the web site. These sections will contain regularly updated information to keep members and visitors updated. The member’s area was designed to be only viewable by members of the club and therefore a member’s login page was required.

### 3.3 Development

There were four main elements in creating the web site. These were identifying what software to use, installing the software, identifying and setting up several extensions that were incorporated into the site and creating content for the site.

**Software Used**

Initially the web site was to be created using Dreamweaver. Extensive amounts of HTML code had been created to develop the template and certain features of the web site. The
project supervisor recommended that a Content Management System (CMS) should be used instead as they provide the ability to change content quickly, integrate new features rapidly and provide dynamic content. After researching several CMS options it was decided that Joomla! was the most suitable as it is the most reliable CMS to use when hosting a web site on a Linux server.

CMSs have several advantages over web publishing softwares such as Dreamweaver. CMSs provide the webmaster quick access to the administrative backend which can be accessed through any web browser. This allows the webmaster to upload content quickly from any web enabled device thus making the web site more dynamic, as opposed to creating content in Dreamweaver where the software must be installed on the device and connected to an FTP user. Creating content through Joomla! is as easy as creating a word document whereas in Dreamweaver it is not as straightforward. One of the key advantages in using a CMS is the customisation that it allows. The customisation of a web site through a CMS is easy to control whereas in software such as Dreamweaver the user must have a certain amount of knowledge in coding.

Installation of the Software and Setup of the database
The Joomla! Content Management System (CMS) was used as a platform for the web site. The CMS was installed on a Linux server provided by Host Ireland with a MySQL 5.0.77 database. The MySQL database was setup to store the data for the site as well as the login extensions. The login extension required access to the database so as to store members’ information. The details of this table are outlined in Appendix D, p.D.8.

The CMS was initially installed into a subfolder of the old, then current, web site so that the club would have a web site while the new web site was being developed. When the web site was completed it replaced the old web site.

Extensions and Third Party Software Used
The web site makes use of several different extensions which Joomla! has to offer. These extensions come in the form of components, plugins and modules. Joomla! has pre-installed extensions as part of the core download which were also used. A list of the downloaded extensions that were installed on the web site are provided:

- Admin Tools: Provides an extra layer of security for the administrator area of the site and several other security features such as permissions configuration for the site.
- Akeeba Back-Up: This is configured to automatically back-up the site at the end of every month. Back-ups can also be performed whenever desired.
- All Videos: Enables videos to be displayed on the web site.
- BIGSHOT Google Analytics: Enables data on the site to be collected and analysed.
- Custom HTML: Enables for custom code to be created and placed on the web site.
- Encryption Configuration: Provides security for the web site by encrypting all information sent over the internet.
- Google Maps: Displays a map with the club set as the main location.
- JEvents: Provides the calendar and latest events features on the web site.
• KeyCAPTCHA: Ensures that spam bots do not gain access to sensitive information.
• Mad4Joomla: Used to produce the Prospective Members Form.
• Mod Login: Enables the use of a login form to access a restricted area.
• New High Lighter GK1: Displays a news reel on the site with current club news.
• Sigplus: Enables pictures to be displayed in a slideshow on the web site.
• Stalker: Provides a link to the social networking sites which Neptune uses.
• UK Tides: Displays the tide times for the River Liffey.
• Weather GK1: Provides a weather forecast feature for Dublin.
• XMap: Creates a HTML and XML sitemap for the site to make the web site search engine friendly.

All of these extensions were free and are accompanied by documentation. Many of these extensions required customization so that they would work on the web site. This involved editing the code of the extensions. The Custom HTML extension was used to create an erg calculator, through JavaScript, which can be used by members of the club. Illustrations of the Custom HTML, Mod Login and JEvents extensions are provided in Appendix D p.D.8. The code for the erg calculator is provided in Appendix E p.E.1.

Other, open source, third party software was used outside of Joomla!. Gimp 2 was used to edit several images for the site. Gliffy was used to create an initial design of the web site through wireframes, flow charts, site maps and sequence diagrams. The files for the web site were uploaded to the host server using the file transfer protocol (FTP) FileZilla Client. PHPMyAdmin was used to set up and administer the MySQL database.

Creating Content for the Web Site
Although it was not a requirement of the project, content had to be added to the web site before it went live. By adding content to the site the intended presentation and layout, which should be used for all content on the site, could be displayed to the client.

With respect to the anticipated amount of content to be displayed on the site only a minor amount of content has been added to the site. The intention is for more content to be created and submitted by authors of the site through the submission section in the member’s area. A description of an author of the site is provided in section 2.3.

3.4 Implementation and Testing

Uploading the Web Site to the Web Server
The web site was developed in a subfolder of the old, then current, web site. These files had been uploaded using the FTP FileZilla Client. To replace the old site with the new site the locations of both of the sites were changed. The new web site was moved from the sub folder /joomla15 to the root folder /www. Several changes had to be made to the configuration file to remove the link to the old location /joomla15 folder. Once these changes were completed the web site was successfully implemented in its new location as the main web site.
The files for the old web site were removed from the root folder due to complications with the Akeeba back-up extension. The old web site is now located outside of the root folder. A copy of this web site will be kept in this location in the event of old material being required.

Testing the Web Site
Throughout the development of the web site testing was carried out. This was to ensure that each individual feature of the web site was implemented correctly. The site was created on the server so whenever a change was made it was tested immediately by reloading the page. If any problem occurred it could be fixed straight away through the administrator area of the web site. By using an incremental model in the design and implementation phases of the web site it was carried into the testing phase. The web site was developed through four web browsers before it was hosted as the main site. This was to ensure that there were no major compatibility problems with any of the web browsers. The web browsers included, Internet Explorer 8, Google Chrome and Mozilla Firefox.

The site was tested on several web browsers to ensure compatibility over a wide range of web browsers. This was achieved by using an internet resource called Browsershots. Browsershots provides screenshots of the web design in different operating systems and browsers. The screenshots are made viewable to ensure that the site’s design is compatible over different operating systems and browsers. The test involved 36 different web browsers and of these 18 did not load properly. The 18 failed screenshots included obscure browsers and operating system, it should be noted that several of the identified web browsers and operating systems did eventually work in different combinations. The web browsers include Iceape, Kazehakase and SeaMonkey amongst others and the operating systems include several versions of Debian, FreeBSD and Ubuntu. The web site successfully loaded on all of the main web browsers such as several editions of Internet Explorer, Google Chrome and Mozilla Firefox. The test was a success as the web site loaded successfully on the main web browsers and several lesser known browsers on several different operating systems. Some of the screenshots that were taken are provided in Appendix D, p.D.1.

The upload time of the site was tested to ensure that the amount of time required for the site to load was not excessive. To test this a resource called Pingdom tools was used. Pingdom tools tests the load time of a web page. The test was carried out on the home page as this is the landing page for most if not all visitors of the web site. The test identified the total load time of the home page as 6.1 seconds. A common consensus on the average load time of a web page is that anything over 10 seconds will result in the loss of visitors to the site. The optimum load time is to have elements of the web page loaded within 3.5 seconds. A quicker load time can be achieved if the images of the club were removed from the home page but the client specifically requested that images of the club and Islandbridge be displayed on the home page. The load time of the site is acceptable as it is not excessively slow. An illustration of the results of the test is provided in Appendix D, p.D.11.

The testing of the web site included several minor tests. These tests involved checking all of the links which were posted on the site and checking that the web site could be viewed properly on several different screen resolutions. The testing of all of the links, both external
and internal, that are on the site was performed by using an online resource called w3c Link Checker. This resource checks all of the links on the site and ensures that none are broken. Once this test was successfully completed the next stage was to ensure that all of the links linked to the correct page. This part of the test was performed manually. A few errors occurred at this stage with some links loading the wrong page. These links were corrected and retested immediately to ensure that there were no bad links on the site. The other minor test was to ensure that the web site is viewable at different screen resolutions. This test was carried out by using a resource called Screen-Resolution which changes the screen resolution which is used to view the site. The optimum screen resolution to view the site was identified as 1280x800 pixels although the site can be successfully viewed at 1024x768 pixels. The latest statistics from w3c school’s on screen resolutions identifies that 57 percent of all internet users have a screen resolution above 1024x768 pixels and 36 percent have a screen resolution of 1024x768 pixels. This means that the web site is viewable by 93 percent of all internet users.

By creating the web site through Joomla! the site is meant to automatically achieve w3c validation. This was not the case and some alterations to the coding of the site had to be made. All of the main pages of the web site are w3c validated. An effort is currently being made to ensure that the entire site meets the w3c standards.

3.5 Problems Encountered

A number of problems were encountered when creating the web site. These problems are outlined in this section.

Initially there was a problem with the hosting of the web site. Neptune uses Host Ireland as its hosting service. A problem occurred whilst trying to upload an instance of Joomla! into a sub folder of the old, then current, web site during the development phase. An error had occurred during the creation of Neptune’s account with Host Ireland. The club had specified using a Linux server account option but the account was setup on a Windows server account. This resulted in a database error occurring as Joomla! cannot be installed on a Windows server. The problem was solved by contacting the hosting service. Sequentially the account was moved from the Windows server to the Linux server and a new database for the club was created. After this Joomla! was successfully uploaded to the web site.

A multitude of minor problems also occurred during the creation of the web site. These problems were mainly related to the implementation of the external extensions which are present on the site, a list of which is provided in section 3.3. A range of problems occurred with the implementation of the individual extensions. These problems included and were not limited to poor documentation or no documentation accompanying the extension, the requirement to change the setup of some of the extensions and sometimes the lack of external maintenance and support of extensions.

Some of the extensions had sufficient documentation and setup guides. In the event of the extension not having sufficient documentation or support an alternative extension was
resourced. With the wide-ranging extensions provided by Joomla! this was not a major issue. A replacement extension did not exist for two essential extensions that were required for the site. The UK Tide Times extension is the only one of its kind that allows Dublin tide times to be selected. The extension suffered a malfunction due to an incompatibility with the new 1.5 version of Joomla! as it was initially built for the 1.0 version. To resolve this issue the creator was contacted directly who then altered the extensions compatibility with the newer version of Joomla!. Another and as of yet remaining issue still exists with one extension, the Edocs document viewer. This extension is meant to make all types of documents from Word documents to PDF’s viewable on the web site. To date the extension still does not work and no suitable substitute has been found. Due to a lack of proper support and maintenance queries about the extension have not yet been answered. A possible solution to this problem is to create external links to the desired content. This would be a temporary solution as if the content is removed from the external site the link in the clubs site will be broken. Attempts to get the Edocs extension working on the site are ongoing.

Specific adjustments were required to setup certain extensions. These adjustments involved changing the permissions of certain files and directories or files being located in specific locations. An attempt was made to ensure that the site was completely inaccessible by external malicious third parties by blocking access through files and directories. This was achieved through the Admin tools extension which automatically configures all files and directories on the site to 644 and 755 permissions respectively. Some extensions required enhanced permissions to work correctly. The Sigplus image gallery extension required 777 permissions and for the image files to be placed in a specific location on the site namely, the images/stories directory.

3.6 Future of the Web Site

Over time the intention is for the web site to develop through the addition of more features and content. The hope is that the web site will be maintained and managed in a professional manner.

One initiative which is being developed by the club is the creation of a rowing camp during the summer. The aim is that this will increase participation in the sport and increase club membership. This camp will be advertised and also partly managed through the web site. The idea is that interested parties wishing to participate in the camp will be provided with the ability to book a place and pay for the camp online through the web site. To achieve this, new features and additional security will be required on the site. Currently the feasibility of this is being discussed within the club.

The more immediate initiatives intended for the web site include the introduction of more features which can be used by coaches to interact with the rowers in their squad, creating a news letter which will be distributed to current and past members, creating interesting and unique content for the site and maintaining the high standard of design and professionalism of the web site. Other features are currently being researched with the hope of implementation in the foreseeable future.
4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The most significant part of this project was to identify the client’s requirements and to design the website around these. This was the most time consuming aspect of the project but essential to ensure that the end result completely satisfied the client’s requirements. The requirements were identified through various meetings with the client and the supervisor and by researching content and features provided by other rowing clubs websites.

A fully operational and professionally designed website was constructed and designed which fulfilled all of the client’s requirements, it is located at www.neptunerowingclub.com. The website was created using an open source content management system, Joomla!, and several open source extensions that are provided through Joomla!. The website was designed so as not to require any financial investment by the club during development or in the foreseeable future. The only cost that Neptune will encounter is the annual hosting fee of the website.

The terms of reference that were agreed with the client were all completed successfully and the additional requirements were also successfully completed. The terms of reference for the project are provided in section 1.3.

This project has been challenging technically, creatively and academically. It has encompassed a wide range of the material covered in the Management Science and Information System Studies course and provided an education in website development and implementation.

A special member’s account has been setup so that the member’s area can be viewed:
Username: User
Password: Pa$$w0rd

This account will be deactivated on the 1st of September 2011. If access is required after this date the webmaster should be contacted to request reactivation of the account. The webmaster can be contacted at neptunerowingclub.webmaster@gmail.com.

4.2 Recommendations

The following is a list of recommendations for the upkeep and maintenance of the website:

Content
In order for the site to be successful, unique and interesting, content must be presented to the visitor in an exciting and straightforward manner. As stated earlier, content is what makes a website what it is. It is the reason why people will visit the website and continue to come back. The layout of the content should be copied from the current content to ensure consistency. The layout refers specifically to the text being Arial 12 point with 1.5 spacing.
An effort must be made to ensure that all new content that is added to the site meets these requirements. Details of how to add new content to the site is provided in Appendix C, p.C.15.

**Design**
The design of the web site should be maintained as it represents the club in a professional manner. The design of the web site is an essential key to its success. All visitors to the web site will judge the site immediately with regards to its design before noticing the content. All changes that are made to the design of the web site should be made consistently to ensure that one overall design is used.

**Events, News and Members Notice Board**
All of the content in these individual sections should be updated regularly as they represent the dynamic aspects of the site. Details of how to do this can be found in Appendix C, p.C.13.

**Members**
Members’ information and details should be kept up to date and secure. New members of the web site should be granted access to the member’s area in a timely manner. If a member leaves the club they should be removed from the members list. Instructions on how to perform these tasks can be found in Appendix C, p.C.5.

**Photos and Videos**
Photos and videos that are hosted on the site should be compressed to minimise the file size and should be uploaded in the appropriate manner. Details of how to perform this is provided in Appendix C p.C.12.
NEPTUNE ROWING CLUB
Create a Web Site and Database for Neptune Rowing Club

Appendices
## APPENDICES

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### GLOSSARY OF TERMS USED

### REFERENCES
APPENDIX A – ORIGINAL PROJECT OUTLINE

Client: Neptune Rowing Club

Project: Improve the functionality of the current website and make a database of members

Location: Long Meadows, Islandbridge

Client Contact: Desmond O’Hara, Secretary of Neptune Rowing Club

School Contact: Rozenn Dahyot

Client Background:
Neptune rowing club is one of the most successful rowing clubs in Ireland. It was founded in 1908 and is one of two clubs in Dublin which is not affiliated to an institution. The club also has a bar and function room which can be rented to both members and non members of the club.

Project Background:
At present Neptune does have a website, www.neptunerowingclub.com, but it lacks functionality and purpose. The website is not fully utilised by the club and the layout could be greatly improved. The club currently maintains all member information on paper or in excel spreadsheets. This is not ideal and a database could be used to replace this outdated system. The function room and bar lacks any advertising on the webpage.

Client Requirement:
The website requires:

- A dedicated members area where members could maintain training information (ergo scores, weights etc.), view technique videos along with videos of sessions.
- Advertising of the bar and function room such as a virtual tour of both the bar and function room.
- A better layout and ease of navigation.

The database requires:

- A current list of club members containing information such as racing level, emergency contact details, any medical problems, number of races won and a picture of the member.
- Historic data of past members should also be added to the database for fundraising purposes.
- A separate part of the database could look after the booking of the function room.

The above is a rough outline of what the client requires at this time. The requirements of the client are likely to change throughout the project by adding different functionality to the website and database.
What is involved for the student?
This project will involve changing the current website and making enhancements to it. A database will also be setup to maintain information of current and past members.
APPENDIX B – INTERIM REPORT

Management Science and Information System Studies

Project: Create a website and database for Neptune Rowing Club
Client: Neptune Rowing Club – Mr. Desmond O’Hara
Student: Neil Brett
Supervisor: Rozenn Dahyot

Review of Background and Work to Date
The current website for Neptune Rowing Club is disorganised, unprofessional and outdated. The website can be viewed at: www.neptunerowingclub.com. The new website will address the above issues whilst adding purpose, functionality and navigability. The new website is currently under development and can be viewed at the temporary location: www.neptunerowingclub.com/joomla15. Currently, there is no database to maintain information of current or past members of the club. All of this information exists in hardcopy only.

The website is being built using Joomla!, which is a free open source Content Management System. Joomla! was selected due to its user friendly administrator panel, extensibility and its coding conventions. A SQL database will be created in connection with the website to store member information.

Terms of Reference
A website which will act as a resource to Neptune Rowing Club’s initiatives and general club development. The website needs to be able to run on a Linux server.

The website will cater to three main users namely the members, visitors and administrators. Visitors will be able to explore the site apart from the member’s area. Current members of the club will be granted access to a restricted member’s area through a login. This area will contain information relevant to club members.

Two different types of administrator accounts will be created. One which will have complete privileges within the administrator console, effectively the webmaster, the second type will be a ‘Manager’ which enables the user to become a content manager for the website.

Further Work
- Develop and test the website
- Ensure that the website meets w3c regulations
- Creation of the database
- Creation of technical documentation

The usage of the website will be monitored in order to track its adoption by users.
Conclusions
The Joomla! CMS system has been successfully installed on Neptune’s server located at: www.neptunerowingclub.com/joomla15

The website will be developed using a user centred design focusing on both members and non-members needs’ through an incremental model.
APPENDIX C – USER MANUAL

The user manual for the Neptune Rowing Club Web Site is attached as a separate document. It contains detailed instructions on how to use the system.
The following graphics accompany section 3 of the report.

FIGURE D.1 – Incremental model that was used to design, develop and test the web site.

The incremental model was used to design, develop, implement and test the web site. This model was selected as it ensures that the client’s requirements are met at each stage therefore satisfying the client’s requirements.

The incremental model combines the elements of the waterfall model and the philosophy of prototyping.
Provided is a screenshot of the old Neptune Rowing Club's web site. The web site appears amateur and unprofessional. The navigation only exists on the sidebar and there is no indication of which page the viewer is currently on. The main content of the home page appears cluttered and does not provide a new visitor to the web site much information with regard to the club.

The design of the web site is poor and unimaginative. The web site used three different frames and several tables to hold content and images in the web site. This is now an outdated technique for building and maintain web sites.
FIGURE D.3 – Template design for the web site.
FIGURE D.3 – Wireframe of the Home Page

1. Displays the club logo
2. Displays the clubs name
3. Members login area requires a valid username and password

FIGURE D.4 – About Us Page wireframe

1. A brief history of the club with pictures of the clubhouse
2. A List of the championship wins
3. Hall of fame of rowers from Neptune
FIGURE D.5 – Wireframe for Prospective Members Page

FIGURE D.6 – Visitors Area Wireframe

1. Provides a map of where the club is
2. Useful information for the visitor
FIGURE D.7 – Function Room and Bar Hire Wireframe

1. Directions on how to get to the club
2. Contact information which allows the visitor to get in touch and potentially book the club function room
3. A virtual tour of the club along with photos to show the club to potential customers

FIGURE D.8 – Wireframe for the Calendar Page

1. Displays a calendar that will show races and club events throughout the year
2. Provides a description of the event and some information about it
FIGURE D.9 – Contact Page Wireframe

1. Dedicated email addresses for each of the positions mentioned above

FIGURE D.10 – Wireframe for the Members Area Page

1. The member can make a selection of any of the options
2. The selected option will be displayed in the main area of the page
3. Log out button
TABLE D.1 – “jos_users” Table in MySQL database

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>db_fullname</td>
<td>Varchar(255)</td>
<td>Members Fullname</td>
</tr>
<tr>
<td>db_username</td>
<td>Varchar(255)</td>
<td>Members Username</td>
</tr>
<tr>
<td>db_email</td>
<td>Varchar(255)</td>
<td>Member Email address</td>
</tr>
<tr>
<td>db_password</td>
<td>Varchar(255)</td>
<td>Members Password</td>
</tr>
<tr>
<td>db_verifypassword</td>
<td>Varchar(255)</td>
<td>Verification of Password</td>
</tr>
</tbody>
</table>

FIGURE D.11 – Screenshot of the erg calculator that is displayed on the site.
The registration shows all of the information that is required by the member to create an account with the site. The location of the extension and the login section is also displayed. For security purposes the KeyCAPTCHA extension was added to the form.
FIGURE D.13 – Screenshot of the Calendar that is provided through the JEve‌nts extension.

The JEve‌nts extension displays all of the current club events, general events and races that are up coming in the next month. Different colours are used to display the different categories of events. The extension has a display feature on all of the pages which can be seen in the top left corner. The calendar can be used to get an overview of the events throughout the year.
FIGURE D.14 – Sample results from Browsershots

This screenshot that is provided by Browsershots shows only the first page of results from the test. It is clear that some combinations of the less known browsers and operating systems are not compatible with the web site.

FIGURE D.15 – Part of the result output from Pingdom tools.
APPENDIX E – SAMPLE OF SOURCE CODE

A sample of the source code in the form of the code that is used to create the erg score calculator is provided in this section.

<B>Erg Score Calculator</B>

<FORM><INPUT TYPE=button VALUE="   Split    " OnClick="ergsplit(this.form)"
Split Time
<INPUT TYPE=TEXT NAME=split_min SIZE=2>
: <INPUT TYPE=TEXT NAME=split_sec SIZE=6> sec /500m

<BR>
<BR><INPUT TYPE=button VALUE="Distance" OnClick="ergdistance(this.form)"
Distance
<INPUT TYPE=TEXT NAME=distance SIZE=11>m
<BR>
<BR><INPUT TYPE=button VALUE="    Time   " OnClick="ergtime(this.form)"
Total Time
<INPUT TYPE=TEXT NAME=time_hr SIZE=2>
hours <INPUT TYPE=TEXT NAME=time_min SIZE=2>
mins <INPUT TYPE=TEXT NAME=time_sec SIZE=4>
secs <BR><BR>

<INPUT TYPE=button VALUE="Clear All Fields"
OnClick="reset(this.form)"
</FORM>

<SCRIPT LANGUAGE="JavaScript">
<!--
function reset(form) {
    form.split_min.value=""
    form.split_sec.value=""
    form.distance.value=""
    form.time_hr.value=""
    form.time_min.value=""
    form.time_sec.value=""
}

function HelloJavaScript() {
    alert("You have JavaScript!")
}

function ergdistance(form) {
    var th=0, tm=0, ts=0, sm=0, ss=0, dis=0
    if (form.time_hr.value.length==0) {
        form.time_hr.value = 0
    }

</SCRIPT>
if (form.time_min.value.length==0) {
    form.time_min.value = 0
}
if (form.time_sec.value.length==0) {
    form.time_sec.value = 0
}
if (form.split_min.value.length==0) {
    form.split_min.value = 0
}
if (form.split_sec.value.length==0) {
    form.split_sec.value = 0
}
if ((form.time_hr.value==0
    && form.time_min.value==0
    && form.time_sec.value==0)
    || (form.split_min.value==0
    && form.split_sec.value==0)) {
    alert("Cannot calculate when the" +
    " Split or Total times are Zero!")
}
else {
    th = 1*form.time_hr.value
    tm = 1*form.time_min.value
    ts = 1*form.time_sec.value
    sm = 1*form.split_min.value
    ss = 1*form.split_sec.value
    if (th>=24 || th<0 || tm>59
        || tm<0 || ts>59 || ts<0
        || sm>=60 || sm<0 || ss>=60
        || ss<0 ) {
        alert("Check your Time values: Hours 0-23," +
        " Minutes 0-59, seconds 0-59")
    }
    else {
        ss = ss + (60*sm)
        ts = ts + (60*tm) + (60*60*th)
        dis = (ts/ss) *500
        form.distance.value = dis
    }
}
}

function ergsplit(form) {
    var ts=0, ss1=0, ss=0, sm=0
    if (form.time_hr.value.length==0) {

```javascript
form.time_hr.value = 0
if (form.time_min.value.length==0) {
form.time_min.value = 0
}
if (form.time_sec.value.length==0) {
form.time_sec.value = 0
}
if (form.distance.value.length==0) {
form.distance.value = 0
}
if ((form.time_hr.value==0
&& form.time_min.value==0
&& form.time_sec.value==0)
|| (form.distance.value==0)) {
alert("Cannot calculate when the "+
"Distance or Total time is Zero!")
}
else {
  ts = (form.time_hr.value*3600)
+ (form.time_min.value*60)
+ 1*form.time_sec.value
  ss1 = 500*(ts / form.distance.value)
  sm = Math.floor(ss1/60)
  ss = ss1 - (60*sm)
  form.split_min.value = sm
  form.split_sec.value = ss
}

function ergtime(form) {
  var tm=0, ts=0, th=0, ts1=0, ss=0
  if (form.split_min.value.length==0) {
    form.split_min.value = 0
  }
  if (form.split_sec.value.length==0) {
    form.split_sec.value = 0
  }
  if (form.distance.value.length==0) {
    form.distance.value = 0
  }
  if ((form.split_min.value==0 &&
    form.split_sec.value==0)
  || (form.distance.value==0)) {
    alert("Cannot calculate when the"
    +" Distance or Total time is Zero!")
}}
```
```javascript
else {
  ss = (form.split_min.value*60) + 1*form.split_sec.value
  ts1 = ss * ((1*form.distance.value)/500)
  th = Math.floor(ts1/3600)
  tm = Math.floor((ts1 - 3600*th)/60)
  ts = ts1 - (3600*th) - (60*tm)
  form.time_hr.value = th
  form.time_min.value = tm
  form.time_sec.value = ts
}

if (form.distance.value.length==0 || form.split_min.value.length==0 || form.split_sec.value.length==0) {
  alert("Please complete the Split " +"Time and Total Time fields first.")
} else {
}
```

<br><b>Instructions</b><BR><BR>
Fill in the fields above, leaving out the value you want to calculate. Then click the appropriate button.
For example, if you want to know what average split you would need for a 6:04 2k test, enter 2000 in the <i>Distance</i> field, 0 in the <i>hours</i> field, 6 in the <i>mins</i> field and 04 in the <i>secs</i> field. Then just click the <i>Split</i> button and the split of 1:31 pops up.
GLOSSARY OF TERMS USED

CMS
A content management system is an open source system which is designed to simplify the publication of web content to web sites.

CSS
Cascading Style Sheets is a style sheet language to present the style of web pages written in HTML.

Erg
Erg is the common term that is used by rowers to refer to a land based rowing machine that is used for training purposes.

FTP
File Transfer Protocol is a standard network protocol that is used to copy a file from one host to another.

Host
Is a computer with a web server that serves the pages for one or more web sites.

HTML
Hypertext Mark-up Language is a computer language devised to allow web site creation.

MySQL
Is a relational database management system that runs as a server providing multi-user access to a number of databases.

NRC
An abbreviation for Neptune Rowing Club

PHPMyadmin
Is an open source tool intended to handle the administration of MySQL over the internet.

PHP
Hypertext Preprocessor is a computer language that has been developed for web development to produce dynamic content. PHP code is embedded into HTML source code.

URL
A Uniform Resource Locator specifies where an identified resource can be found. In this case that the Neptune Rowing Club Web Site is located at www.neptunerowingclub.com.
REFERENCES

St. Michael’s Rowing Club – http://www.smrc.ie

Queens Boat Club – http://www.queensrowing.org

Garda Boat Club – http://www.gardarowing.com

Trinity Boat Club – http://www.boat.tcd.life.ie

Yale Boat Club – http://www.yale.edu/rowing

Harvard Boat Club – http://www.hcs.harvard.edu/~harvcrew/Website/


Pingdom tools – http://www.tools.pingdom.com

Browsershots – http://www.browsershots.org

w3c Validator – http://www.validator.w3.org

Screen Resolution – http://www.screen-resolution.com

Chromatic “12 Steps to Creating a Professional Web Design” – http://www.chromaticsites.com


Joomla! extensions – http://extensions.joomla.org/
APPENDIX C – USER MANUAL FOR WEB SITE

NEPTUNE ROWING CLUB
Create a Web Site and Database for NRC
28th March 2011

Prepared By: Neil Brett          Supervisor: Rozenn Dahyot
NEPTUNE ROWING CLUB
Create a Web Site and Database for Neptune Rowing Club

28th March 2011

APPENDIX C

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</table>
C.1 Introduction

This user manual accompanies the full project report entitled “Create a Web Site and Database for Neptune Rowing Club”. The purpose of this manual is to provide the client an overview of the developed system and to explain how to use, update and maintain the system.

This manual will cover basic site usage such as navigation of the site. The manual will also explain how to use the more interesting features of the web site, such as the member’s login area, the prospective member form and the JEvents component. An explanation of how the Admin area of the web site operates will also be provided.

C.2 Basic Site Usage

The web site is located at www.neptunerowingclub.com.

Navigation
The web site is designed to be user friendly and inviting. The web site is divided into eight main sections, which have subsections within:

- **Home Page**: the landing page for all visitors and members. It is designed to be user friendly with an emphasis on being clutter free. The home page provides links to other pages on the web site.
  - *Subsections*: Championship Wins, Prospective Members Form, How to Find Us, Function Room Hire, Members Login Area and the News Reel.

- **About Neptune**: provides a small history of the club and the current state of the club. In the main navigation bar this option contains a dropdown menu with links to the How to Find Us page and the Championship Wins.
  - *Subsections*: Championship Wins, How to Find Us, Members Login Area and the News Reel.

- **Prospective Members**: provides information to visitors who would like to join the club. A link to the Join Neptune page is provided through the dropdown menu on the main navigation bar which sequentially links to the Prospective Members Form. A separate menu linking to several other pages is provided in this section.
  - *Subsections*: Intro to Rowing, Training for Rowing, Racing Season, Rower or Coxswain, Join Neptune, Prospective Members Form, Members Login Area and the News Reel.
• **Visitors Area:** this acts as a landing page for visitors to the web site. It is designed to orientate the visitor to several of the different pages that might interest them.
  o **Subsections:** Prospective Members Form, Contacts Page, Prospective Members Page, How to Find Us, Function Room Hire, Members Login Area and the News Reel.

• **Function Room Hire:** this section provides information and images with regard to the hiring of the function room.
  o **Subsection:** How to Find Us, Contacts page, Members Login Area and the News Reel

• **Calendar:** this is a calendar which displays all of the rowing, club and general events. A dropdown menu provides a link to the Events List page which displays all of the events without the display of a calendar.
  o **Subsections:** Each event is linkable to its own individual page with details of the event, Events List, Members Login Area and the News Reel.

• **Contact:** this section provides all of the contact information for the club.
  o **Subsections:** Each contact links to details of that contact and the ability to email the contact from the site, Members Login Area and the News Reel.

• **Members Area:** this section is designed for members only. It is accessible through the member’s login form which is provided on all of the pages.
  o **Subsections:** Club Notice Board, Erg Calculator, Training Programs, Technique Area, Videos & Photos, Safety, Archived Content, Content Submission and the News Reel.

Each page of the web site has a similar layout with little variation. An illustration of a typical page layout is provided in Figure C.2.1. The common features include:

- A header and footer section
- A navigation pane and breadcrumbs pane.
- Sidebars on either side of the main content.
- A blank space in the centre for the main content of each page.

All of these features are constant throughout the site. The only difference is that on two of the main pages, namely the prospective members page and members area, a new menu will appear as the first item on the left sidebar. The navigation menus on the web site have been designed with the ideas of universal navigation, placement consistency and feedback on location in mind. For a description of each of these refer to section 2.1 of the main project.
Use of Menus

The menus work in the same manner as on any other web site. The desired page can be reached by selecting the name of the page in all of the menus. The main navigation is presented in Figure C.2.2.

FIGURE C.2.2 – Image of the main navigation bar with a display of the dropdown menu.
C.3 **Members Login Area**

The member’s area is designed to be accessible to only members of the club. The member’s area can be accessed through the member’s login form, Figure C.3.1 provides a close up of the form. The form is present on all of the main pages of the site. Figure C.2.1 provides an illustration of the member’s area.

**General Use**

The member’s area is only accessible to members of the club. It contains information and features which members of the club should only have access to. These features include:

- The Club Notice Board which the member is redirected to once they login successfully.
- The Erg Calculator which members can use to determine their erg scores given certain information.
- Several Training Programs which the club uses.
- A Technique Area that members can use to ensure that they are practicing the correct technique.
- Videos and Photos of Neptune crews.
- Safety measures that all members of the club should be aware off.
- Archived content and Content Submission features are also located in this area.

**How to create an account**

Members of the club can create an account on the web site by using the member’s login form. Figure C.3.1 provides a close up of the login form and identifies its several features. An account can be created by selecting the “Create an account” option.

![Members Login Form](image)

**FIGURE C.3.1** – A close up of the members login form.
The member will then be redirected to the registration form page, an illustration of which is provided in Figure C.3.2. Members who wish to gain access to the member’s area are required to fill out the registration form. All of the member’s information is stored in a secure encrypted database on the site. The KeyCAPTCHA feature at the end of the form is used to prevent spam bots from gaining access to the site.

Upon completion of the registration form the member and the webmaster are emailed a verification link which both must activate before the member is granted access to the site. The full process is detailed in section 2.3 of the main report.

![Registration Form](image)

**FIGURE C.3.2** – Illustration of the members area registration form.

### C.4 JEvents Component

The JEvents feature is open to all visitors of the web site. The JEvents feature consists of the Calendar and the “Latest Events” section. Currently there is only one calendar on the
web site with three different categories of events. The three categories include club events, races and general yearly events.

General Use
The JEvents component is used to maintain and display the calendar that is hosted on the web site. The calendar provides a short list of the events for the upcoming month and displays them on each of the main pages in the “Latest Events” section. Each of the events are linked to information regarding that event. A screenshot of the JEvents calendar is provided in Figure C.4.1 and a close up of the Latest Events section is provided in Figure C.4.2.

The aim of this feature is to keep members informed about upcoming club events and races. The calendar contains additional features which enable the user to print the calendar or email it. Additional views of the calendar are provided, either by year, by month, by week or just by today’s events.

FIGURE C.4.1 – An illustration of the calendar which is provided on the web site.
Admin
Once logged into the administrator backend, see section C.6 for details, the administrator of the web site can alter all features of the JEvents component. These features include the configuration and setup of the calendar and managing events in the calendar.

Configuration and setup of the calendar
The administrator has complete control over the configuration and setup of the calendar. The component can be configured by selecting it in the “Components” tab which is located on the navigation bar of the control panel, Figure C.6.1 provides an illustration of the control panel. The administrator is then directed to the control panel of the JEvents component. From here the entire component can be configured and setup to the required specification. The “Configuration” button provides the administrator with an array of setup options. A few of these options include the template to use, the date and time format, the permissions for the component and the setup of the Latest Events module. The calendar is completely customisable in nearly every respect.

Manage events in the calendar
To add an event to the calendar the “Manage Events” button should be selected. In this area of the component all of the events that are part of the calendar are listed, Figure C.4.3 provides a partial representation of the layout. To add a new event the administrator can select “New” which is located in the top right hand corner of the page. From here the administrator will be presented with a page containing two tabs, one named common and the other named calendar. The common tab requires the administrator to provide information on the event such as its name, a description of the event and which category it belongs to. The calendar tab requires the administrator to fill in information with regards to the date and time of the event. Figure C.4.4 provides an illustration of the creation of a new event. It clearly displays the two different tabs and the required information for the calendar tab.
Prospective Members Form

The prospective members form is a feature that is provided on the web site with the aim of attracting new members to the club. The form is located in the Prospective Members section of the site.

General Use
The form is intended to be used by prospective members of the club. The aim of the form is to provide the first step in recruiting new members to the club. The form requests the user to supply some information with regard to their rowing capabilities, general fitness and basic information. Upon completion of the form the information is sent onto the webmaster of the
site. From here the webmaster is encouraged to reply to the prospective member, within two to four days, with relevant information regarding the particular prospective member. Figure C.5.1 provides a screenshot of the prospective members form.

The form displays the range of different question types that can be used on the form, text fields, radio buttons, check boxes, text areas and list boxes. The form is designed to gather as much essential information from the prospective member in the most efficient way. Help bubbles are provided for each question in the event of the user being confused. The form contains a KeyCAPTCHA feature to ensure that an actual person is filling out the form and not a spam bot.

![Screenshot of the prospective members form.](image)

**FIGURE C.5.1** – Screenshot of the prospective members form.

**Admin**

Once logged into the administrator backend, see section C.6 for details, the administrator of the web site can alter all features of the Mad4Joomla component. The administrator can edit existing forms and create or remove forms.
Edit Forms

The component can be configured by selecting it in the “Components” tab which is located on the navigation bar of the control panel, Figure C.6.1 provides an illustration of the control panel. The administrator is then redirected to the control panel of the Mad4Joomla component, Figure C.5.2 displays a screenshot of the control panel. From here the administrator has complete control over all aspects of the component. Editing the current forms can be achieved by selecting the “Templates” button, which is located in the top left hand corner. From here a list of templates for each of the forms is provided. The template is where the layout and the questions are created for each form. To edit a form the “Edit” button, which is represented by a pencil and located on the right hand side, of the desired form should be selected. This will direct the administrator to a display similar to that shown in Figure C.5.3. From here all aspects of the questions on the forms can be altered.

![Admin Buttons](image1.png)

**FIGURE C.5.2** – Mad4Joomla component.

![Forms](image2.png)

**FIGURE C.5.3** – Edit template of the form.
Create/Remove Forms
To create a new form the administrator must first create a new template. The template of the form is where all of the questions and the layout of the form are created. A new template can be created by selecting the “Templates” button in the control panel of the component, represented in Figure C.5.2. After creating and saving the template a new form must be created to display the template. The “New Form” button which is located in the top right hand corner of the control panel enables the administrator to achieve this. To create the new form the desired template must be selected and certain information such as the title and the email recipient of the forms of the form must be provided.

C.6 Admin Area

Only the webmaster can access the administrator area of the web site. The reason for this is to ensure that the site remains secure and in control of the webmaster at all times. The admin area of the web site can be accessed by entering the following address into any web browser www.neptunerowingclub.com/administrator. Upon entering this address a username and password are required. Once entered successfully the administrator is redirected to the admin area of the site where they are requested to enter another username and password. Initially only one username and password were required to enter the site but to increase the site security it was agreed that an extra layer of security would be required.

Once both layers of the security are passed the administrator is granted access to the control panel of the site. It is from here that the entire site is controlled. Figure C.6.1 provides a visual representation of the control panel. A list of different options are open to the administrator such as the “Media Manager”, “User Manager”, “Article Manager”, and the “Global Configuration”. On the main navigation pane there are also options to manage the plugins, components and modules most of which can be managed in the “Module Manager” option. Each of these individual options will be explained in this section.
Media Manager
The media manager is used to control all of the photos and videos which are on the site. It links directly to the /images folder of the web site. The administrator can upload images or videos from any location through this area. For security reasons the site’s FTP username and password are required before doing so.

How to upload images/videos to the site
Images and videos can be uploaded to the site without an FTP client although one can be used if it is the preferred method.

To upload content to the web site the administrator must identify the folder where the content is to be uploaded to. It is recommended that content is stored in the /images/stories directory as this is where most extensions will expect them to be stored. Once an ideal location has been selected the required file to be uploaded must be selected. This is achieved through the option “Upload file” which is located at the end of the page. Once the required file is selected it can then be uploaded. Figure C.6.2 provides a visual representation of the user manager page.

Note: It is recommended that all content be stored in the correct folder and in the /images/stories directory.
User Manager

The user manager is used to control all aspects of members of the site. It contains a list of all of the members of the site. From here the administrator can delete a member, upgrade a members level or see how many times the member has visited the site.

Once in the “User Manager” area the administrator is presented with a list of the members of the site, their usernames, whether they are currently logged in or not, whether their account is enabled and which group they belong to. An illustration of this is presented in Figure C.6.3.

How to remove a member

A member can be removed from the web site by simply disabling their account. This will not allow the member to access the registered areas of the site. To delete a member's information completely from the site the member must first be selected by checking the checkbox beside the members name and then the “Delete” button must be selected. The “Delete” button is located on the main panel in the top right hand corner. Once selected the members information will be deleted from the site and the database.
How to upgrade a member

There are several different levels of user that are provided. They all enable the user to perform different actions on the site. On this web site there are only three types of user. These are public users; which includes all visitors to the site, registered users; which refers to members of the site who have been granted access to the member’s area of site and “Author”; those who are registered members who can submit content to the site. The privilege of being an “Author” on the site is reserved for committee members and coaches within the club.

A member’s level can be upgraded by firstly entering the “User Manager” area and then selecting a specific member. The administrator is then provided with information regarding this member only, Figure C.6.4 provides a visual representation of the information that is provided. The member can be upgraded to “Author” level by simply selecting the option which is provided in the text area. Once this page is saved the information and new member level will be enabled.

NOTE: It is strongly recommended that registered members are only upgraded to “Author”. No further privileges should be granted to a member on the site.

![Possible Levels](image)

FIGURE C.6.4 – An individual’s user details.

Article Manager

In Joomla! all of the content is created through articles. These articles are then sorted by section and then by category. This method ensures that all of the content on the site is organised in a proper fashion. In this section the administrator can create an article and unpublish or delete an article.
How to create/delete an article
Once the article manager has been selected the administrator is presented with a list of all of the articles which were created for the site. To create an article the administrator can select the “New” button which is located in the top right of the page. The administrator is then presented with some options such as identifying the title of the article, the section which it relates to and the category. A large blank area is also provided where the article can be written. The appearance is somewhat similar to a text editor and can be used in a similar fashion to Microsoft Word. Alternatively the administrator can create the content for the article in an independent text editor such as Word and copy and paste the text into. Once the article has been created it should be saved where it will join the rest of the articles in the list.

What determines where the article is located depends on the section and the category that are selected. The names of the sections and categories are clear to avoid confusion. For example, to place an article into the news reel, the club notice board section should be selected and one of the four categories in this section, club news, club functions, rowing news and misc notifications.

The administrator can also delete articles. To do so the administrator can either un-publish the article or completely delete it. The option to do both requires the administrator to be in the article manager page where the list of articles resides. The desired article must be selected by checking the check box and either the un-publish button or the delete button can be selected. Figure C.6.5 provides a visual representation of the article manager area.

Note: It is recommended that old articles are moved to the archive section of the site. The option to do so is located alongside the delete and un-publish button.

Global Configuration
The global configuration option provides the administrator with additional information on the web site such as its meta data, its search engine options, the allowable image/video file extensions and information with regards to the sites database and server. All changes in any of the fields of this option could result in the failure of the site. To make any changes in this area the FTP username and password are required. This feature was added to ensure security of the site.
Note: Any change in the global configuration settings of the site could cause the site to fail. This area should not be accessed unless necessary and even so it is advised that a backup of the site files be made before doing so.

Module Manager
This is an important section for the administration of the site as it is where all of the modules are managed. Modules are small content items that can be displayed anywhere depending on the template design. All of the content that is located on the sidebars of the site are modules. Modules can be downloaded from the Joomla! web site and added to the site.

The module manager option is located in the “Extensions” tab on the main navigation bar. In this section all of the modules that are present on the site are listed. Information on all of the modules are provided such as the name of the item, its position and the pages which it is published.

How to add/remove a module
The administrator can add or remove any module on the web site. To add a new module to the web site the “New” button on the top right of the section should be selected. Once selected a list of the possible modules that can be installed on the site is provided. The desired module should be selected and the required fields should be filled in. Each module will have different parameters but the common parameters include the title, position and which pages it will be viewable on.

To remove a module from the site the administrator can either un-publish it or delete it. Either can be achieved by checking the checkbox of the desired module and selecting the option to either delete or un-publish on the top right of the module manager section. Figure C.6.6 provides a visual representation of the module manager section.

FIGURE C.6.6 – Representation of the module manager section.
How to install/uninstall an extension

Many extensions have been created for Joomla! built sites. Joomla! extensions are any templates, modules, components or plugins that extends the Joomla! installation. Some of these extensions are free, others are not. All of the extensions that have been placed on this site are free.

To install an extension, the desired extension has to be downloaded to the computer. After this has been done the “Install/Uninstall” option on the “Extensions” tab is selected. This provides the administrator with an option to select the desired file for uploading to the site. The administrator is required to submit the FTP username and password for the upload to be successful. An extension can also be uninstalled in this section in the same fashion.