Tennis Club Application

System Concept

Develop a system for a tennis sports club that provides both desktop and web facing interfaces taking into consideration human, aesthetic and ergonomic aspects that will make the system a workable one for all who will use it. The system will assist in keeping a record of activities of members at the club.

On the system's desktop facing interface, the interface shall allow users to subscribe for membership, when a subscription has been approved, it shall allow a registered member to login, view, update, and delete their membership details; the interface shall allow registered members to create, view, update, and delete their weekly plans; it shall allow consultants (both Junior and Senior) to view, update, and delete membership details, with exception functionality for Senior consultants to also approve memberships, create consultant accounts, and updating consultant account rank. Consultants are also allowed to generate daily membership reports; and finally the system shall provide an option to redirect all users to the tennis club web-facing interface, allow logout and/or exit the application.

On the web facing interface, the system shall allow only registered tennis sports club members and club management access to its resources. It shall allow registered members to log in, access home page, view and update their account details, view announcements, and then logout; allow junior consultants to login, access home page, view announcements, and then logout, and finally allow senior consultants to login, access home page, view and post multimedia announcements, and then logout.

Opportunity

The system has been developed to model a simple database driven customer facing application.

The desktop-facing interface is designed in order to effectively handle membership subscriptions; allow subscribers the convenience of handling the subscription process themselves, and registered members to handle their membership functions. It also has the

role of enforcing implicit relationships between registered members and consultants, while at the same time it allows consultants to perform their functions on the system.

The web-facing interface of the platform is there to provide registered members an extra platform where they can make sure their information is always accurate, in addition, a platform to disseminate day-by-day club announcements.

System Actors

Registered Member – who on the desktop-facing interface will first use the system as subscribers, and then after having their membership approved, will use the system as registered members. On the web-facing interface, these actors will use the system to login, view and update their membership account details, and view Announcements.

Junior Consultant – who on the desktop-facing interface will be able to perform with restrictions many but not all functions in the system – these being to: login, view, update, delete membership details; view, update, and delete user-specific consultant account; view reports, and access the web-facing interface. On the web-facing interface of the system, these actors will be able to login, view announcements, and logout.

Senior Consultant – who on the desktop-facing interface is granted almost all the privileges on the interface except for member weekly planning functionality, whereas on the web-facing interface they will be able to login, post and view announcements, and logout.

System Capabilities

Desktop-facing Interface

The system connects to the database to:

■ Allow users to subscribe for membership offered by the tennis sports club. When a subscription has been approved, the subscriber can login as a member. The system allow members to update, delete, and view membership account information / details that pertain to each member, allow members to create, view, update, and

- delete their weekly plans, and finally offer a menu option to redirect a member to the web-facing interface of the system.
- Allow junior consultants to login and grants them rights to update, delete, view membership details, and view membership report. Junior consultants are also allowed to view, delete, update their personal consultant account details, although they cannot update their rank as a junior consultant, and lastly a menu option to redirect a junior consultant to the web-facing interface of the system is offered.
- Allow senior consultants to login, approve membership, view, update, delete membership details and view membership report. They're also granted rights to create, view, update, and delete consultant accounts, and are offered a menu option to redirect to the web-facing interface of the system.

Web-facing Interface

The system connects to the database to:

- Allow registered members to log into the system, provide them with a menu suitable for member functions of viewing their membership account details, performing updates on their membership account details while at the same time validating the update inputs, viewing posted multimedia announcements, and logging out.
- Allow junior consultants to login, provide them with a menu suited for their actions in the web-interface—actions of viewing posted multimedia announcements, and logging out.
- Allow senior consultants to login, provide them with a menu suited to performing their functions of posting multimedia announcements, viewing posted multimedia announcements, and logging out.

Legal Feasibility

The System is subject to Protection of Personal Information Act (POPIA) – to ensure system users (both members and consultants) personal details are treated in a legitimate and respectful manner. The Protection of Personal Information Bill states that personal information must be used for explicitly-defined and lawful purposes related to a function or activity of your business. It is the business' responsibility to ensure a customer's information is complete, accurate, truthful and up to date.

Benefits and practicality of the system

- On the desktop-facing interface the system will allow easy registration of membership and will do so in the most efficient way as tennis lovers will not have to go to the brick and stone club grounds solely for that purpose. This efficiency introduces a potential for an increase in membership registrations, thereby contributing to the club acquiring a large customer base and realise significant growth with minimum capital investment. The fact that members are able to update their details means the club will almost always have the current details of each member.
- On the web-facing interface the system will allow easy tracking of user sessions and easy dissemination of information that is important to club members as well as consultants. This side of the system also complements the capabilities of the desktop-facing interface of the system in the sense that members are able to update their details, as a result of that, the same advantage of almost always having current and relevant details of each member will be realised. Furthermore member/club relations are tightened by always keeping members on the loop about what is worthy to be announced and activities that are offered by the club using the announcement functionality.

Definition of system requirements

Desktop-facing Interface

- The application should enable a person to request to subscribe to be a member at the Club and request authorisation from a Senior Consultant to enable registration of the new member.
- If a person is already a member of the club, the application should provide an option to login.
- To subscribe, a person may be able to upload the following personal details:
 - · Name, Contact Number, Address, Next of Kin, Sex, Date of Birth.
- The application should allow the member to register for one of the following club membership options.
 - Junior (for children aged 5-16)
 - Beginner (for members who do not have any tennis skills)
 - Advanced (for members who play tennis for leisure)
 - Professional (for members who play professional tennis)
- While a person is subscribing they must select if they would like to have a personal trainer.
- If a person selects to have a personal trainer, they must select a time when they would like to come for training.
- Once a week, Club Management would like some printed out report of the members in the clubs for a weekly staff meeting. The report will include the following lists:
 - A number of members in each club membership option.
 - Members that are registered with Personal Trainer's.
 - Members who do not have Personal Trainers

Web-facing Interface

- The system should allow the following:
 - Registered members to login to the Website.
 - Registered members to update their Personal Details.
 - Club Manager to post announcements, with an option of posting text, video, audio, and image announcements.
 - Registered members should be able to view the club announcements.

System Inputs and Outputs

On the desktop-facing interface

- The system inputs are subscriber's subscription details, membership account details, consultant account details, and member weekly plans.
- The system outputs include membership password, membership details, membership report, member weekly plans and consultant account details.

On the web-facing interface

- The system inputs are the login details, multimedia files and text, and updated membership account details.
- The system outputs are membership account details, and multimedia files and text outputs.

Requirement Prioritisation

In their order of importance, the prioritised requirements are:

- Desktop-facing interface
 - i. Membership subscription
 - ii. Consultant and (later on) member login
 - iii. Facilitate membership approval
 - iv. Creation of consultant accounts
 - v. Updating, viewing, and deleting of membership details
 - vi. Creation, viewing, updating, and deleting of member weekly plans
 - vii. Provide functionality for membership reports
 - viii. Allow updating, viewing, and deleting of consultant account details
- Web-facing interface
 - ix. Provide easy menu navigation
 - x. Allow member and consultant login
 - xi. Allow members to view their membership details
 - xii. Allow members to update their membership details

- xiii. Facilitate posting of multimedia announcements
- xiv. Facilitate viewing of multimedia announcements
- xv. Provide easy log out process

<u>User Interface Design Principles</u>

Desktop-facing Interface

The Tennis Club application's desktop-facing interface comprises of three windows: the Login window, Subscription window, and the main application window. The rest are child windows. The graphical user interface of these windows follows the user interface design principles of:

- Usability consideration, this makes the application navigation simple and functional. Users are not annoyed with excess clicks and menus or unrelenting categorisation. The menus and navigation options are simple and intuitive. The labels are direct and transparent about where they lead.
- Use of clear error indications The error indications are easy for users to understand as can be seen in the Login window when unregistered credentials are passed to login controls or when registered credentials are passed but with one of them incorrect. The users are relayed in clear and in direct language about what it is they need to do.
- Desirability the application has a look and feel that make user experience enjoyable.

Web-facing Interface

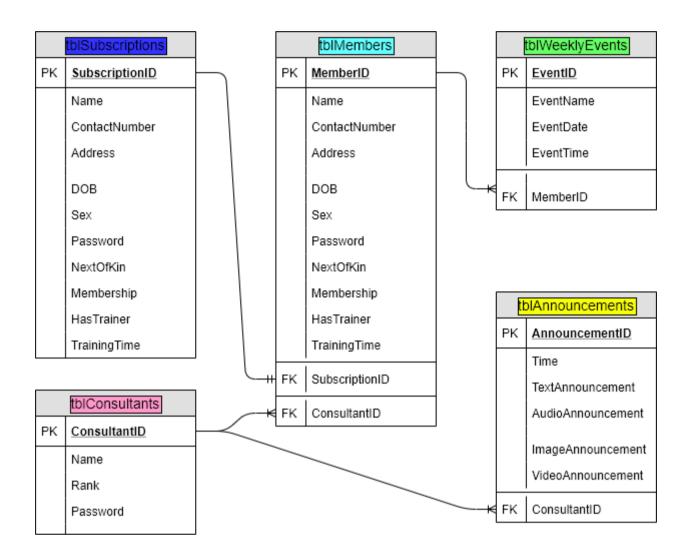
The Tennis Club application's web-facing interface adheres to the following user interface design principles:

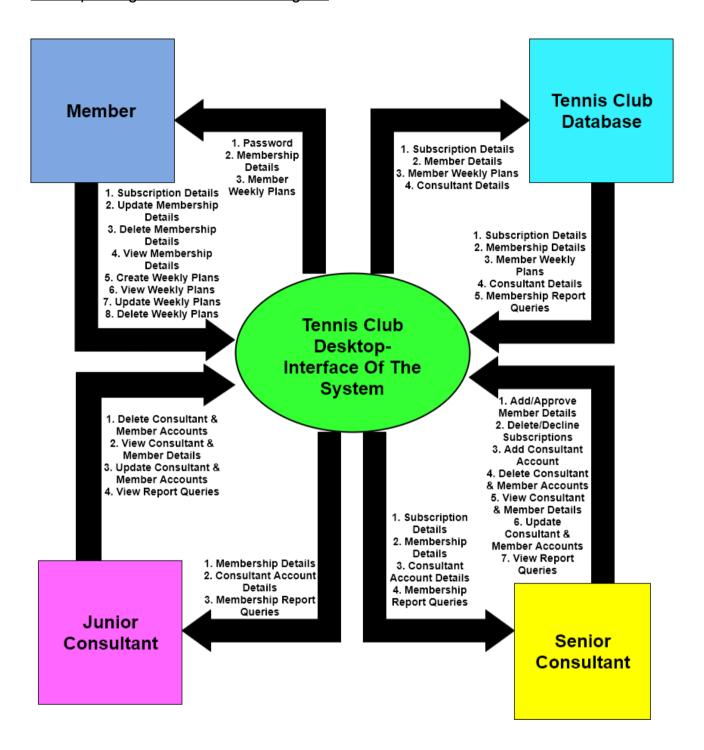
- Usability consideration This considers the legibility of the text, and the ease of clicking buttons in order to perform different functions; consideration in terms of form fill-in: the forms should be one column, as multiple columns easily disrupt a user's vertical momentum.
- Use of clear error indications The error indications are easy for users to understand as can be seen in the Login window when unregistered credentials are

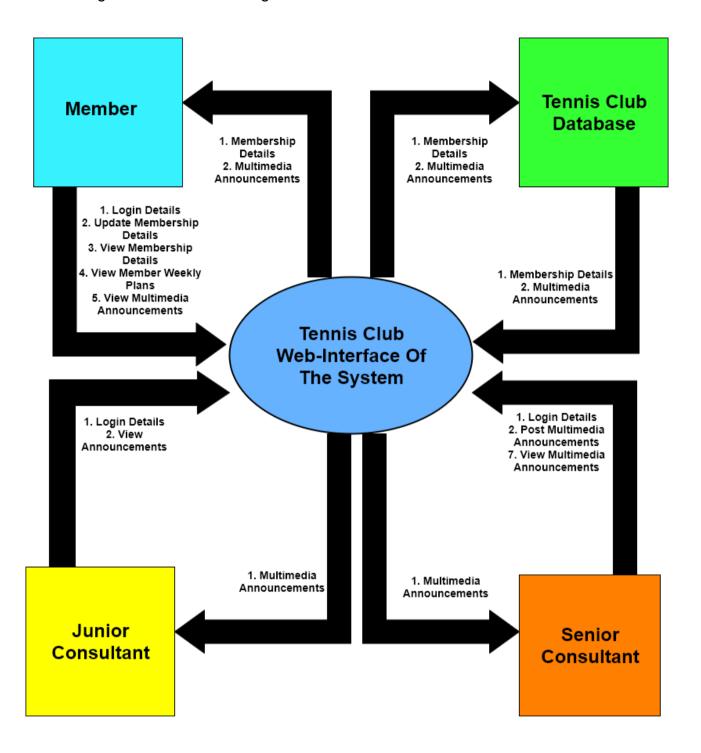
- passed to login controls. The users are relayed in clear and in direct language about what it is they need to do.
- Desirability the application has a look and feel that make user experience enjoyable.
- Use of visual elements and consideration of different interaction preferences choice of colours used in this web application correspond to the brand image and strengthen emotional feedback. The style setting correspond to the nature of what the application is about: reaching the website, users instantly understand that it is a tennis club site.

System Design

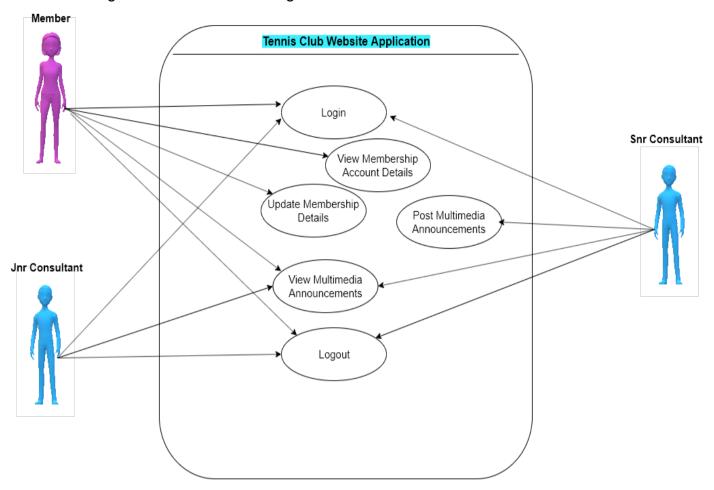
System Database



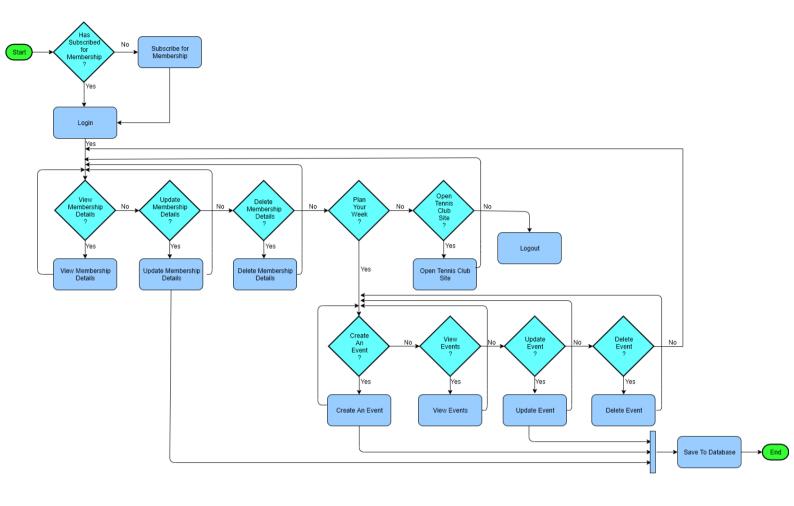




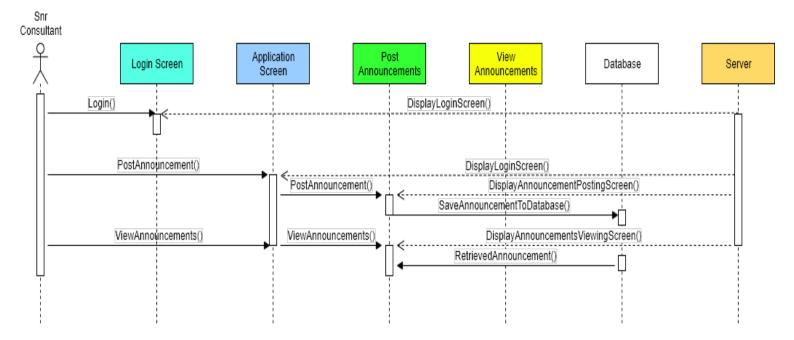
Web-facing Interface Use Case Diagram



Desktop-facing Interface Flowchart Diagram (Member Perspective)

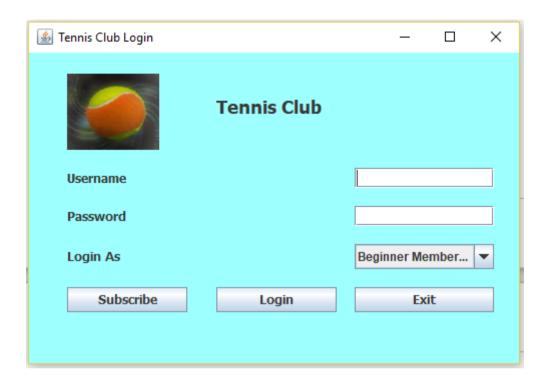


Web-facing Interface Sequence Diagram (From Senior Consultant's perspective)



User-Guide: Desktop-facing Interface of the System

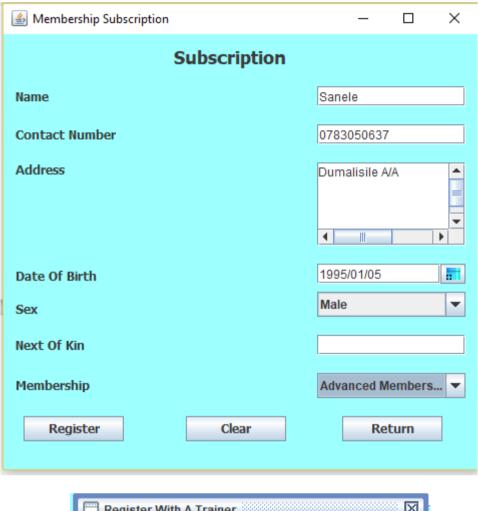
Login form

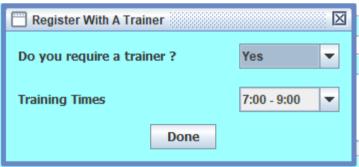


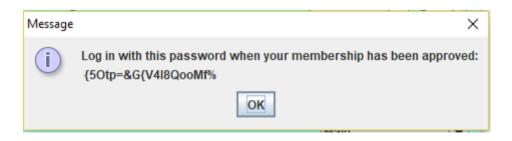
This is the application's desktop-facing interface login screen. It directs the user to the Subscription window when the subscribe button is clicked, and the main application window when the login button is clicked. The exit button exits the application.

On the Login as combo box users who are members should select the membership they are registered with, as for consultants, they should select the consultant rank they are registered under.

Subscription Form







The subscription window allows a user to subscribe for tennis club membership by providing their details. When all the details have been entered the user can click the register button which brings up a child window that allows a user to specify if they require a trainer and what time they would like to train. The done button of the child window finishes the subscription process and the user is notified about the success of the subscription and given a password that they can log in with once their membership has been approved.

Main Application Window



Above is the Main application window when a member has logged in. The menus of this window appear differently depending on the logged user. When a member is logged in four menus are displayed: File menu, Membership Account Management menu, Weekly Plans menu, and Club Website menu.

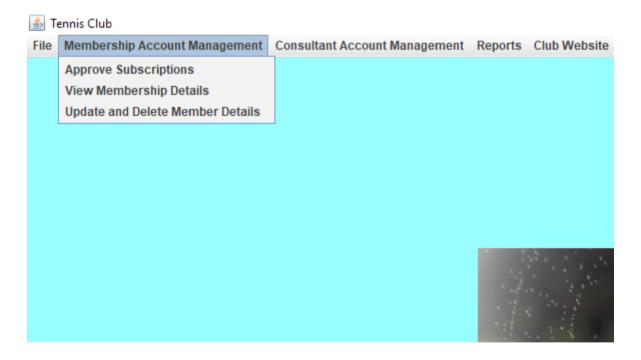
When a consultant is logged five menus are displayed: File menu, Membership Account Management menu, Consultant Account Management menu, Reports menu, and Club Website menu.

The File Menu



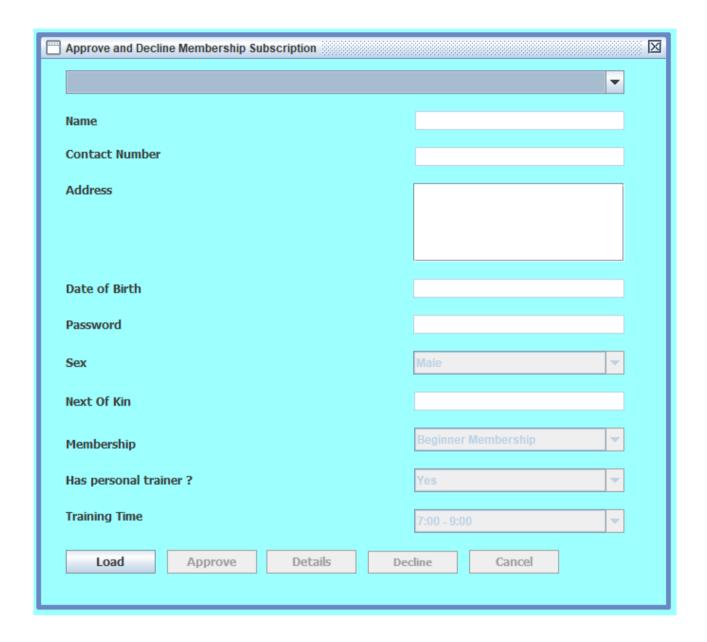
The File Menu allows all users to exit and/or logout of the application.

The Membership Account Management Menu



The Membership Account Management menu allows members to view, update, and delete their membership details. It allows Junior consultants to perform the same functions as the members but with the privilege to perform these function on all membership accounts. The menu allows Senior consultants to view, update, delete, and approve membership accounts – the approve subscriptions menu item is only visible to senior consultants

Approve Subscriptions



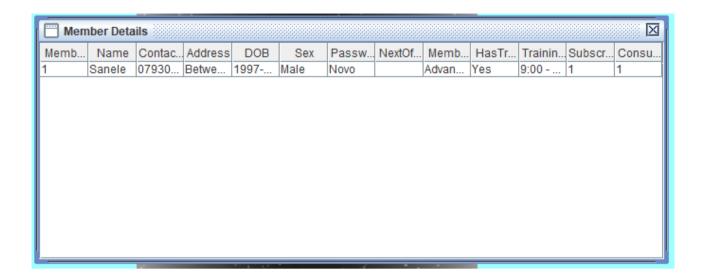
The Approve Subscription menu item of menu Membership Account Management that is only accessible to Senior Consultants, brings up an internal form to approve or decline membership subscriptions.

When this window is brought up, only the load button and the combo box located at the top of the form are active.

■ The Load Button -The load button populate the combo box located at the top of the form with subscriber names and activates the details button. It then becomes inactive, as well as other buttons.

- The Details Button This button activates and populates the text boxes and make selections on combo boxes with details of the subscriber currently selected on the combo box located at the top of the form. The approve, the decline, and the cancel buttons are activated, the rest of the buttons are inactive. The combo box located at the top of the form is deactivated.
- The Approve Button This button saves to the database' members table the subscriber's details. It then clears the text boxes and the combo box located at the top. The input fields and combo boxes are deactivated (with the exception of the combo box located at the top of the form) as well as all the other buttons. The load button is then activated.
- The Decline Button This button deletes subscription details of the subscriber currently selected on the combo box located at the top of the form. It then clears the top located combo box and the text boxes of the form. The load button is activated and the rest of the buttons are deactivated as well as the input controls, again with the exception of the combo box located at the top of the form.
- The Cancel Button This button clears the input text boxes and the combo box located at the top of the form. The load button is activated. The input controls (with the exception of the combo box located at the top of the form) along with the rest of the buttons are deactivated.

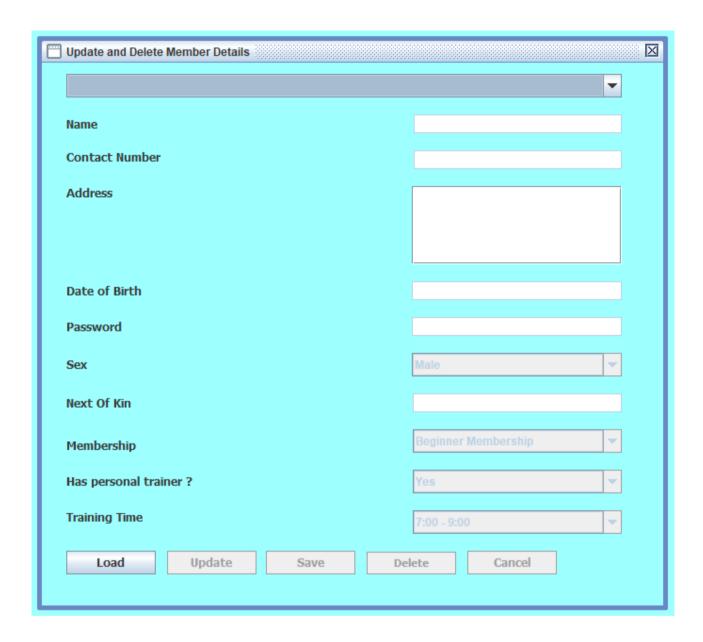
View Membership Details



The view membership menu item allows:

- A logged in member to view their membership details in a tabular format.
- Junior consultants to view membership details of all members in a tabular format.
- Senior consultants to view membership details of all members in a tabular format.

<u>Update and Delete Member Details</u>



The Update and Delete Member Details menu item of Membership Account Management menu brings up an internal form for:

- Members to update and delete their membership details.
- Junior consultant to update and delete membership details.
- Senior consultants to update and delete membership details.
- If the user is a member, the combo box located at the top of the form is hidden.

When this window is brought up, only the load button is active. If a user is a consultant the combo box located at the top of the form is also active.

■ The Load button

- If the user is a member when the load button is clicked it activates the update and the delete button and populates the input fields and make combo box selections with that particular user's membership details.
- If the user is a consultant when the load button is clicked it loads names of all members to the combo box located at the top of the form. The update and the delete buttons are activated.

■ The Update button

- If the user is a member when the update button is clicked it activate the form input fields and combo boxes, and activates the save and the cancel buttons.
- If the user is a consultant when the update button is clicked it populates the
 input fields and make combo box selections with membership details of the
 user that is currently selected in the combo box located at the top of the
 form. The save and the cancel buttons are activated.

■ The Save button

- If the user is a member when the save button is clicked it saves the logged in member membership details populating the input controls to the database.
 The input text boxes are then cleared and all input controls deactivated. The load button is activated while other buttons are deactivated.
- If the user is a consultant when the save button is clicked it saves the
 updated membership details of the member who is currently selected on the
 combo box located at the top of the form to the database. The input boxes
 and the combo box located at the top of the form are then cleared and all
 input controls are deactivated except the combo box located at the top of the
 form. The load button is activated while other buttons are deactivated.

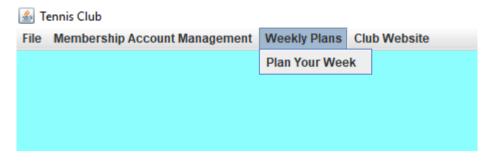
■ The Delete Button

- If the user is a member when the delete button is clicked it deletes from the
 database the membership details of the logged in user. The form text boxes
 are cleared and deactivated along with the rest of the input controls. The
 load button is activated and the rest of the buttons are deactivated.
- If the user is a consultant when the delete button is clicked it deletes the membership details of the member currently selected in the combo box located at the top of the form. The form text boxes are cleared and deactivated along with the rest of the input controls with the exception of the combo box located at the top of the combo box located at the top of the form. The load button is activated and the rest of the buttons are deactivated.

■ The Cancel Button

- If the user is a member when the cancel button is clicked it clears the form text fields and deactivates all form input controls. The load button is activated, the rest of the buttons are deactivated, including the cancel button.
- If the user is a consultant when the cancel button is clicked it clears the form text fields including the combo box located at the top of the form. It then deactivates all form input controls except the combo box located at the top of the form. The load button is activated, the rest of the buttons are deactivated, including the cancel button.

The Weekly Plans Menu



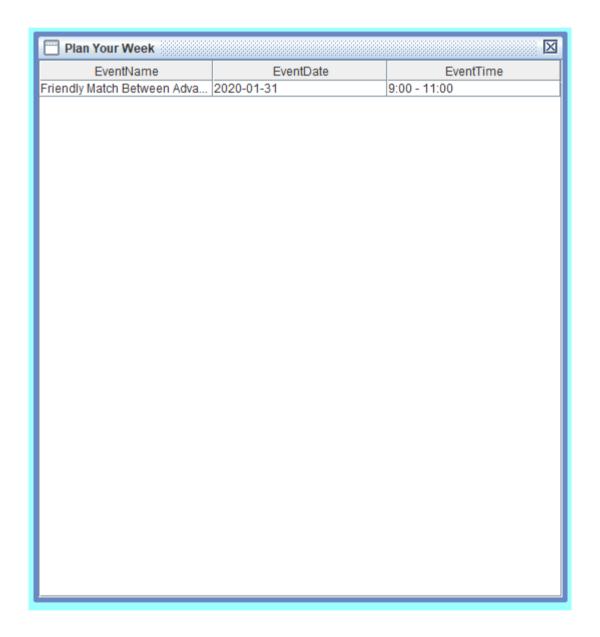
This menu is accessed only by members and makes it possible for members to plan their upcoming weeks.

Plan Your Week



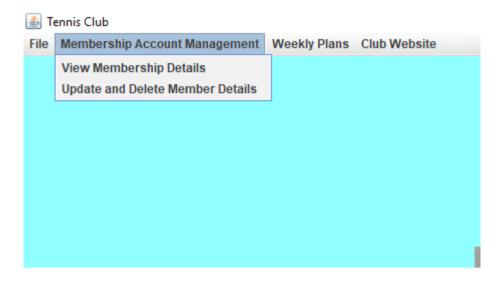
The menu item Plan Your Week of Weekly Plans menu displays the form above. The form allows members to create or add events, update events, save created and updated events, load events to the combo box, delete events, and cancel the operation of creating or updating events.

View Events



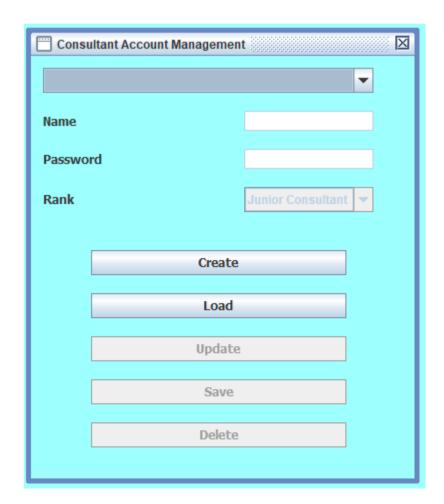
The button View Events on the Plan Your Week form brings up the above form that displays member events. Only events that are between day and day + 6 days that are displayed (i.e. if today is 31/01/2020, only events up to 07/02/2020 are shown).

The Consultant Account Management



This menu is accessible only to consultants. The Consultant Account Management menu allows Junior consultants to view, update, and delete their consultant account details. It allows Senior consultants to perform the same functions on all consultant accounts and with privileges to create consultant accounts and update consultant rank.

The Consultant Account Management Menu Item



The Consultant Account Management menu item of the menu of the same name allows:

- Junior consultant to update (with the exception of their consultant rank), view, and delete their consultant account details.
- Senior consultants to create consultant accounts, view, update and delete accounts of each and every consultant.

When this internal frame is brought up, only the load and create buttons are active.

■ The Create Button – This button is active only when the user is a senior consultant, it activates the form text boxes, the rank combo box, the save button and the delete button – changes the text to cancel..

■ The Load Button

- If the user is a junior consultant The load button populates the input
 controls with their account details, the combo box located at the top of the
 form is loaded with the junior consultant name. The update and the delete
 buttons become active while the rest of the buttons are inactive.
- If the user is a senior consultant The load button activates and load names
 of the consultants to the combo box located at the top of the form. The
 create, the update, and the delete buttons are activated.

■ The Update Button

- If the user is a junior consultant The update button activates and populate the input text boxes with their account details, deactivates the combo box located at the top of a form. The create, the load, and the update buttons are deactivated. The save and the cancel (Delete) buttons are activated.
- If the user is a senior consultant The update button populates the text
 boxes and the rank combo box with account details of the consultant whose
 name is selected on the combo box located at the top of the form. The
 combo box at the top of the form is deactivated. The save and cancel
 (Delete) buttons are activated while the rest of the buttons are deactivated.

The Save Button

- If the user is a junior consultant The save button saves the junior consultant details to the database. The combo box located at the top of the form and the text boxes are cleared and deactivated. The load button is activated while the rest of the buttons are deactivated.
- If the user is a senior consultant The save button saves the consultant
 account details of the consultant whose name is selected on the combo box
 located at the top of the form, to the database. The combo box located at the
 top of the form and the text boxes are cleared and deactivated, the rank
 combo box is deactivated. The load and the create buttons are activated
 while the rest of the buttons are deactivated.

■ The Delete Button

- If the user is a junior consultant The delete button does two functions, when the create or the update button is selected, the delete button text is changed to cancel. When button delete text is cancel, the button clears text boxes, clears values in the top located combo box, and activates the load button. When button delete text is delete, the junior consultant account is deleted, the text boxes and the combo box located at the top of the form are cleared and deactivated. The load button becomes active while the rest of the buttons are deactivated.
- If the user is a senior consultant The delete button has two functions as well for senior consultants, when the create or the update button is selected, the delete button text is changed to cancel. When button delete text is cancel, the button clears text boxes, clears values in the top located combo box, deactivates the rank combo box and activates the create and load buttons. When the delete button text is delete, the consultant account details of the consultant whose name is selected on the combo box located at the top of the form are deleted, the text boxes, the rank combo box and the combo box located at the top of the form are cleared and deactivated. The load and the create buttons are activated while the rest of the buttons are deactivated.

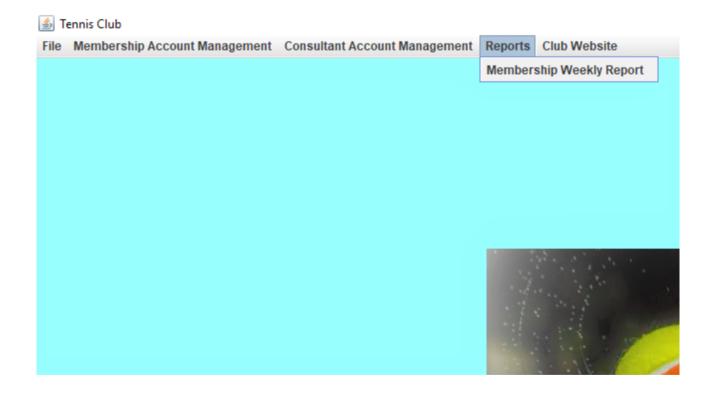
The View Consultant Accounts Menu item



The view consultant accounts menu item allows:

- A logged in junior consultant to view their consultant account details in a tabular format.
- Senior consultants to view consultant account details of all consultants in a tabular format.

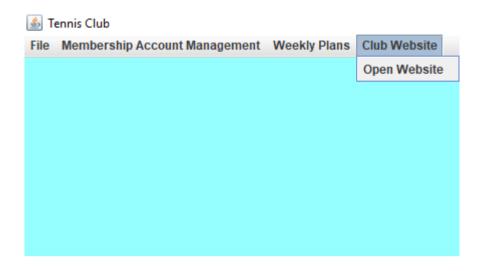
The Reports Menu



Membership Weekly Report menu item

This menu item creates a .docx file of statistics on memberships offered by the Tennis Club and open it with a text processing application so that it can be printed, saved locally on the accessing computer, or converted to pdf format.

The Club Website Menu

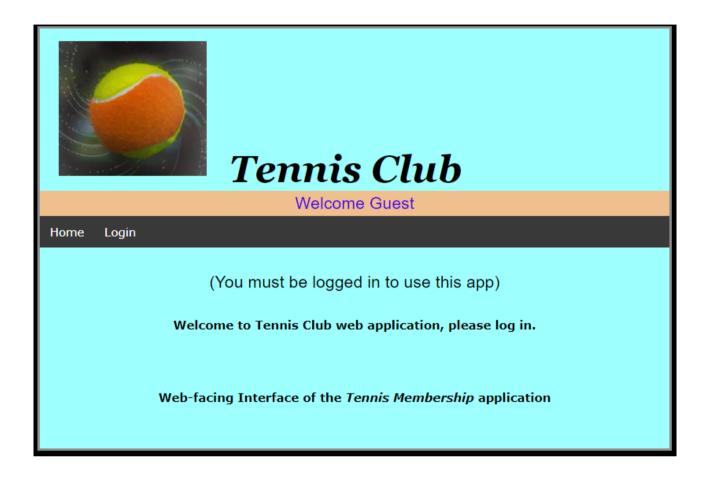


Open Website menu Item

This menu item redirects users to the web-facing interface of the system. The website is opened with the user's machine default web browser.

User-Guide: Web-facing Interface of the System

The Home Page



This is the first page the user interacts with when the website loads. It contains the guest menu bar with two menus: Home menu – to show the home page which is the page displayed above, and Login menu – to authenticate the user so they can use the application.

The Login Page



The login page is where the user is authenticated by allowing them to enter their registered username, password, and user status – being a membership rank or consultant rank. If the provided credentials are correct, when the login button is selected the user is logged in, otherwise an error is shown. The login page also shows the guest menu navigations.

The Logged-In Home Page



The Logged-in Home page is where the site's resources can be accessed. This page displays different menus depending on the logged in user, when a registered member is logged in five menus are displayed: Home, Account, Update Account, View Announcements, and Log out menus. When a junior consultant is logged in three menus are displayed: Home, View Announcements, and Log out menus. Whereas when a senior consultant is logged in four menus are displayed: Home, View Announcements, Post Announcements, and Log out menus.

The Account Menu



This menu displays the Account Details page. This page displays the logged in member's membership account details.

The Update Account Menu



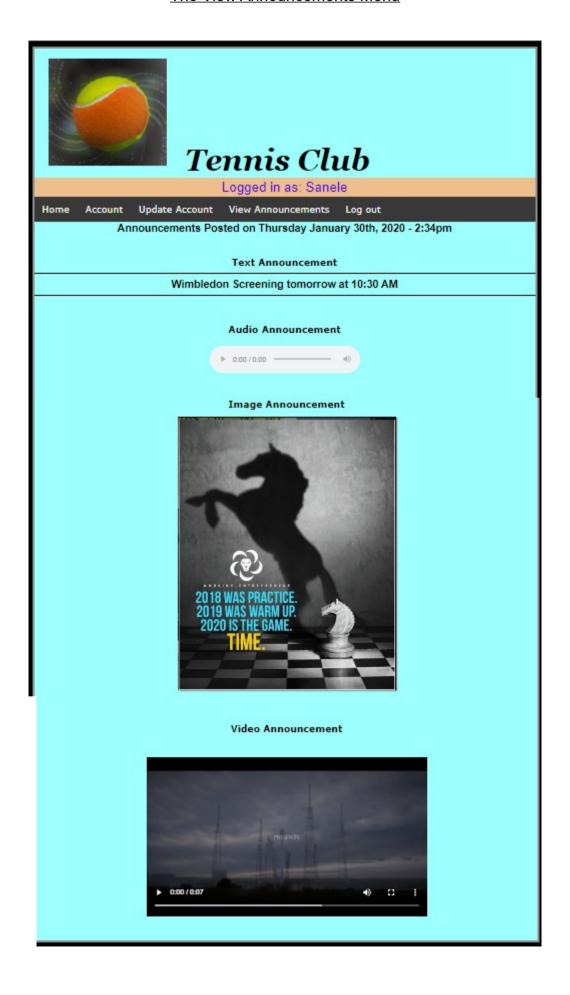
When the update account menu is selected the above page and its form is populated with the logged in member's membership account details. The user can then edit these details, when done they can click the update button to upload the details to the database if everything meets the application's validation requirements.

The Post Announcements Menu

Tennis Club	
Logged in as: Kurosaki	
Home View Announcements Post A	Announcements Log out
Post An Announcement	
Text Audio Image Video	Choose File No file chosen Choose File No file chosen Choose File No file chosen Upload Announcement

This menu and the page that it leads to are accessible only to senior consultants. A senior consultant can post text, image, video, and/or audio announcements. When the upload announcement button is clicked, the text entered to the field is uploaded to the database. As for the file buttons, it is the paths of the selected files uploaded to the database.

The View Announcements Menu



The view announcements menu is accessible to all users of the application, it allows users of the application to view posted announcements. Each announcement has a date and time on which it was posted and can be comprised of text, image, audio, and video. The page shows one announcement per time, the latest posted announcement.

The Log out menu

The logout menu is shared by all users. When selected the user is asked to click the link that'll redirect them to the guest home page. Should the user select any of the navigational menus with the exception of the home and the logout menu, they are told they must log in to use the application. If they select the logout menu they are told they cannot logout as they are not logged in. As for selecting the home menu, they are taken to the guest home page.