

EQUIPMENT RENTAL SYSTEM FOR STUDENTS IN INSTRUMENTAL GROUPS

A Human-Computer Interaction Project

presented to the Faculty of the

College of Computer Studies

In Partial Fulfillment

of the Requirements in CCS 8 - A

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Introduction

The project is a desktop application that utilizes a rental system. Its design allows users to specifically rent musical instruments. The application hosts an overall user-friendly and minimalistic interface that helps a user smoothly navigate through categories of instruments which would be intricately organized by the inventory staff of a musical organization. The application also features an accounts system that can track the rental history and current rentals for each user. Further, the application can inventory dozens of different instruments from different instrumental families while showcasing relevant information that will aid a user in selecting the equipment that will best suit their needs. Additionally, the assigned staff, through a manager account, are given add, edit, and remove permissions for the inventory.

This project was crafted to slowly provide solutions to the current inefficient borrowing/rental system of instrumental groups from Silliman University. These groups, namely the Silliman University Band (SU Band) and the Silliman University String Ensemble (SUSE), currently possess no digital application that could aid their officers in organizing transactions and records from students that will borrow or rent instruments. To further support the claim, one of the group members, namely Lanz Gabor, is a current officer of the Silliman University String Ensemble. He formulated the idea through several first-hand experiences on listing and revising the information of his group's instrumental inventory, wherein each session would take a lot of time, effort, and memory recalling due to inconsistencies in the inventory.

To achieve the data and information needed for this application, careful and intensive research was implemented in order to fill the gaps of the application's variables. The daily rental prices, declared values, and reservation fees of the instruments were webbed together from average rates from multiple online music stores. Some data was also collected from second-hand websites such as eBay and Reverb to further justify the rates needed for the instruments. Lastly, information was gathered from the members of the instrumental groups to piece together affordable rates adjusted to the local economy of the scope.

Design Specifications

Color Scheme

The monochromatic color scheme was used all throughout the user interface of the desktop application. The palette was inspired from the color of concert halls from all around the world. The color palette used is shown in the table below.

Table 1. Color Palette

Hex Code	Image Reference
HEX: #B78B48	
RGB: 197, 162, 109	
CMYK: 0, 18, 45, 23	
HEX: #C5A26D	
RGB: 183, 139, 72	
CMYK: 0, 24, 61, 28	

HEX: #FEF0D8	
RGB: 254, 240, 216	
CMYK: 0, 6, 15, 0	
HEX: #FFFFFF	
RGB: 255, 255, 255	
CMYK: 0, 0, 0, 0	

Exact Organization Schemes

In the application, exact organization schemes such as alphabetical, chronological, or geographical, weren't implemented.

Ambiguous Organizational Schemes

The desktop application implemented the task-oriented ambiguous organizational scheme. Stemming from its definition which is to focus on grouping information and features based on specific tasks or actions that users need to perform, the buttons in the application that let the user rent, cancel, or choose which category of instruments indicate actions or tasks that users can perform within the system.

In the application, the "Rent" button suggests the action of renting an instrument, while the "Cancel" button implies the task of canceling a rental. The "Categories" button allows users to browse or search for instruments based on their instrumental families.

Organization Structures

The desktop application implemented the sequential organization structure. Stemming from its definition which is that it organizes information or actions in a linear or sequential manner, where one step or action follows another, the buttons for "Rent," "Cancel," and "Categories" imply a linear progression of actions, or a sequential flow.

In the application, a user typically starts by selecting a category of instruments, indicating a step in the sequence. After clicking on a category, the application then displays the available instruments, representing the next step in the sequence. After choosing an instrument, the application brings the user to the rental process form, which indicates the last step of the sequence.

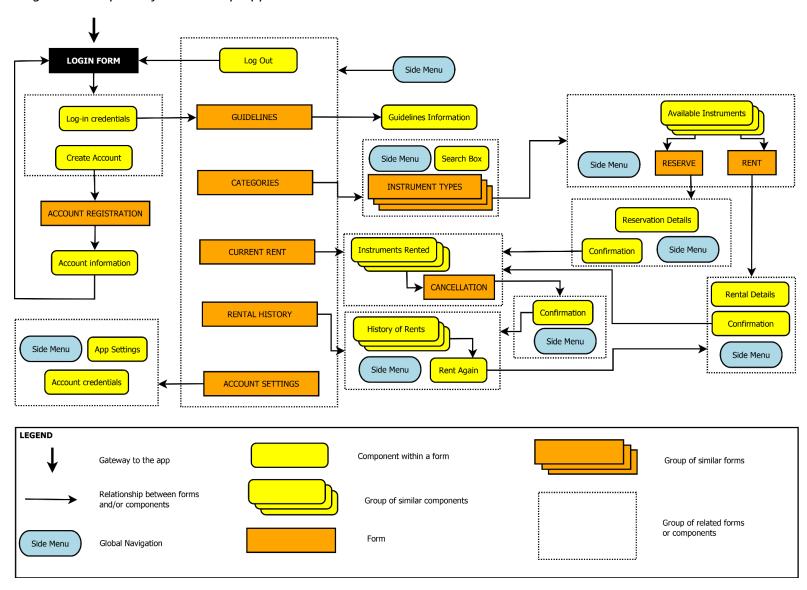
Navigation Systems

The desktop application implemented both the global and local navigation systems. Stemming from the definition of a global navigation system: referring to the primary navigation elements that are consistent and accessible throughout the entire system or website, the buttons for "Categories," "Account Settings," "Log Out User," "Guidelines," "Rental History," and "Current Rent" can be considered as global navigation elements. In the application, a user can navigate back to those pages/forms regardless of the sequence.

On the other hand, a local navigation system pertains to navigation elements that are specific to a particular section or context within the system and it is evident on the "Categories," "Register," "Log In," "Rent," and "Cancel" buttons which suggests the presence of local navigation.

Blueprint

Figure 1. Blueprint of the Desktop Application



Wireframe and Actual Screen Shots



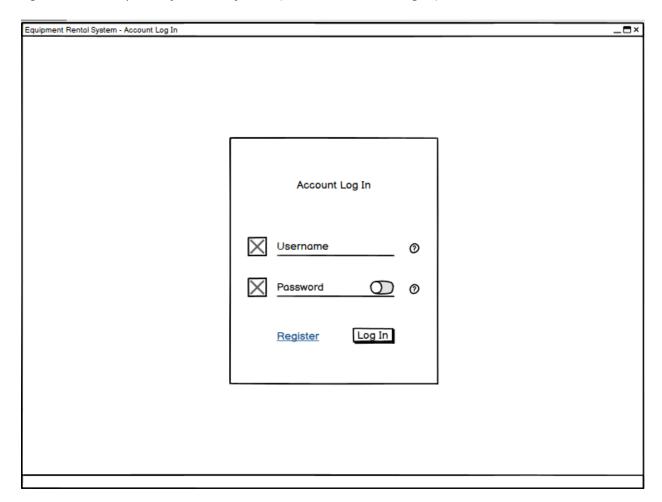


Figure 2a shows the wireframe for the first form entitled "Account Log In." It consists of two (2) icon placeholders, two (2) text boxes for input, two (2) help signifiers, two (2) buttons, one (1) subtitle, one (1) panel, and one (1) on/off switch.

Figure 2b. Description of the Actual Screen Shot (Form 1 - Account Log In)

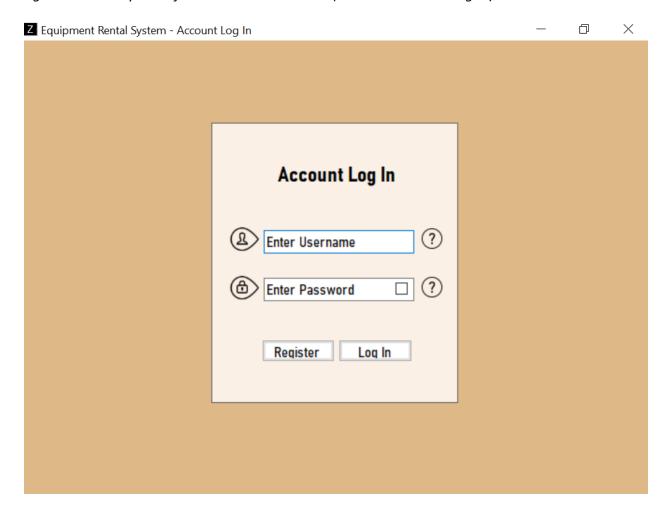


Figure 2b shows the actual screen shot for the first form entitled "Account Log In." It consists of two (2) colors, two (2) icons, two (2) text boxes for input, two (2) help signifiers, two (2) buttons, one (1) subtitle, one (1) panel, and one (1) on/off switch.

Form 1 is the first form that will be displayed upon launch. The form will ask for login credentials. From here, you could also proceed to account creation via "Register." The password input box also features a show/hide button to censor the password. Help signifiers are also present beside the text input boxes for starters.

Figure 3a. Description of the Wireframe (Form 2 - Account Registration)

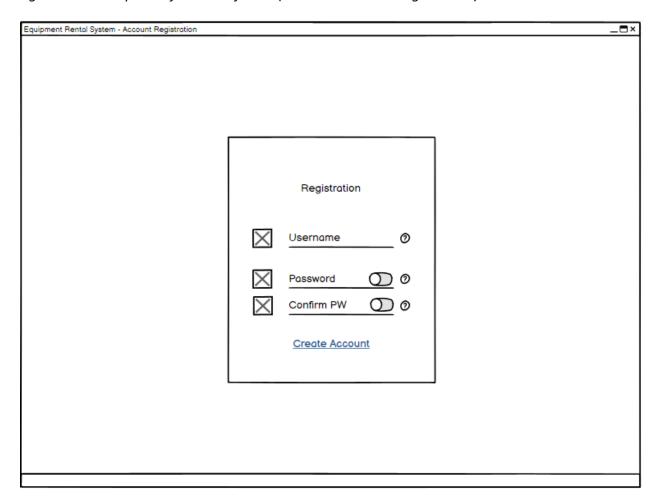


Figure 3a shows the wireframe for the second form entitled "Account Registration." It consists of two (3) icon placeholders, three (3) text boxes for input, three (3) help signifiers, two (2) on/off switches, one (1) button, one (1) subtitle, and one (1) panel.

Figure 3b. Description of the Actual Screenshot (Form 2 - Account Registration)

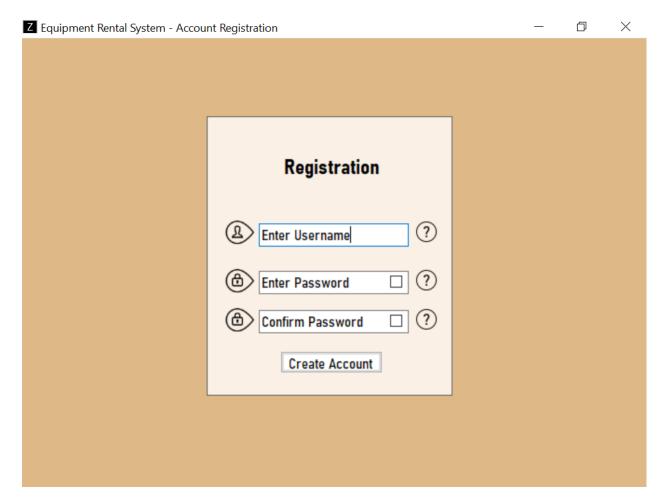


Figure 3b shows the actual screen shot for the second form entitled "Account Registration." It consists of three (3) icons, three (3) text boxes for input, three (3) help signifiers, two (2) colors, two (2) on/off switches, one (1) button, one (1) subtitle, and one (1) panel.

Form 2 is the form that will be displayed once "Register" is pressed. The form will ask for user credentials. After the creation, the user will be redirected back to the "Log In" form. The password input boxes also feature show/hide buttons to censor the password. Help signifiers are also present beside the text input boxes for starters.

Figure 4a. Description of the Wireframe (Form 3 - Guidelines)

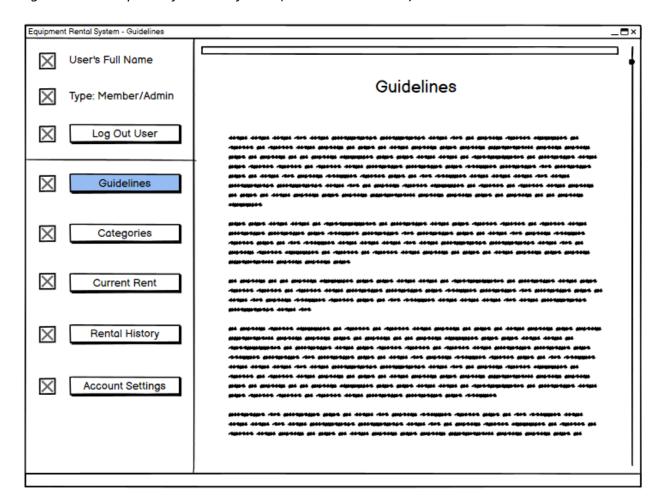


Figure 4a shows the wireframe for the third form entitled "Guidelines." It consists of eight (8) icon placeholders, six (6) buttons, four (4) text boxes, two (2) panels, one (1) vertical scroll bar, one (1) progress bar, and one (1) block of text.

Figure 4b. Description of the Actual Screen Shot (Form 3 - Guidelines)

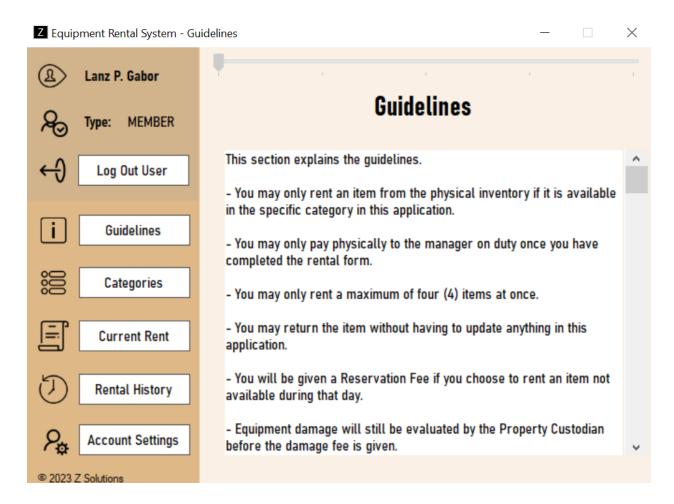


Figure 4b shows the actual screen shot for the third form entitled "Guidelines." It consists of eight (8) icons, six (6) buttons, five (5) text boxes, three (3) panels, one (1) vertical scroll bar, one (1) progress bar, and one (1) block of text.

Form 3 is the "main" form that will feature all the buttons from the side menu bar. This form displays the guidelines in using the application. Each button in the side menu bar will redirect the user to another form.

Figure 5a. Description of the Wireframe (Form 4 - Categories)

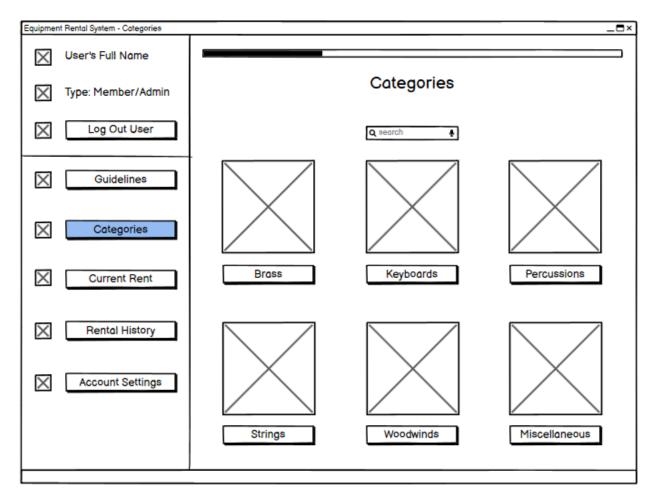


Figure 5a shows the wireframe for the fourth form entitled "Categories." It consists of fourteen (14) icon placeholders, twelve (12) buttons, four (4) text boxes, two (2) panels, one (1) progress bar, and one (1) search bar.

Figure 5b. Description of the Actual Screen Shot (Form 4 - Categories)

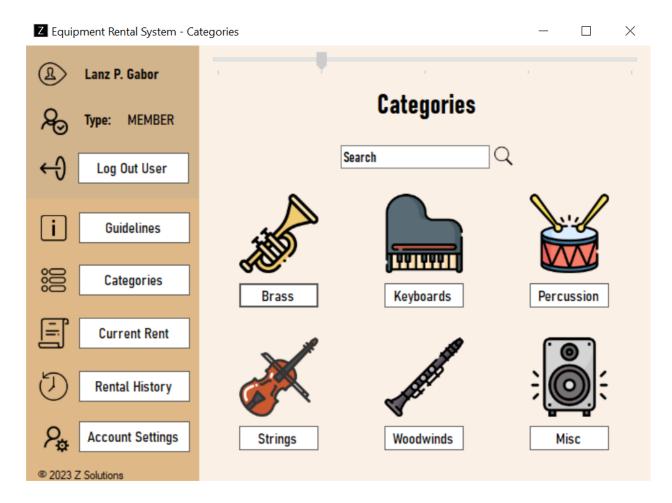


Figure 5b shows the actual screen shot for the fourth form entitled "Categories." It consists of fifteen (15) icons, thirteen (13) buttons, five (5) text boxes, two (2) panels, one (1) vertical scroll bar, one (1) progress bar, one (1) text box for input, and one (1) block of text.

Form 4 features all the instrument family categories as icons and buttons. Each button in the side menu bar will redirect the user to another form. Further, each button in the center will also redirect the user to another form. This form is used to redirect the user to the instrument family of their choice. Additionally, a search bar is included for convenience.

Figure 6a. Description of the Wireframe (Form 5 - Current Rent)

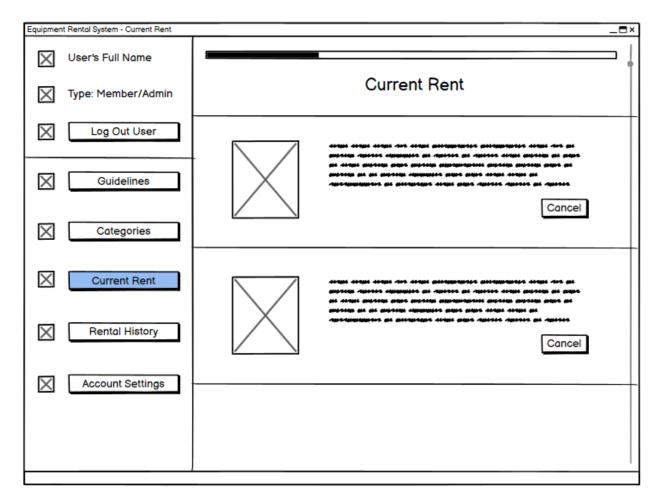


Figure 6a shows the wireframe for the fifth form entitled "Current Rent." It consists of eight (8) icon placeholders, eight (8) buttons, four (4) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, and one (1) progress bar.

Figure 6b. Description of the Actual Screen Shot (Form 5 - Current Rent)

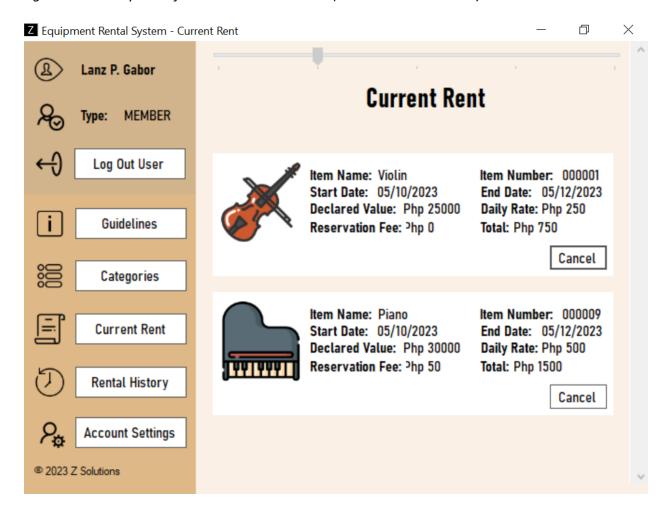


Figure 6b shows the actual screen shot for the fifth form entitled "Current Rent." It consists of eight (8) icons, eight (8) buttons, five (5) text boxes, four (4) blocks of text, four (4) panels, two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 5 features all the current rent that the user has transacted. Each button in the side menu bar will redirect the user to another form. Further, each "Cancel" button in the center will also redirect the user to the "Cancellation Process" form. This form is used to display the information of all of the current rent of the user, while they could also cancel their current rent.

Figure 7a. Description of the Wireframe (Form 6 - Rental History)

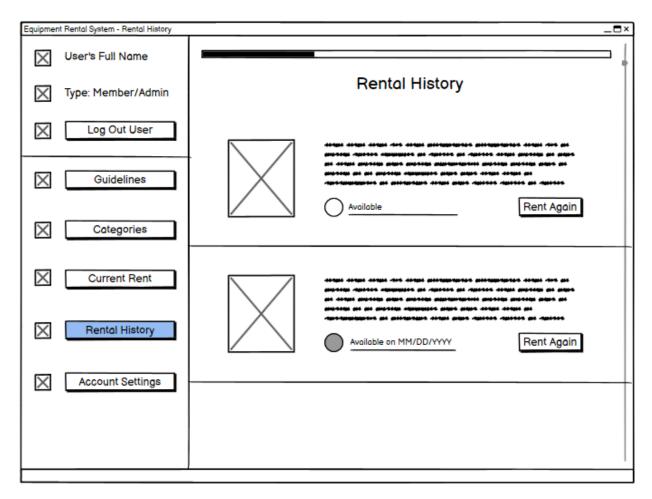


Figure 7a shows the wireframe for the sixth form entitled "Rental History." It consists of ten (10) icon placeholders, eight (8) buttons, six (6) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 7b. Description of the Actual Screen Shot (Form 6 - Rental History)

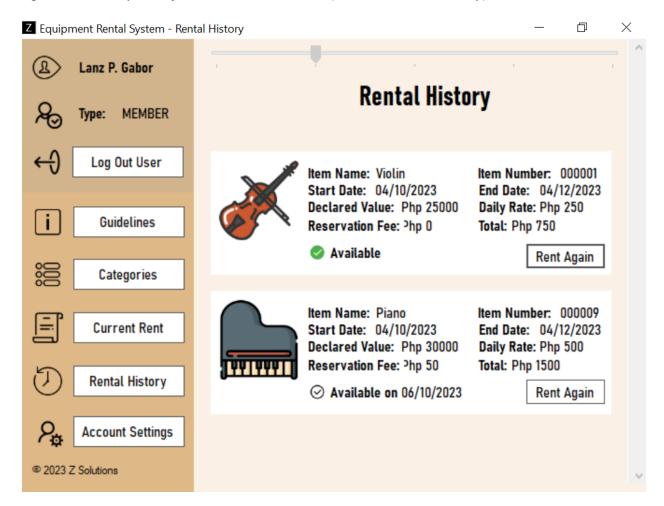


Figure 7b shows the actual screen shot for the sixth form entitled "Rental History." It consists of ten (10) icons, eight (8) buttons, seven (7) text boxes, four (4) blocks of text, four (4) panels, two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 6 features all the rental history that the user has transacted. Each button in the side menu bar will redirect the user to another form. Further, each "Rent Again" button in the center will also redirect the user to the "Categories" form. This form is used to display the information of all of the rent the user has transacted. The user can also opt to rent the instrument again at their convenience.

Figure 8a. Description of the Wireframe (Form 7 - Account Settings)

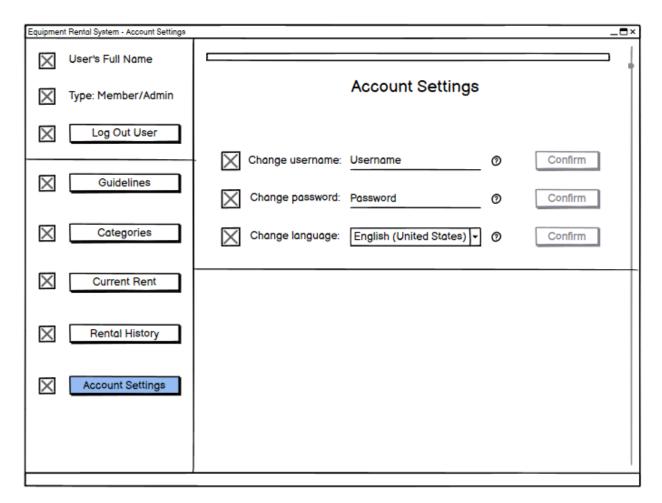


Figure 8a shows the wireframe for the seventh form entitled "Account Settings." It consists of eleven (11) icon placeholders, nine (9) buttons, seven (7) text boxes, three (3) panels, three (3) help signifiers, two (2) text boxes for input, one (1) vertical scroll bar, and one (1) progress bar, and one (1) combo box.

Figure 8b. Description of the Actual Screen Shot (Form 7 - Account Settings)

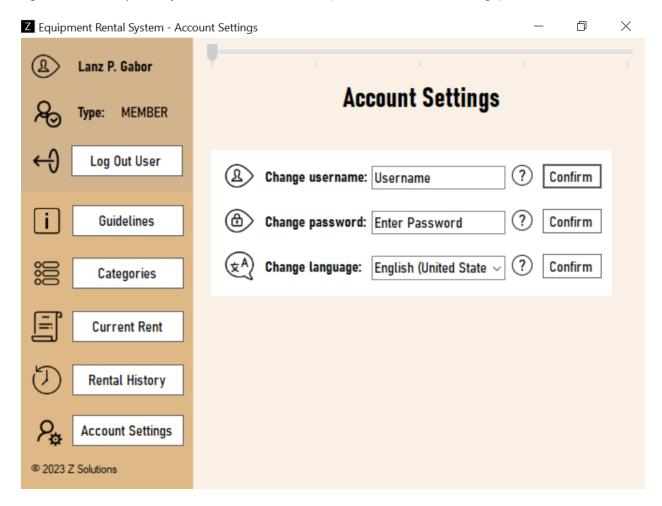


Figure 8b shows the actual screen shot for the seventh form entitled "Account Settings." It consists of eleven (11) icons, nine (9) buttons, eight (8) text boxes, three (3) panels, three (3) help signifiers, two (2) text boxes for input, one (1) combo box, and one (1) progress bar.

Form 7 features the account settings. Each button in the side menu bar will redirect the user to another form. The user can change their username, password, and language by confirming them through the "Confirm" button.

Equipment Rental System - Rental Process X User's Full Name Rental Process Type: Member/Admin Log Out User Item Name: Name Item Number: 000000 \times Guidelines Start Date: / / End Date: / / Declared Value: 0.00 Daily Rate: 0.00 Categories Current Rent Reservation Fee: 0.00 Total: 0.00 Rental History I have read and understood each clause of the guidelines and shall accept the

necessary consequences from mishandling the equipment.

RENT

Figure 9a. Description of the Wireframe (Form 8 - Rental Process)

Account Settings

 \times

Figure 9a shows the wireframe for the eighth form entitled "Rental Process." It consists of nineteen (19) text boxes, ten (10) icon placeholders, nine (9) buttons, four (4) panels, two (2) text boxes for input, two (2) check boxes, one (1) vertical scroll bar, one (1) progress bar, and one (1) block of text.

☐ Yes

Figure 9b. Description of the Actual Screen Shot (Form 8 - Rental Process)

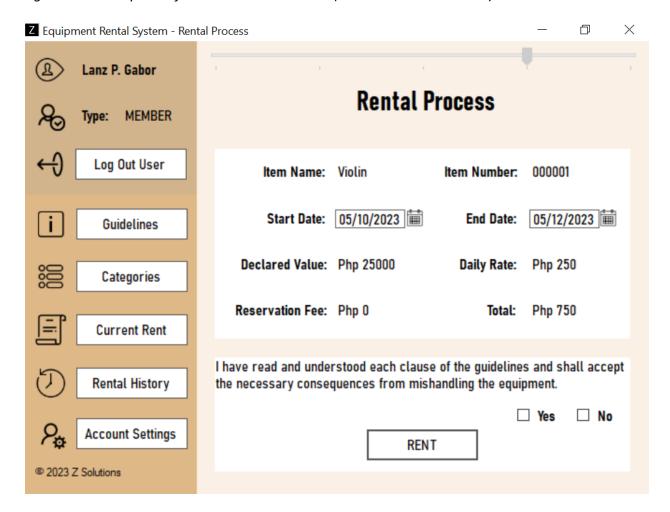


Figure 9b shows the actual screen shot for the eighth form entitled "Rental Process." It consists of twenty (20) text boxes, ten (10) icons, nine (9) buttons, four (4) panels, two (2) text boxes for input, two (2) check boxes, one (1) progress bar, and one (1) block of text.

Form 8 features the form for the rental process. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 10a. Description of the Wireframe (Form 9 - Cancellation Process)

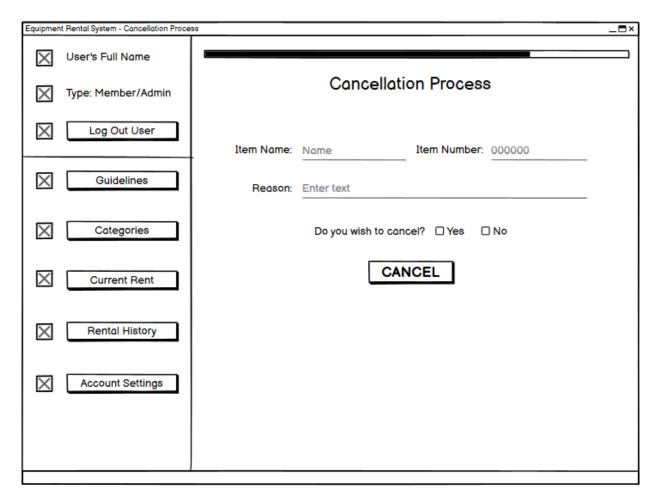


Figure 10a shows the wireframe for the ninth form entitled "Cancellation Process." It consists of twelve (12) text boxes, eight (8) icon placeholders, seven (7) buttons, four (4) panels, one (1) text box for input, two (2) check boxes, and one (1) progress bar.

Figure 10b. Description of the Actual Screen Shot (Form 9 - Cancellation Process)

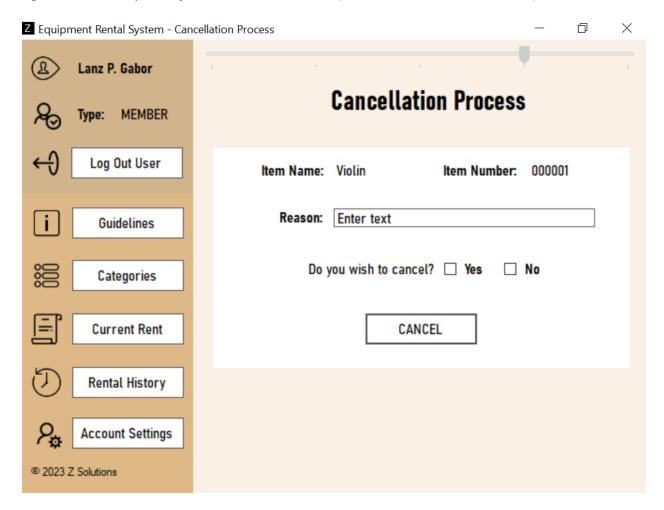


Figure 10b shows the actual screen shot for the ninth form entitled "Cancellation Process." It consists of thirteen (13) text boxes, eight (8) icon placeholders, seven (7) buttons, four (4) panels, one (1) text box for input, two (2) check boxes, and one (1) progress bar.

Form 9 features the form for the cancellation process. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be cancelling through details such as the item name and item number. The reason for cancellation should also be stated. The user must then confirm their cancellation through checkboxes before proceeding with the "Cancel" button.

Figure 11a. Description of the Wireframe (Form 10 - Brass)

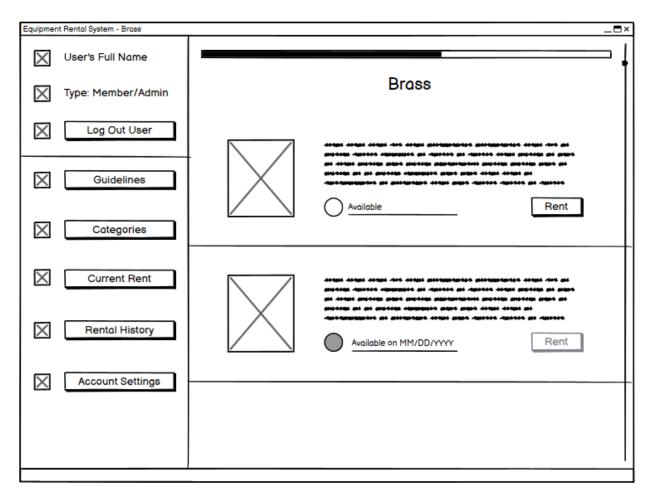


Figure 11a shows the wireframe for the tenth form entitled "Brass." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 11b. Description of the Actual Screen Shot (Form 10 - Brass)

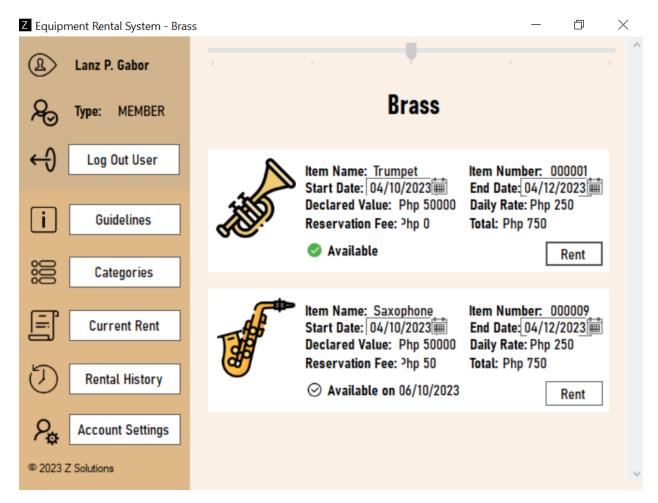


Figure 11b shows the actual screen shot for the tenth form entitled "Brass." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 10 features the category for the brass family of instruments that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 12a. Description of the Wireframe (Form 11 - Keyboards)

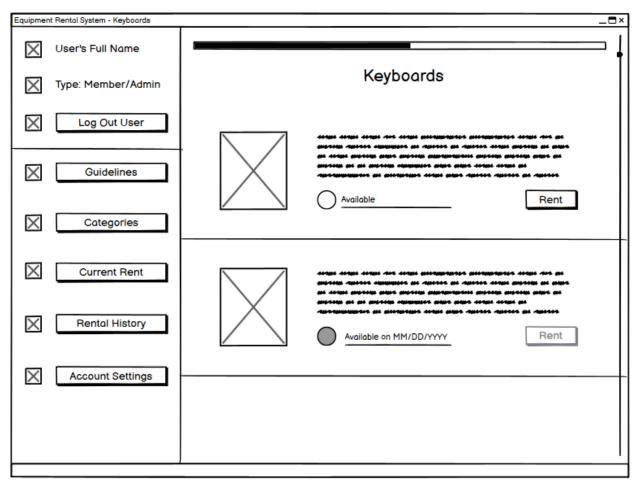


Figure 12a shows the wireframe for the eleventh form entitled "Keyboards." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 12b. Description of the Actual Screen Shot (Form 11 - Keyboards)

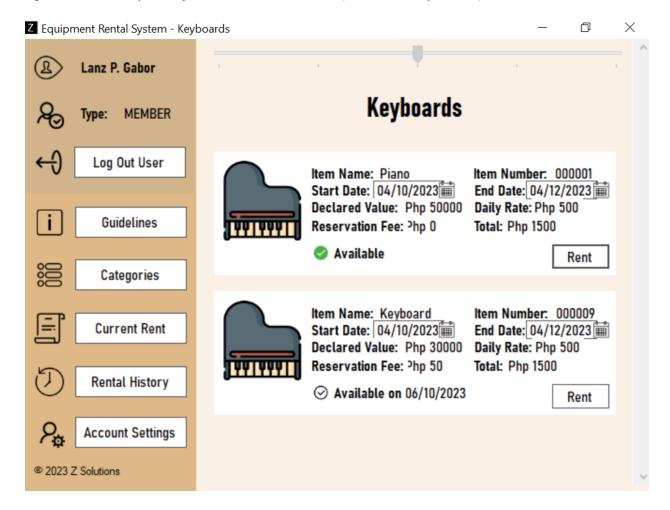


Figure 12b shows the actual screen shot for the eleventh form entitled "Keyboards." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 11 features the category for the keyboard family of instruments that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 13a. Description of the Wireframe (Form 12 - Percussions)

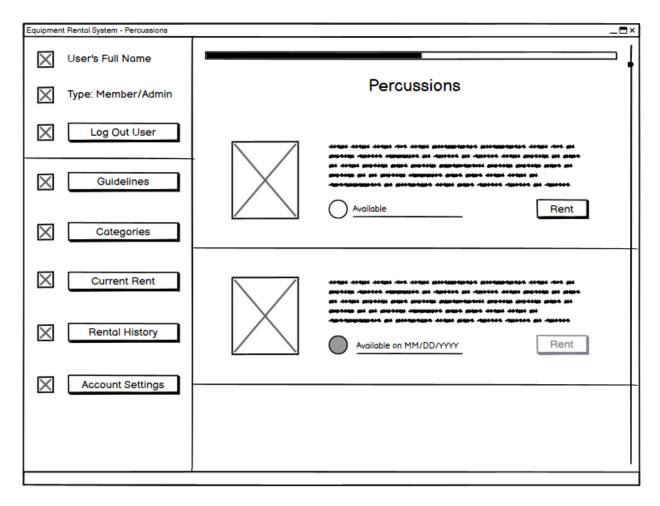


Figure 13a shows the wireframe for the twelfth form entitled "Percussions." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 13b. Description of the Actual Screen Shot (Form 12 - Percussions)

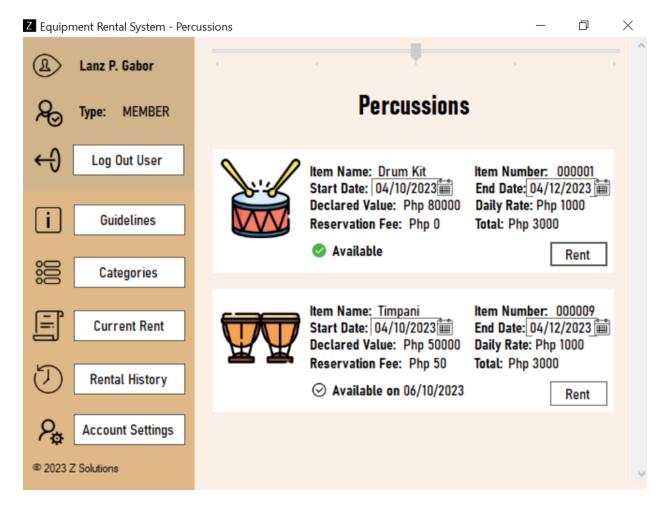


Figure 13b shows the actual screen shot for the twelfth form entitled "Percussions." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 12 features the category for the percussive family of instruments that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 14a. Description of the Wireframe (Form 13 - Strings)

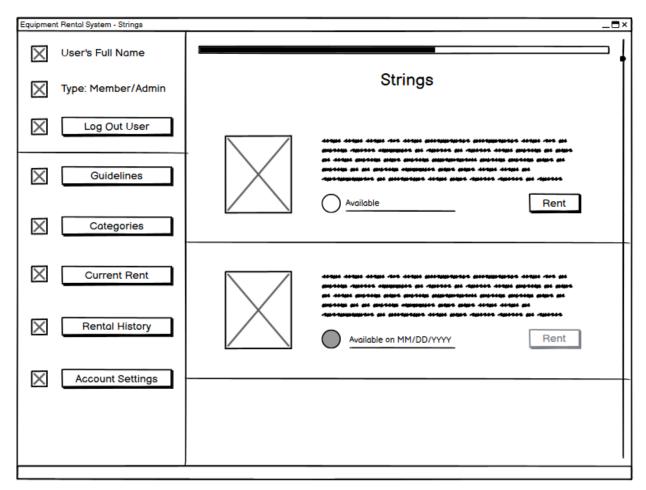


Figure 14a shows the wireframe for the thirteenth form entitled "Strings." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 14b. Description of the Actual Screen Shot (Form 13 - Strings)

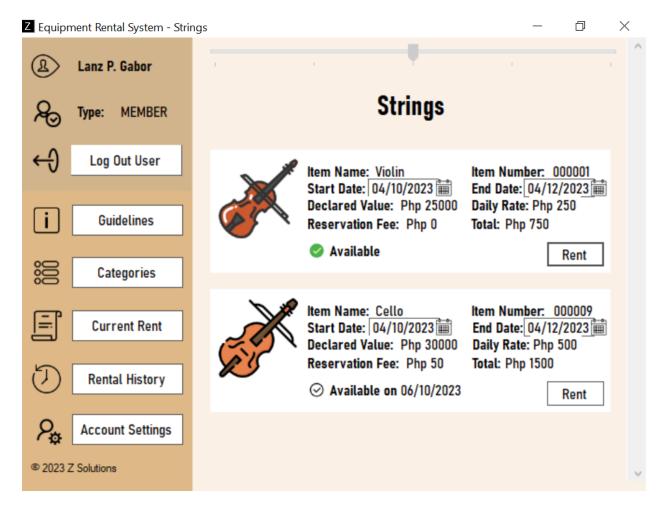


Figure 14b shows the actual screen shot for the thirteenth form entitled "Percussions." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 13 features the category for string family of instruments that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 15a. Description of the Wireframe (Form 14 - Woodwinds)

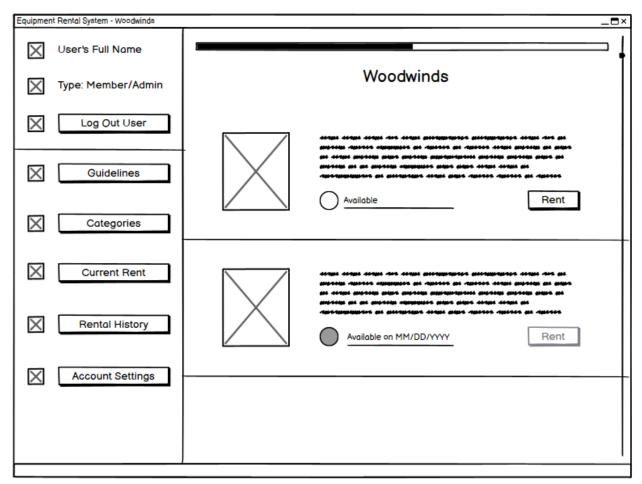


Figure 15a shows the wireframe for the fourteenth form entitled "Woodwinds." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 15b. Description of the Actual Screen Shot (Form 14 - Woodwinds)

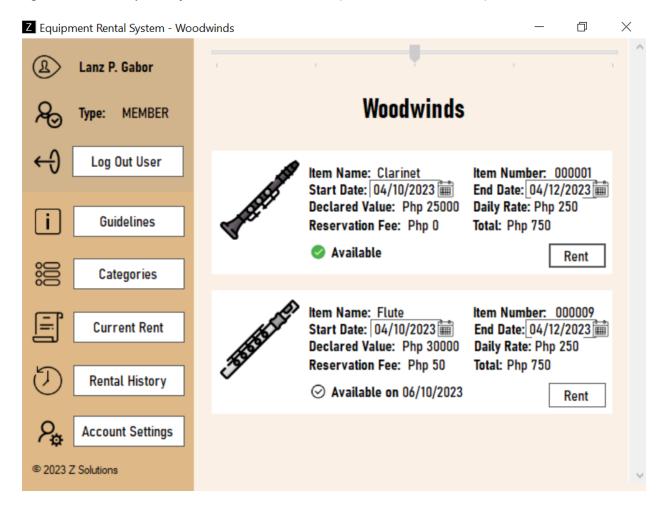


Figure 15b shows the actual screen shot for the thirteenth form entitled "Woodwinds." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 14 features the category for woodwind family of instruments that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.

Figure 16a. Description of the Wireframe (Form 14 - Miscellaneous)

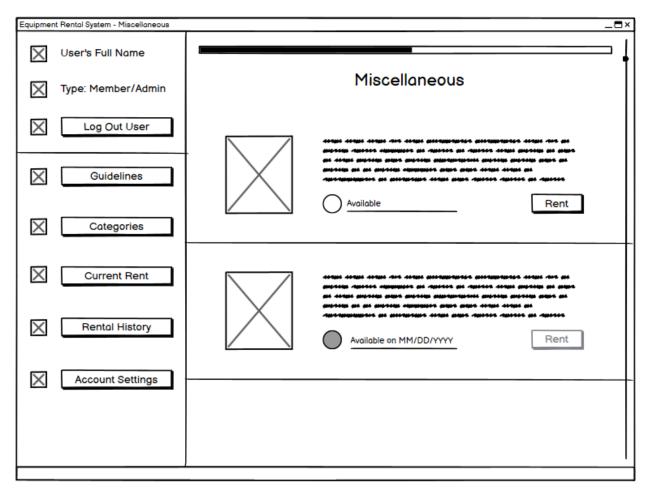


Figure 16a shows the wireframe for the fifteenth form entitled "Miscellaneous." It consists of ten (10) icon placeholders, eight (8) buttons, seven (7) text boxes, four (4) panels, two (2) image placeholders, two (2) blocks of text, one (1) vertical scroll bar, and one (1) progress bar.

Figure 16b. Description of the Actual Screen Shot (Form 15 - Miscellaneous)

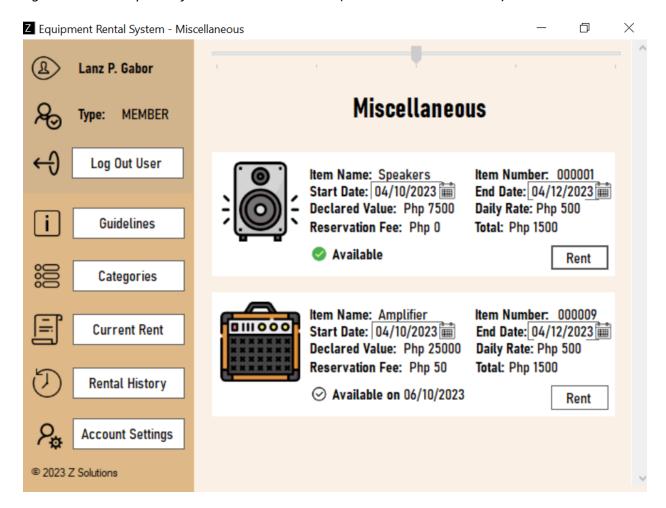


Figure 16b shows the actual screen shot for the fifteenth form entitled "Miscellaneous." It consists of fourteen (14) icons, twelve (12) buttons, eight (8) text boxes, four (4) panels, four (4) text boxes for input, four (4) blocks of text two (2) images, one (1) vertical scroll bar, and one (1) progress bar.

Form 15 features the category for miscellaneous items that can be rented. Each button in the side menu bar will redirect the user to another form. In this form, the user can review the details of the instrument that they will be renting through details such as the item name, item number, declared value, daily rate, reservation fee (for reserving), and the total. The user can also choose the starting and ending date of their rent. If the user opted for reservation instead because the availability is still at a later date, the starting date will be disabled and will be filled with the availability date.