

CAB302 Major Project (Electronic Billboard Display and Management System) Report

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Statement of Completeness

containing a high-level overview of what features were implemented in your submitted project.

Feature	Complete	Comments
Testing	X	Testing was done to a very minimal capacity.
User password storage & authentication	✓	Hashed passwords are sent over the network for the server to salt and hash again before storing in the database.
Session management	✓	A session token is produced in memory for the user that logged in, which will time out after 24 hours.
Permissions	✓	All permissions were implemented completely with the user being prohibited from accessing certain program functionality if they have inappropriate permissions. The permissions themselves follow the specifications closely.
Billboard display	✓	Billboard Viewer appropriately displays the scheduled billboards as well as an error message when there is no billboard to be displayed.
Billboard formatting	✓	The program is capable of importing all appropriately formatted XML billboards.
Billboard creation and editing	✓	The program is able to list the billboards created, delete billboards from the database, edit existing billboards and create new billboards. When editing billboards the old characteristics will be loaded, able to be changed.

Billboard scheduling	✓	The user is able to schedule a selected billboard for a particular time, given that it does not match the exact timing of another billboard that is already scheduled.
User management	✓	The program is able to list the users created, delete users from the database, edit existing users and create new users. When editing users, their old permissions will be loaded, able to be changed (excluding their password).
Networking	✓	The control panel and server applications communicate with each other over a network, reading server properties from a properties file. All requests and responses are handled by the appropriate classes.
Database	✓	When the server program is run a connection is established from the properties file and if the database does not exist already, one will be created with an admin user (the details of which are specified in the manual).

Statement of Contributions

Everyone contributed to the project equally as we were mostly communicating together every time we worked on the project.

High-Level Design Description

Class	
Login class	The login class is the starting point of our program, the login class calls an instance of the home class when the user has inputted a username and password. A LoginRequest and LoginResponse is also called when logged in which interacts with the Server class. Note that all of the classes in the <i>billboard_control_panel</i> package call upon the server in a similar request / response style with all of the requests and responses being stored in the <i>billboard_server</i> package.
Home class	The home class is the main class that calls - billboard class, Schedule class, User List class and User Detail class.
BillboardList class	The BillboardList class calls the CreateEditBillboard class when pressing the create or edit buttons, and also calls upon BillboardListRequest and BillboardListResponse classes, which enables interaction with the server and database. When appropriate the DeleteBillboardRequest , DeleteScheduleRequest and DeleteBillboardResponse and DeleteScheduleResponse will be called upon when either the delete billboard or delete schedule button is pressed. CheckPermsRequest and CheckPermsResponse are also called when a user selects a billboard to ensure that they have the right permissions for editing / removing a billboard from the database.
CreateEditBillboard class	This class is responsible for previewing, creating and editing billboards (which depend on if you press the create or edit buttons) given information that has been parsed. This class has interactions with the CreateEditBillboardRequest , CreateEditBillboardLoadRequest and CreateEditBillboardResponse and CreateEditLoadResponse classes which are responsible for loading the billboard data if editing, saving the billboard to the database.
ScheduleBillboard class	This class is responsible for editing the schedules of billboards, called from the BillboardList class. The classes, CreateEditScheduleRequest , CreateEditSchduleLoadRequest and CreateEditScheduleResponse ,

	CreateEditScheduleLoadResponse are responsible for loading the schedule data if editing as well as saving the schedule to the database appropriately updating or inserting depending on the state of the database.
Calendar class	This class is called from Home and is responsible for displaying all billboards that have been scheduled throughout the week, it achieves this by interacting with the database by calling the CalendarRequest and CalendarResponse to retrieve the scheduling information from the database.
UserList Class	The UserList class calls the CreateEditUser class when pressing the create or edit buttons, and also calls upon UserListRequest and UserListResponse to update the list when needed. The DeleteUserRequest and DeleteUserResponse will also be called when a user is being deleted.
UserDetails class	This class shows the current user logged in and details such as permissions and the ability to change passwords (which interacts with the database) by calling UserDetailsRequest and UserDetailsResponse to retrieve the information of the user. UserDetails is also called via the Home Class
Encryption class	This class is in a separate package called billboard_tools. It is responsible for receiving a hashed password to then be salted and hashed over again.
ThisLocalisedWeek class	This class is in a separate package called <i>billboard_tools</i> . It is responsible for retrieving the dates of the current week. This is called by the Calendar class to set the labels of the days.
DBConnect class	This class is called by the Server class and is responsible for establishing a connection to the database, checking if there already exists a database "billboards_db" and if there is none it will create the required tables and insert the default user into the database so that the program can function correctly.
PropertiesStream class	This is a server side class that grabs the name and port entered in the network.props file.
UserListDBMethods class	This class holds various methods related to the UserList class, called by the Server class which handles most of the database query logic that is used to retrieve appropriate user information.
BillListDBMethods class	This class holds various methods related to the BillboardList class, called by the Server class which handles most of the database query logic that is used to retrieve appropriate billboard information.

BillboardViewer Class	This class retrieves the time and day from the database and compares it to the local time which then displays the appropriate billboard. This class refers to the <i>BillboardViewerRequest</i> and <i>BillboardVieweerResponse</i> to handle the communication with the server.
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TDD

There were no classes implemented with this development method.

Setup Instructions

When creating the network Properties file you must name it “network.props”, the details of which need to be listed out as follows:

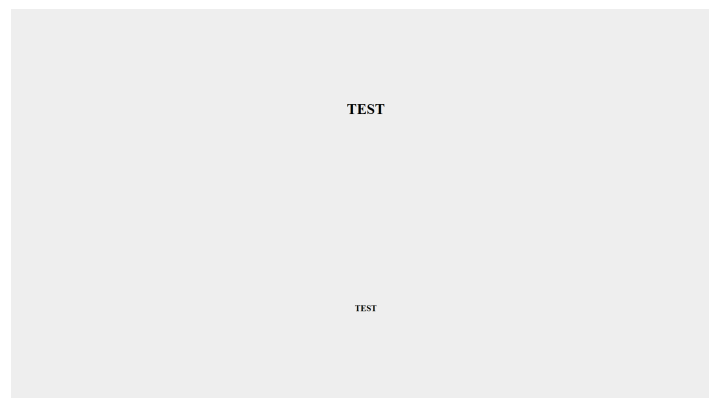
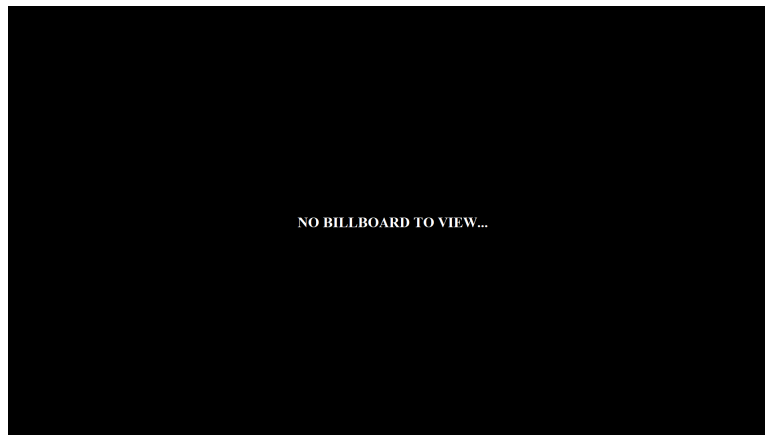
- server.name = localhost
- server.port = suitable 4 digit port number

There is a default user generated when the Server.java class is run and there is no existing database with a username of **admin** and a password of **admin**.

Walkthrough

Billboard Viewer

The billboard displays the appropriately scheduled billboard and an error display when there is no billboard available to be displayed.

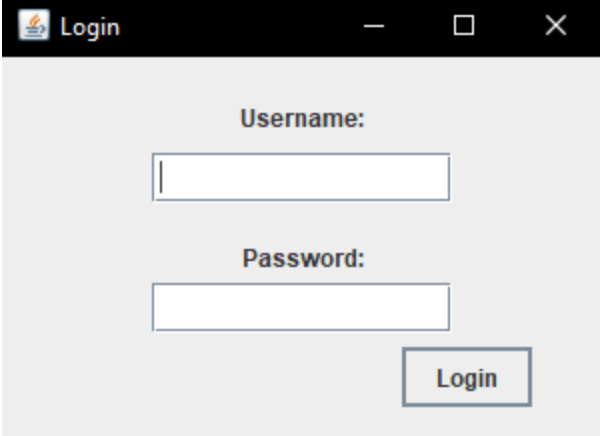


Billboard Server

Run the server program before starting up the Control Panel program and ensure that the properties file follows the setup guide above.

Billboard Control Panel

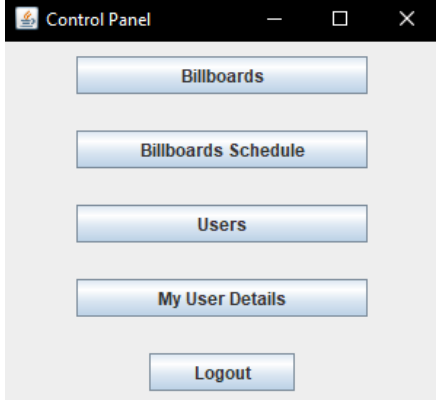
On running the Control Panel program, the login screen is the first thing that you will see. If this is the first time logging in to the program, login with the default user's details outlined above. This user will provide you with full access to the program's functionality, being able to create / edit billboards and users and schedule billboards etc. Otherwise login with another created user's details



The Login window has a title bar with a logo and the text "Login". It contains two input fields: "Username:" and "Password:". Below the password field is a "Login" button.

Home Screen

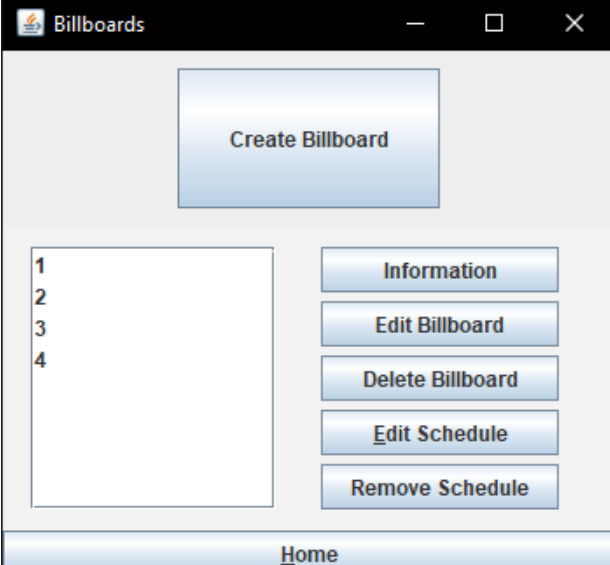
From this screen is where you can access all of the program's main functions. Certain buttons will be disabled depending on the user's permissions.



The Control Panel window has a title bar with a logo and the text "Control Panel". It contains five buttons: "Billboards", "Billboards Schedule", "Users", "My User Details", and "Logout".

Billboards

The billboards screen is where you will find a list of the billboards in the database as well as the options you can pick when one is selected. The options will be appropriately greyed out when you do not have the appropriate permissions. Note that a user with the "create billboard" permission can edit and remove their own created billboard (the buttons will update and be enabled upon selection) given that there is no schedule for that billboard.



The Billboards window has a title bar with a logo and the text "Billboards". It contains a "Create Billboard" button at the top. Below it is a list of billboards with a table structure. To the right of the list are five buttons: "Information", "Edit Billboard", "Delete Billboard", "Edit Schedule", and "Remove Schedule". At the bottom is a "Home" button.

1	
2	
3	
4	

Create Billboard

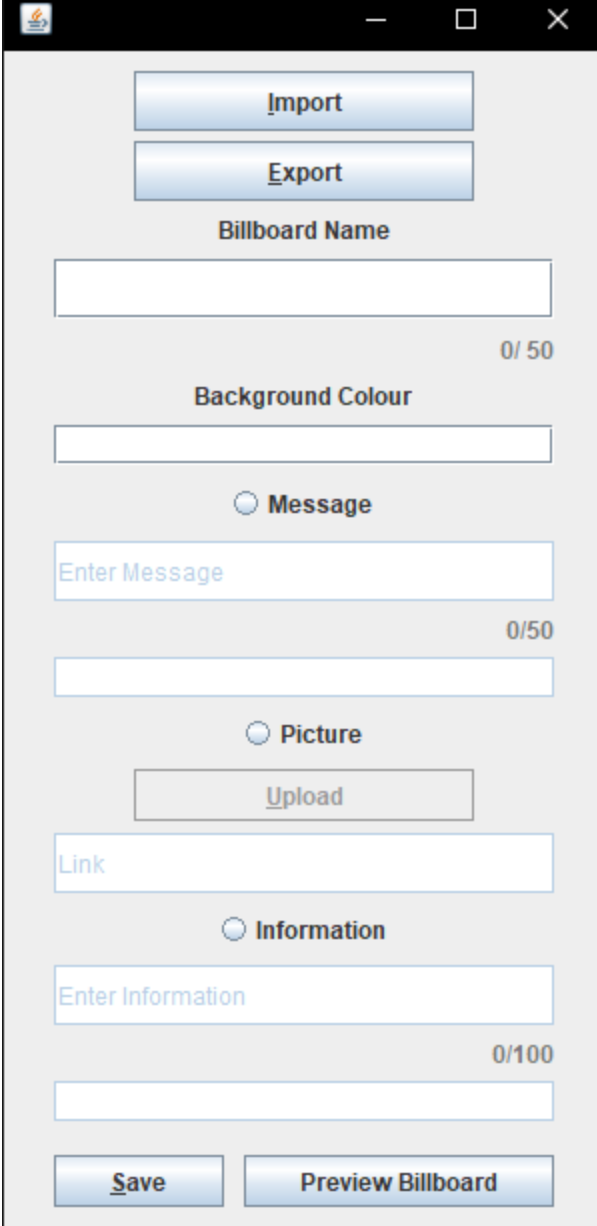
Choosing the Create Billboard option will open this window. The program will not allow you to open multiple instances of this window. The import and export buttons refer to .xml file format importing and exporting. When an .xml file is imported the window will fill out the appropriate text fields and the preview will match the imported file. Clicking the radio buttons opens up the text field for user input.

The message and information text fields support any text up to the listed amount of characters. The message and information colour fields will not accept anything other than hex colour codes.

For the picture field you can either paste in a URL or press the upload button and choose a local picture file.

Pressing the save button will store the created or imported billboard in the database which will show up in the list after you press save.

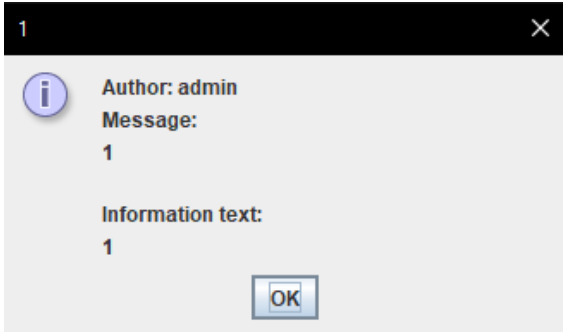
Pressing the preview button will show you a visual of what the billboard will look like in the Billboard Viewer. The previews closely follow the specifications.



After selecting a billboard from the list, you can choose the following options.

Information

Pressing the information button on the Billboards screen will show a pop up containing some information about the billboard: the author, the message text and the information text.

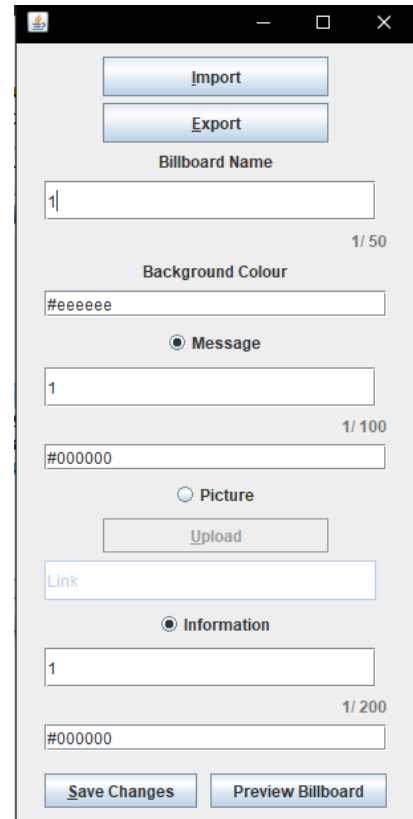
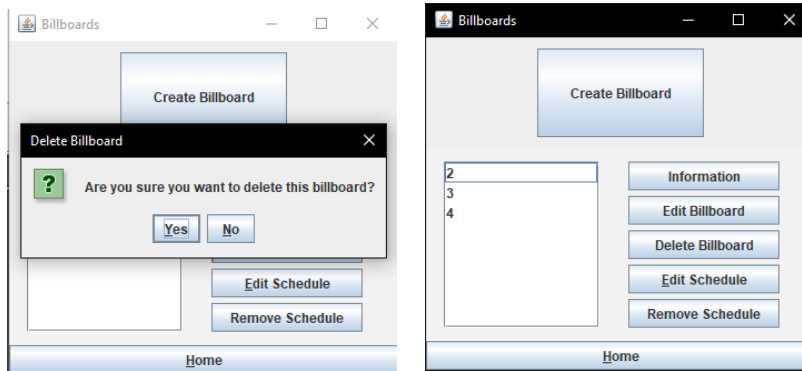


Edit Billboard

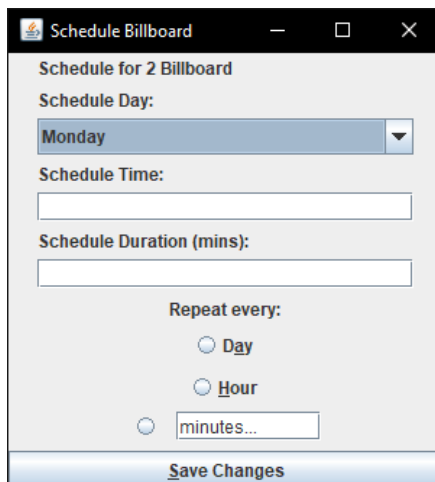
When you choose to edit a billboard from the list it will pre fill the text fields with the appropriate information of which you can change and save into the database, updating the old instance of that billboard.

Delete Billboard

Choosing to delete a selected billboard will show a pop up confirming whether you want to delete the billboard or not. Once you press yes the billboard will be removed from the database and the list will update.



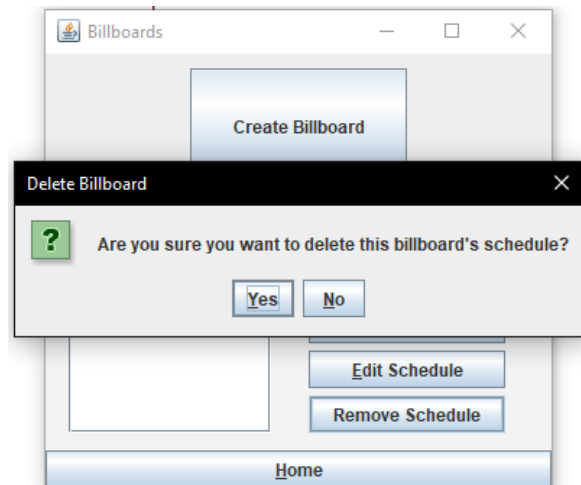
Edit Schedule



Choosing to edit a selected billboard's schedule will show this window from which you can specify when and for how long you want the specified billboard to be displayed as well as if you would like it to repeat or not.

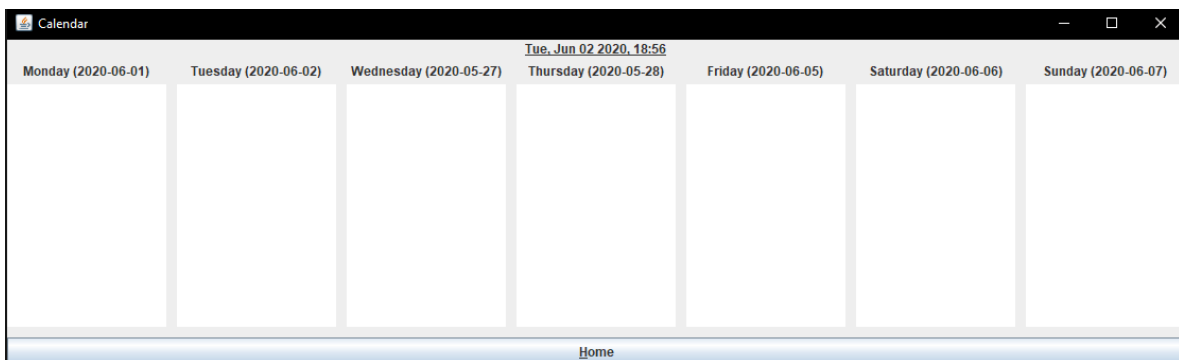
Remove Schedule

Choosing to remove the schedule of a selected billboard will show this pop up and pressing yes will delete it from the database.



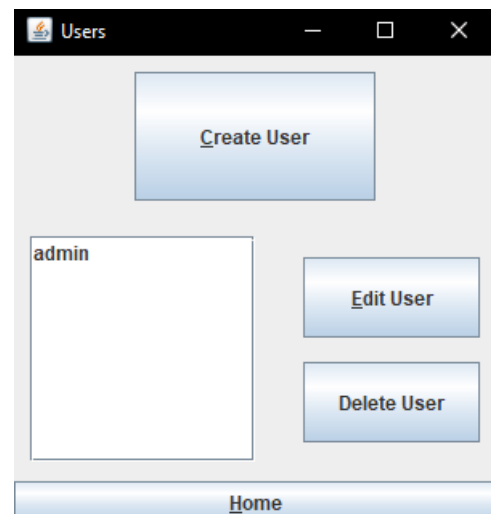
Calendar

Choosing the Billboards Schedule option will show a calendar-like view of all of the scheduled billboards listing out the details of the billboard itself as well as the appropriate details.



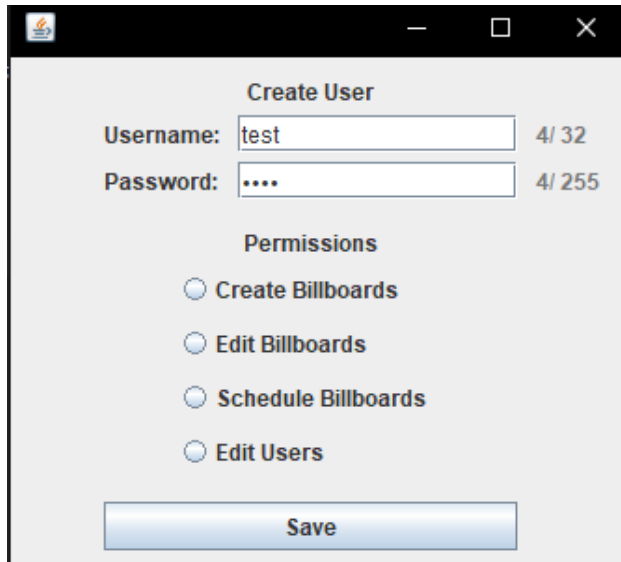
Users

When choosing the Users option you will be presented with this screen and the options to create a user or, when a user is selected, edit and delete a user.

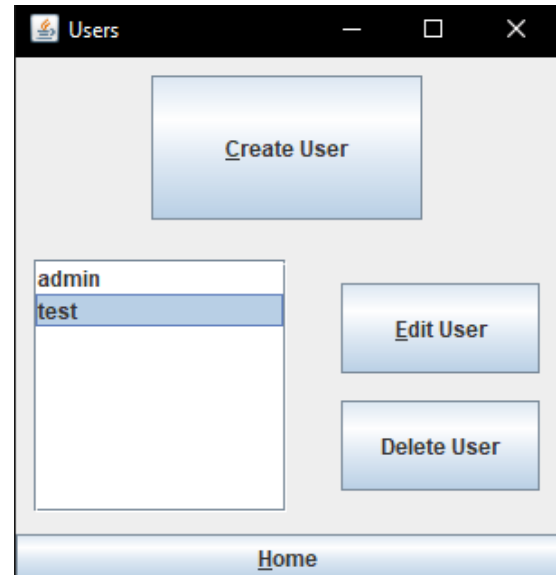


Create User

Creating a user will show you this screen where you can enter the username and password as well as choose the permissions that you wish to have for that user. Once the save button is pressed, the list of users will update and show the username of the newly created user.



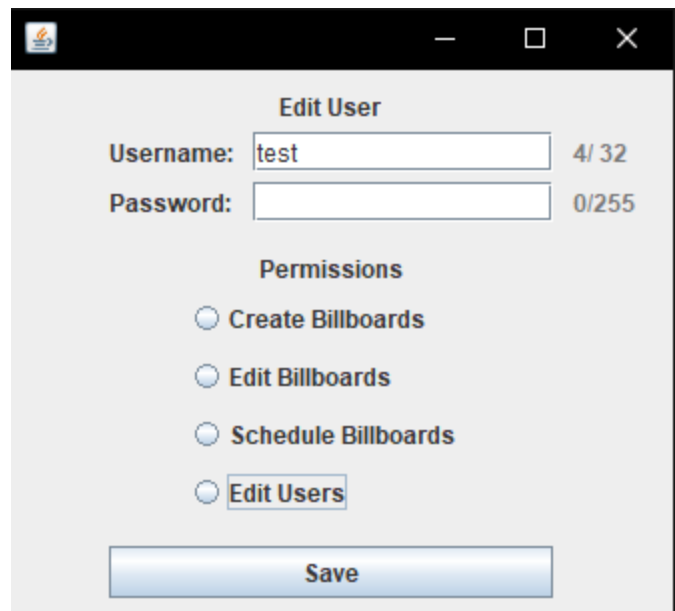
A dialog box titled "Create User" with a standard Windows window frame. It contains two text input fields: "Username:" with the value "test" and a character count "4/ 32"; and "Password:" with masked characters "...." and a character count "4/ 255". Below these is a section titled "Permissions" with four radio button options: "Create Billboards", "Edit Billboards", "Schedule Billboards", and "Edit Users". At the bottom is a "Save" button.



A window titled "Users" with a standard Windows window frame. It features a "Create User" button at the top. Below it is a list box containing "admin" and "test", with "test" selected. To the right of the list box are "Edit User" and "Delete User" buttons. At the bottom is a "Home" button.

Edit User

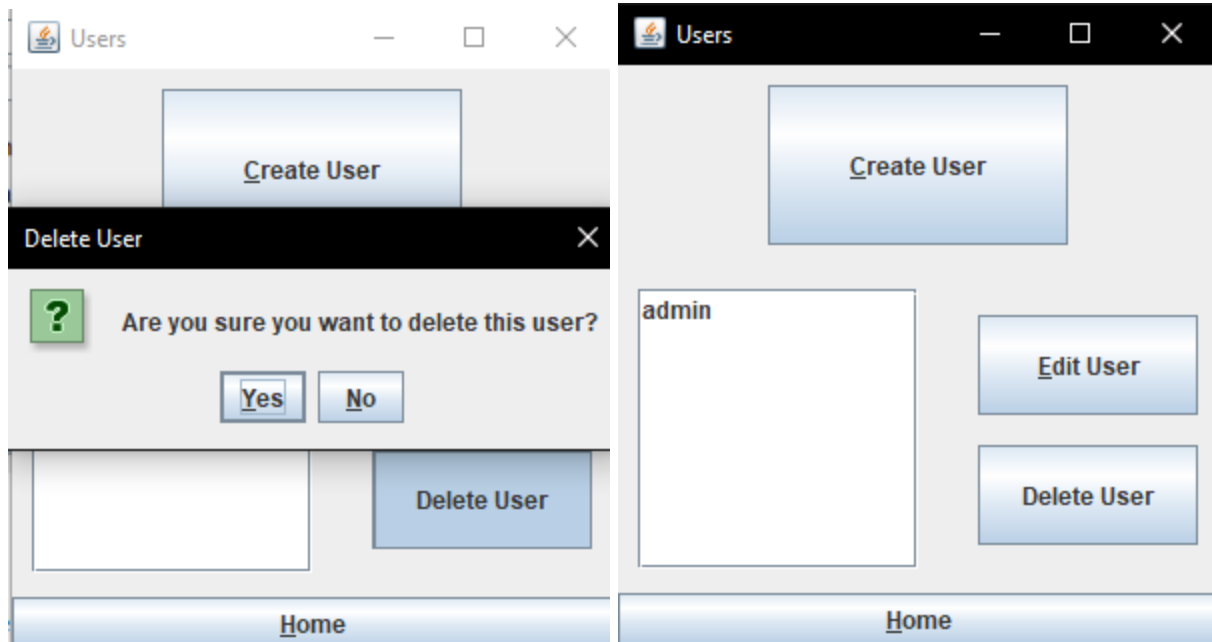
Editing a user will show the same screen but with all of the fields pre-filled, except for the password field for security reasons. This avoids the password being sent over the server and decoded, but this also means that the old password can no longer be retrieved in this manner.



A dialog box titled "Edit User" with a standard Windows window frame. It contains two text input fields: "Username:" with the value "test" and a character count "4/ 32"; and "Password:" which is empty with a character count "0/255". Below these is a section titled "Permissions" with four radio button options: "Create Billboards", "Edit Billboards", "Schedule Billboards", and "Edit Users". At the bottom is a "Save" button.

Delete User

Deleting a user will show the following pop up and if yes is selected the user will be deleted from the database and the list of users will be updated accordingly.



User Details

Choosing this from the home screen will display your user's current permissions as well as giving you the ability to change your password.

