# CTU-MAIN STUDENT INFORMATION SYSTEM

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## Abstract

In response to the operational inefficiencies commonly observed in traditional cyber cafés, this project introduces *CompFI: Smart Cyber Café Management System*, a comprehensive solution designed to streamline session handling, computer availability, and administrative oversight. The system primarily serves three user roles—admins, cashiers, and customers—each provided with tailored functionalities to enhance their experience and productivity.

At its core, CompFI automates session tracking through a real-time computer availability system and a kiosk-based customer interface. This allows customers to independently choose a computer unit, select their desired session duration, and receive a session code, which is later used by the cashier for approval and payment processing. The session begins automatically once the customer accesses their selected unit, minimizing the need for manual intervention and granting users full control over session extensions or early termination.

Cashiers benefit from a simplified approval system for session and refund requests, including both full and partial refunds, which significantly reduces their workload. Meanwhile, administrators can oversee total monthly sales, monitor session histories, and manage staff, including features for resetting passwords and updating account details. The use of Java, JavaFX, and a MySQL remote database ensures the application's robustness and scalability, while real-time updates foster smooth communication between clients and the system backend.

CompFI stands out through its self-service kiosk system, a unique feature that empowers customers and distinguishes it from most existing cyber café setups in Cebu, where manual operations are still prevalent. By shifting accountability to customers and

simplifying cashier and admin tasks, this system aims to modernize and optimize cyber café management for both efficiency and user satisfaction.

## Rationale of the Study

The growing reliance on computers for academic, professional, and recreational activities has increased the demand for accessible, efficient, and user-friendly computer rental services. Computer rental businesses and shared computing environments traditionally depend on manual processes for allocating computers, tracking usage time, and handling payments. These conventional methods often lead to operational inefficiencies, longer wait times, increased potential for human error, and higher labor costs (HashMicro, 2025; Wavetec, 2024). Furthermore, manual systems limit scalability during peak hours and constrain service availability to operating hours, which negatively impacts customer satisfaction and business profitability.

In response to these challenges, self-service kiosk technology has emerged as a critical innovation in service-oriented industries. Self-service kiosks have been widely implemented in sectors such as retail, hospitality, and quick-service restaurants, where they have demonstrated significant benefits in streamlining operations, reducing labor costs by up to 30%, and enhancing customer satisfaction through faster service and greater autonomy (Abdullah, Yusoff, & Zainal Abidin, 2021; Wavetec, 2024). These kiosks empower users to independently perform transactions such as selecting services, making payments, and managing reservations via intuitive touchscreen interfaces, thereby minimizing the need for direct staff intervention and reducing human error (Na, Joe, Hong, & Park, 2021; Intuiface, 2019).

The integration of a self-service kiosk system into computer rental services offers a promising solution to automate the display of available PCs, manage time-based rentals, and securely process payments. This automation not only improves operational efficiency but also aligns with evolving consumer preferences for contactless, convenient, and personalized service experiences (Qminder, 2020; SaM Solutions, 2025). Moreover, kiosks provide 24/7 accessibility, enabling users to rent computers outside traditional business hours, which expands service availability and maximizes resource utilization (Wavetec, 2024).

Manual management of computer rentals presents several challenges, including the risk of miscommunication between staff and customers, inconsistent record-keeping, and increased administrative overhead (Kiosk Group, 2022). In contrast, a computer management kiosk system provides real-time information on PC availability, allowing users to select and rent computers according to their needs without continuous staff supervision. This transition from manual to automated management not only addresses existing inefficiencies but also enhances data accuracy and security through digital transaction records and user authentication mechanisms (HashMicro, 2025; Kiosk Group, 2022).

Research further indicates that the implementation of self-service kiosks leads to higher customer satisfaction, improved service accuracy, and increased business profitability due to higher transaction volumes and reduced operational costs (Abdullah et al., 2021; Na et al., 2021). The ability of kiosks to collect valuable customer data also enables businesses to analyze usage patterns and optimize resource allocation,

contributing to continuous service improvement (SaM Solutions, 2025). Additionally, self-service kiosks promote environmental sustainability by reducing paper waste through digital interfaces (Wavetec, 2024).

Given these advantages, the Computer Management Kiosk system aims to provide a scalable, secure, and user-centric solution tailored to the needs of computer rental businesses and shared computing spaces. By automating the rental process and empowering users with greater control over their transactions, this system has the potential to transform traditional computer rental operations into a more agile, efficient, and customer-focused service model. Ultimately, adopting such technology contributes to the sustainability and competitiveness of businesses in the rapidly evolving digital era.

## Objectives of the Study

The primary aim of this study is to develop a Computer Management Kiosk system designed to automate and streamline the process of renting and managing computers in shared environments such as computer shops, libraries, and co-working spaces. The system seeks to enhance operational efficiency, improve user experience, and provide a secure, user-friendly platform for both customers and administrators. Ultimately, it aims to optimize resource utilization and support the sustainable growth of computer rental businesses.

## Specific Objectives

1. Develop a kiosk application that enables customers to:
    - View real-time availability of computers.
    - Select and reserve a computer for a specified duration.
    - Choose rental time and process payments securely.
    - Receive notifications regarding session start, end, and remaining time.

2. Develop an application interface for administrators to:
    - Register and log in account.
    - Add account or cashier.
    - Add computer.
    - Monitor real-time usage and availability of all computers.
    - Manage computer status (available, in use, under maintenance).
    - Access and session records.
    - Generate usage and revenue reports for business analysis.
    - Configure system pricing.

3. Implement security and management features to:
    - Ensure secure user authentication and data privacy.
    - Prevent unauthorized access to computers and system settings.

- Provide audit trails for all transactions and activities.
- Enable remote troubleshooting and maintenance capabilities.

## Review of Related Studies

This section reviews relevant studies and real-world implementations related to self-service kiosks and automated computer rental systems. The goal is to examine current technologies, user acceptance factors, and operational challenges in kiosk-based resource management. These insights provide a foundation for designing an effective Computer Management Kiosk system that addresses existing gaps and meets user needs.

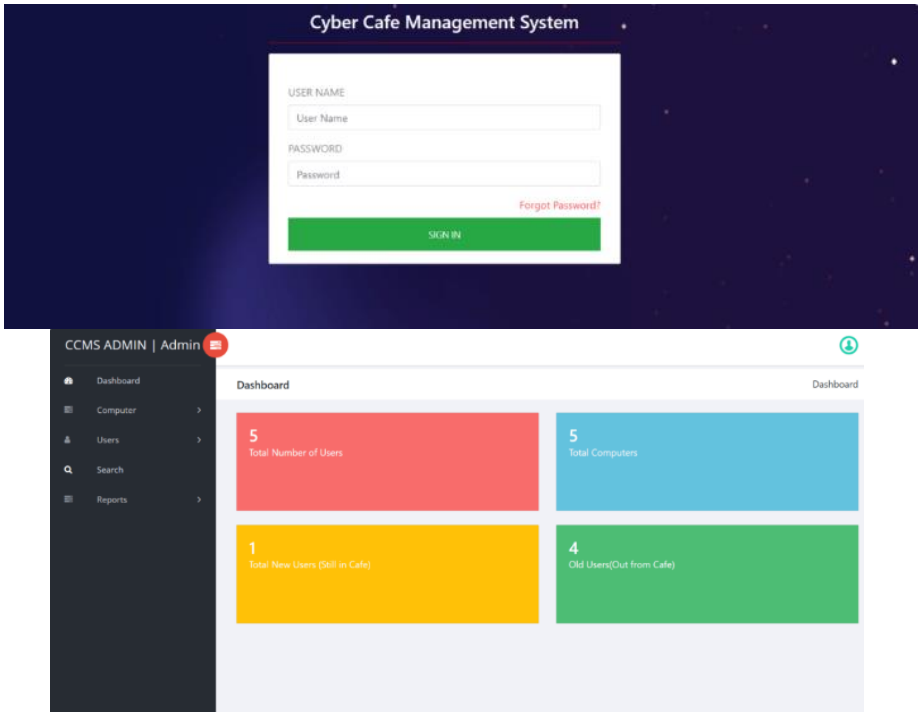


**Figure 1: Selected Screenshots for PHPGurukul Cyber Cafe Management System**

### PHPGurukul Cyber Café Management System

The Cyber Cafe Management System (Kumar, 2024a) is a software program that is developed using PHP and MySQL intended to monitor and control computers usage in Internet cafes. Small to medium-sized businesses that operate cyber cafes can use this system to track user sessions and automate billing to session length. Furthermore, its

database structure and underlying logic offer insightful information for creating a desktop kiosk system with JavaFX. This project serves as a foundational framework for developing a comprehensive Computer Café Management System. Having session tracking to track accurate logging of user login and logout times, user data management to maintain detailed user records. Along with areas for enhancements, which would be user interface to enable customer to view their session details, and an automated billing to calculate charges based on session duration.

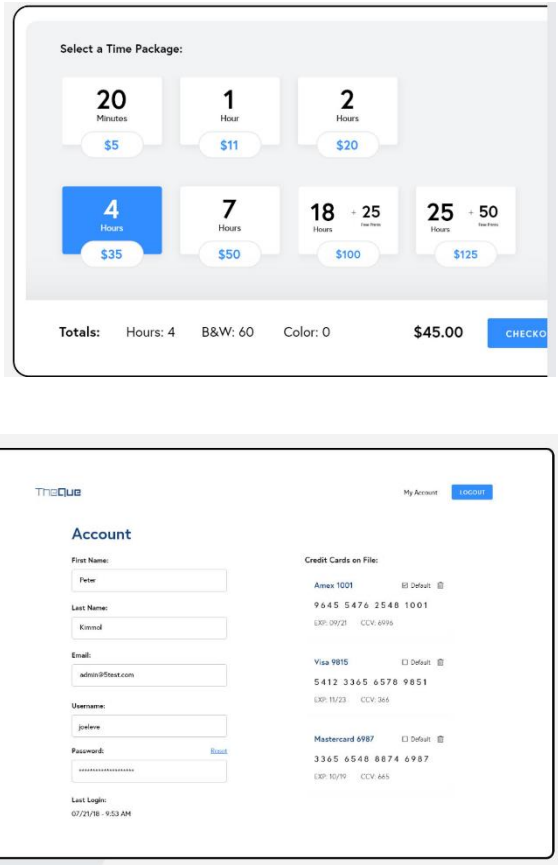


**Figure 2: Selected Screenshots for The Que Kiosk Shop Customer Portal**

## The Que Kiosk Shop Customer Portal

Intent UX (n.d.) presents a comprehensive case study on The Que, a retail space offering hourly computer cubicle rentals through a custom-designed kiosk reservation and

purchase portal. The project emphasized a user-centered design approach, targeting users with varying levels of technological proficiency, including those who are non-tech-savvy. Through collaboration with retail staff and detailed analysis of user pain points, the design team identified critical usability issues in existing off-the-shelf software solutions, such as complex navigation and limited payment options.

The resulting web-based kiosk system streamlined the process of purchasing kiosk time and print credits, significantly improving user experience and operational efficiency. The study highlights the importance of flexible, intuitive interfaces and the integration of real-time availability data to meet the dynamic needs of customers. Moreover, it underscores how tailored kiosk solutions can enhance business operations by reducing staff workload and enabling 24/7 self-service access (Intent UX, n.d.).

This case study is particularly relevant as it demonstrates practical strategies for overcoming common challenges in computer rental kiosks, including user engagement and transaction security.


**Figure 3: Selected Screenshots for Antamedia Internet Café Software**

## Antamedia Internet Café Software

The Antamedia Internet Cafe Software (Antamedia, 2025) is a comprehensive windows-based client/server application designed to skillfully manage and secure public access computers, kiosks, and more. It is suitable in environments such as internet cafes, gaming centers, libraries, and schools while incorporating session management and billing, which requires users to login before accessing services, enabling automated session tracking and payment processing. Its security and access control capabilities allow administrators to restrict access to specific system components, establishing data protection and responsible usage.

Furthermore, customization and scalability options support branding and system expansion to meet the needs of growing operations. Reporting and analytics tools generate comprehensive reports on usage statistics, sales data, and overall system activity.

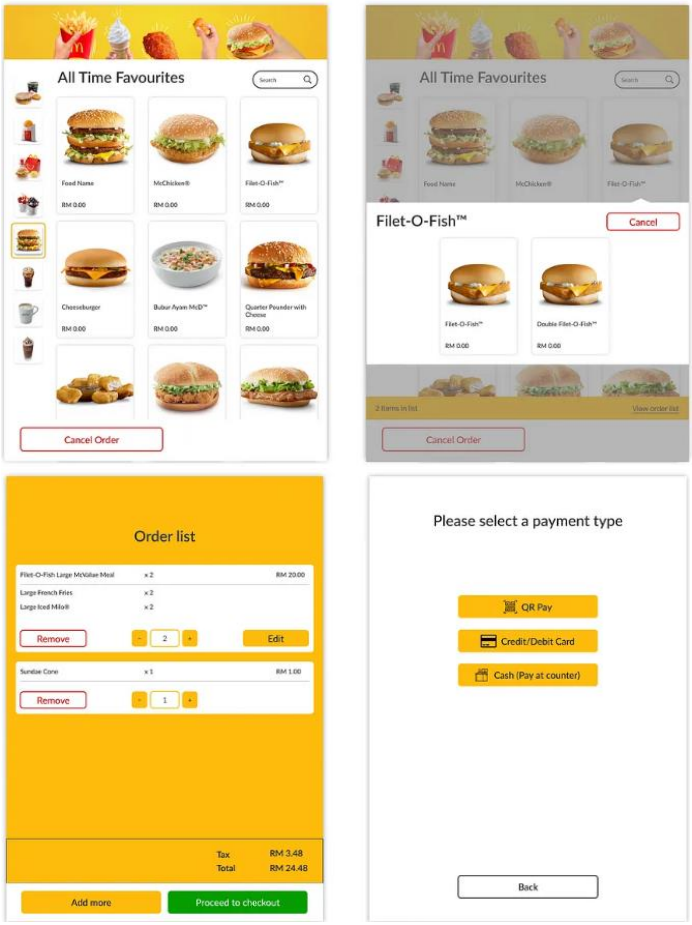


**Figure 4: Selected Screenshots for McDonald's Kiosk Ordering System**

## McDonald's Kiosk Ordering System

This study offers a rigorous analysis of user interactions with McDonald's self-service kiosks. It is highly relevant for the development of a Computer Café Management System, as it highlights several operational issues and provides suggestions for redesigning the interface. Leong (2021) identified specific problems related to food selection, meal customization, the payment process, and the order numbering system.

The ideas from this case study are applicable to designing a user-friendly computer café management system like Intuitive Navigation, Customization Options, Simplifies Payment Process, Consistent Order Tracking, a User-Centric Design. With these features developing a Cyber Café Kiosk Management System ensures that users can seamlessly

navigate through services, customize their sessions, integrate a straightforward payment system, implement a coherent system for tracking user sessions and orders, conduct user testing with individuals to ensure the system is accessible and intuitive for all users.

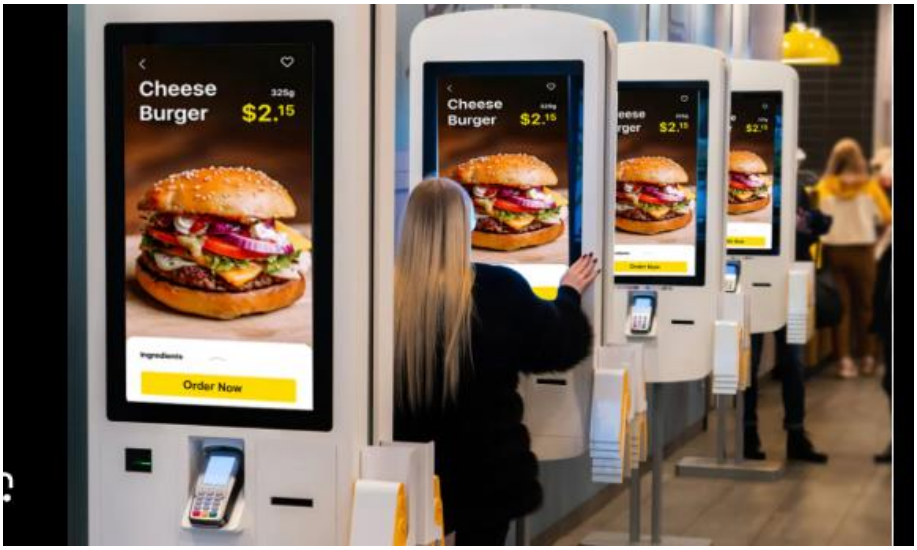


**Figure 5: Selected Picture for Self-Service Kiosks in Quick-Service Restaurants**

## Self-Service Kiosks in Quick-Service Restaurants

Abdullah, Yusoff, and Zainal Abidin (2021) conducted a study on the adoption of self-service kiosks in Malaysian quick-service restaurants, focusing on factors influencing customer satisfaction and usage intention. Their findings indicate that attitude toward technology and social influence are significant predictors of kiosk adoption, while effort expectancy (ease of use) strongly affects user satisfaction. The research underscores the importance of intuitive interface design and clear visual feedback in encouraging repeat usage and positive user experiences. Although this study centers on the food service industry, its insights are transferable to computer rental kiosks, where user acceptance is critical for success. Designing kiosks that accommodate users with varying technological skills and providing straightforward workflows can significantly improve adoption rates and operational outcomes.

**Table 1. Comparative Matrix: Specific Features**

| Features / Systems | Compfi | PHPGurukul Cyber Café Management System | The Que Computer Rental Kiosk System | Antamedia Internet Café Software | McDonald's Kiosk Ordering System | Self-Service Kiosks in Quick-Service Restaurants |
|---|---|---|---|---|---|---|
| View real-time availability of computers | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Select and reserve a computer for a specified duration | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Secure payment processing | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| User authentication and account management | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Notifications for session start, end, and remaining time | ✓ | | ✓ | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Admin interface for managing computers and users | ✓ | ✓ | ✓ | ✓ | Limited | Limited |
| Real-time monitoring of computer status | ✓ | ✓ | ✓ | ✓ | Limited | Limited |
| Manage computer status (available, in use, maintenance) | ✓ | ✓ | ✓ | ✓ | Limited | Limited |
| Configure pricing, time limits, and notifications | ✓ | | ✓ | Limited | Limited | Limited |
| Secure user data and prevent unauthorized access | | ✓ | | | | |
| Remote troubleshooting | ✓ | Limited | Limited | Limited | Limited | Limited |

| | | | | | | |
|---|---|---|---|---|---|---|
| and maintenance | | | | | | |
| User-friendly touchscreen interface | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Support for legacy payment methods (coins, cards) | | ✓ | Limited | ✓ | ✓ | Limited |
| Generate usage and revenue reports | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Partial and full refunds | ✓ | | | | | |
| **Total** | 11 | 11 | 11 | 10 | 5 | 6 |

**Table 1: Comparative Matrix Analysis**

## Program Workflow

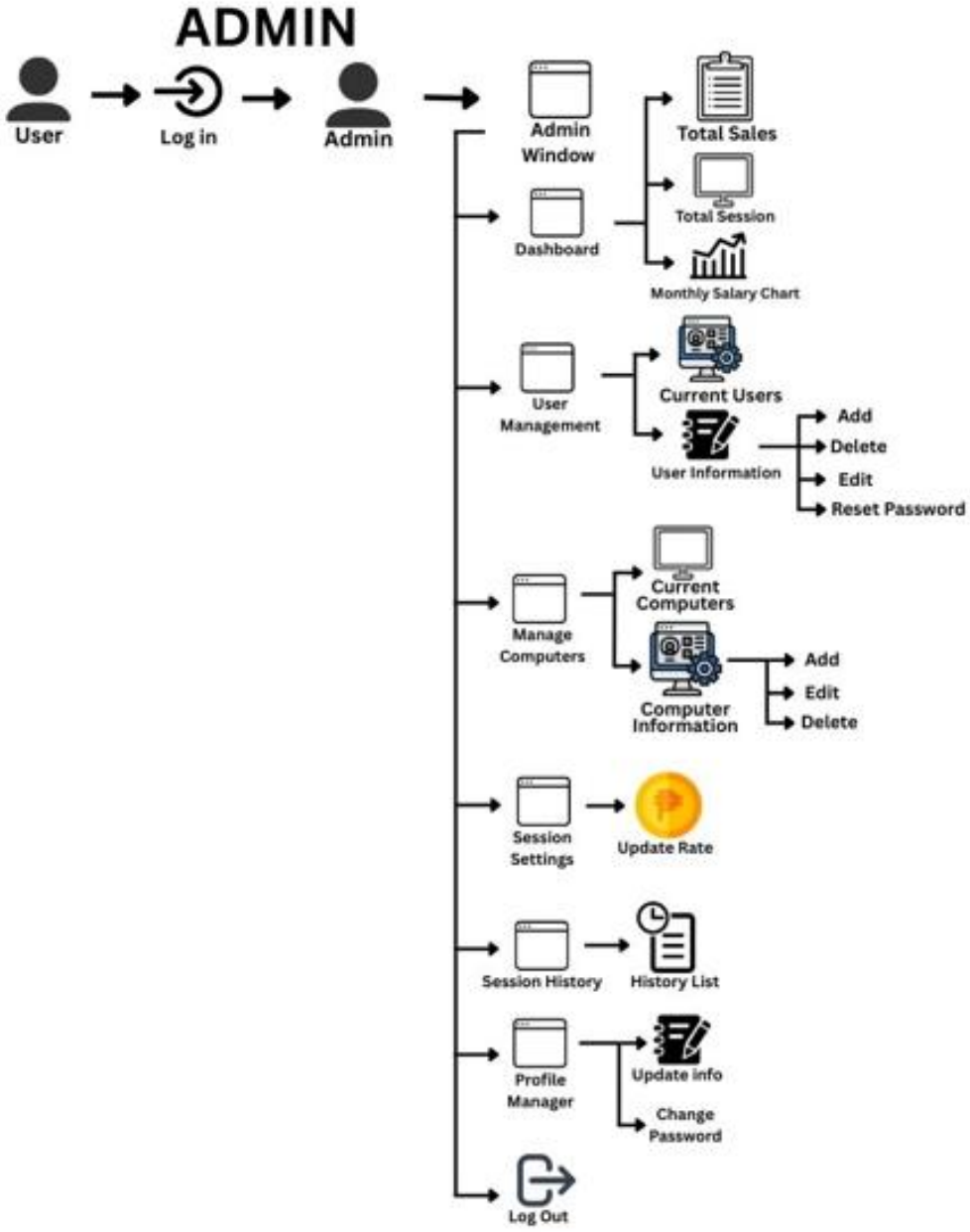


**Figure 6: Program Workflow for Admin**

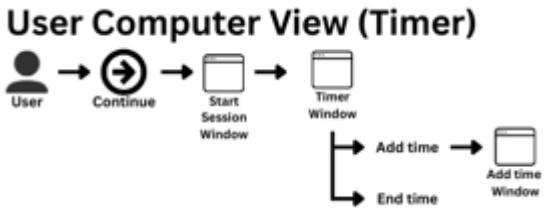


**Figure 7: Program Workflow for User Computer View**

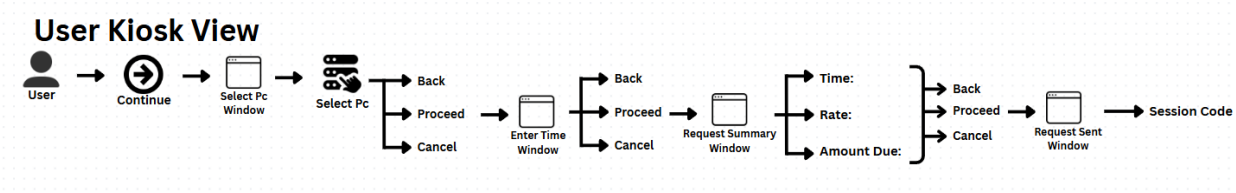


**Figure 8: Program Workflow for User Kiosk**

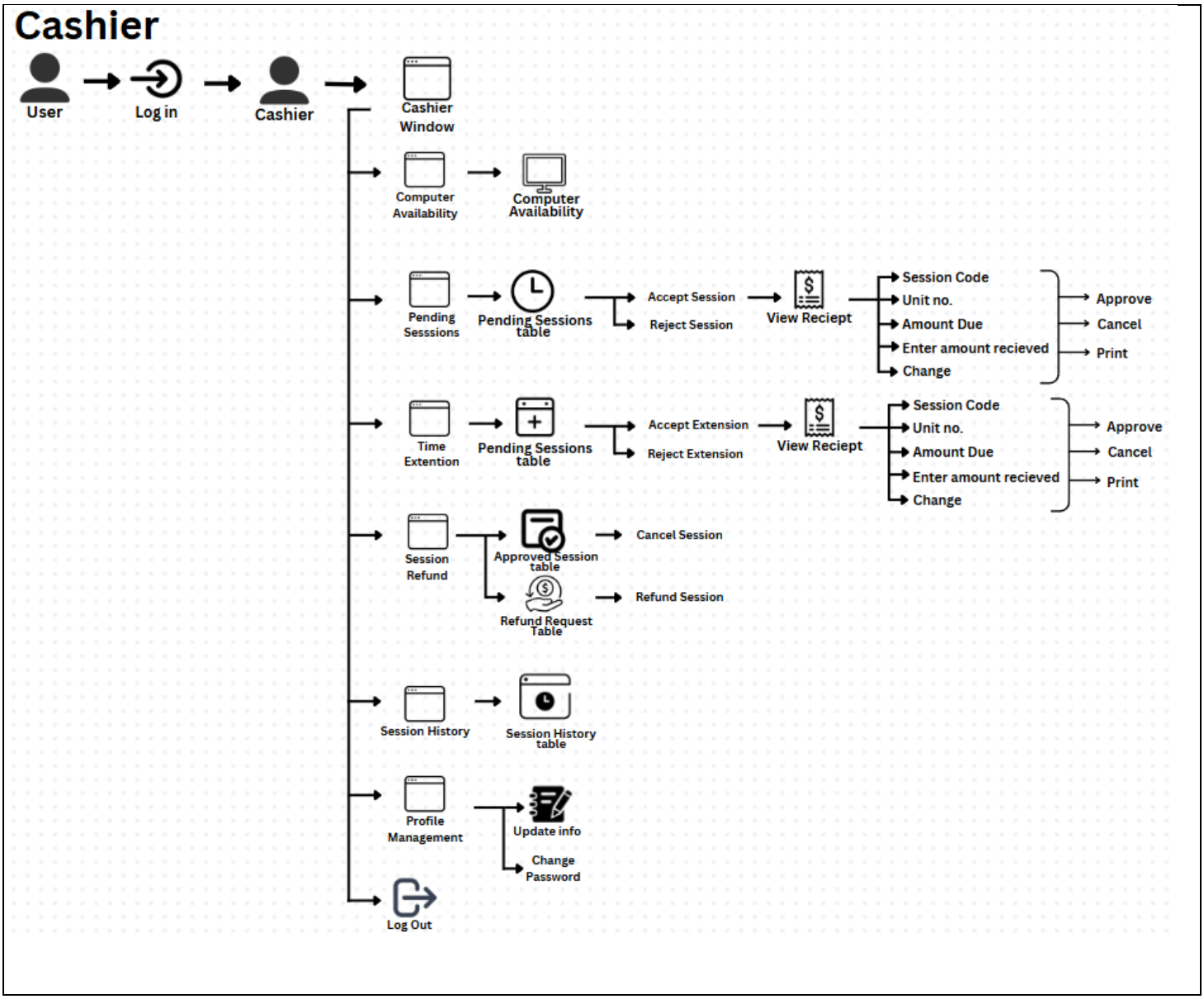


**Figure 9: Program Workflow for Cashier**

**Storyboard**


**Figure 10: Login Window**

Figure 10 shows the Login Window for both Admins and Cashiers. Create Session button makes Figure 14 Appear. Clicking Forgot password also leads to Figure 11.

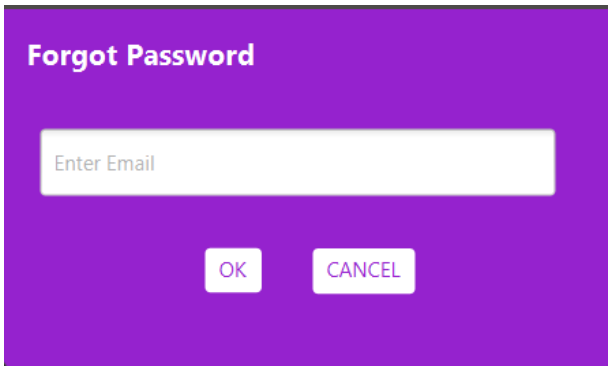


**Figure 11. Forgot Password Enter Email Panel**

Figure 11 shows an area where Admins and Cashiers enter their Email to change their password. For secure changing it then leads to Figure 12.

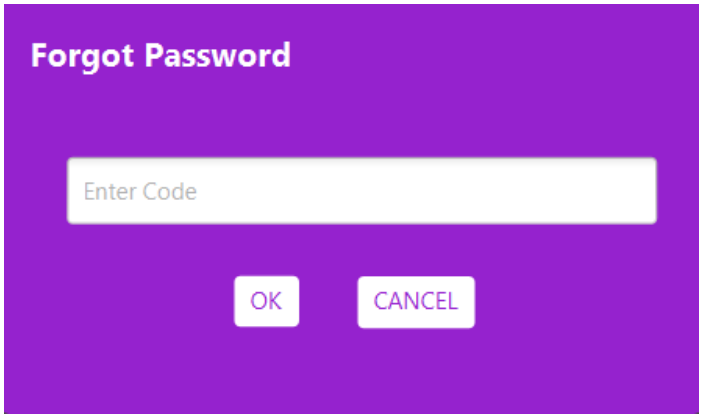


**Figure 12. Forgot Password Enter Code**

After Figure 11, the system sends a 6 numbered alphanumeric code via Email, therefore enhancing security. Figure 12 shows a panel wherein the given code is placed, which leads to Figure 13.

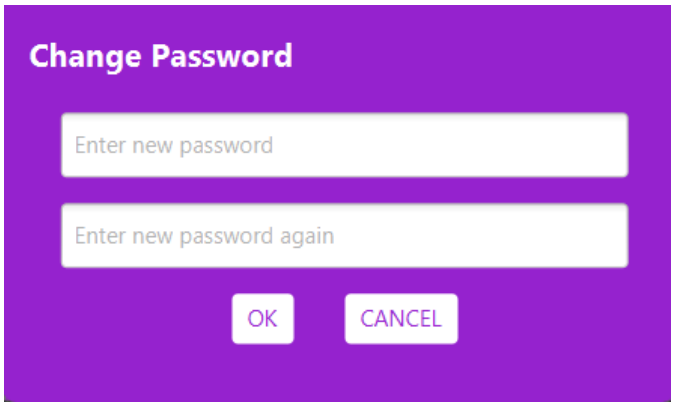


**Figure 13. Change Password**

Figure 13 shows the change password panel which allows user to change their password.

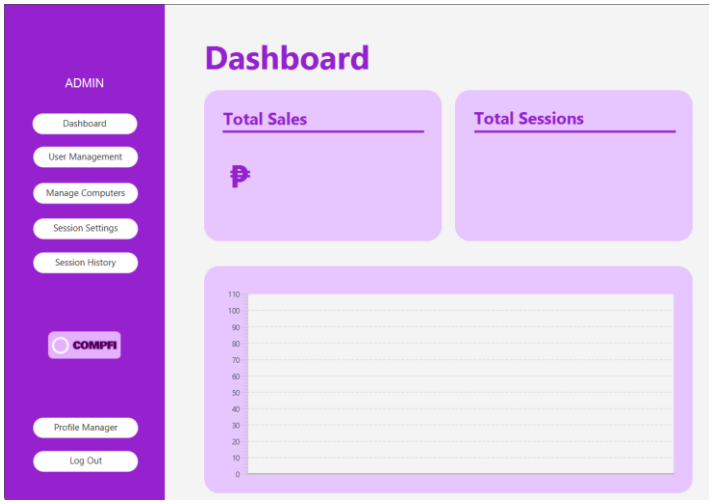


**Figure 14: Admin Dashboard**

Figure 14 Shows the total sales and sessions monthly bellow is the graph of the sales and sessions

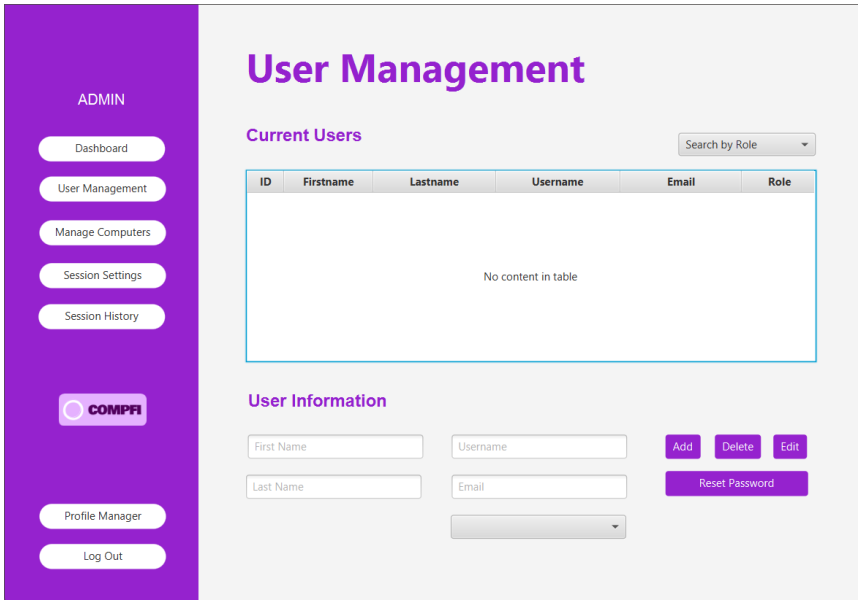


**Figure 15: Admin User Management**

Figure 15 Shows all the users, showing their First name, Last name, Username, Email, and Roles (Admin or Cashier) this is where the admin can add, edit and delete user accounts.

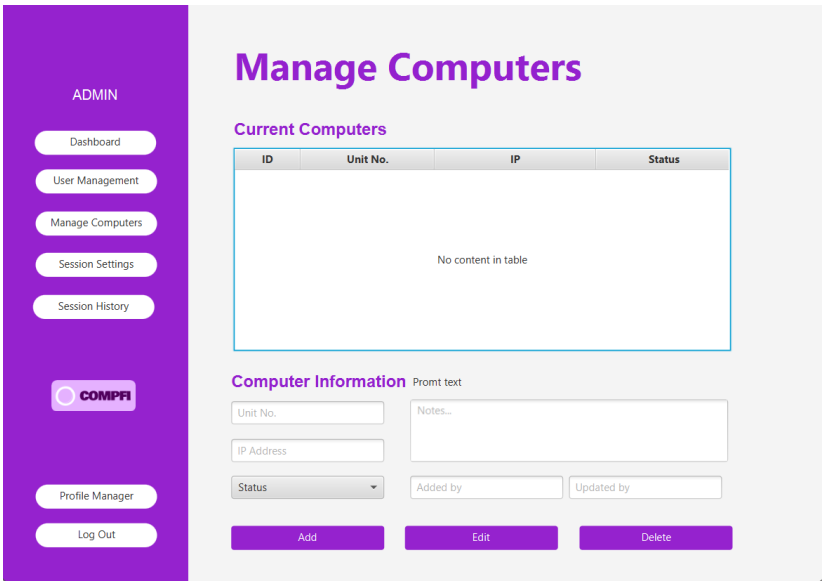


**Figure 16: Admin Manage Computers**

Figure 16 Shows all the computer details such as ID, unit number, IP address, and Status (Online or Offline). This is where the admin can add, edit, and delete computers.

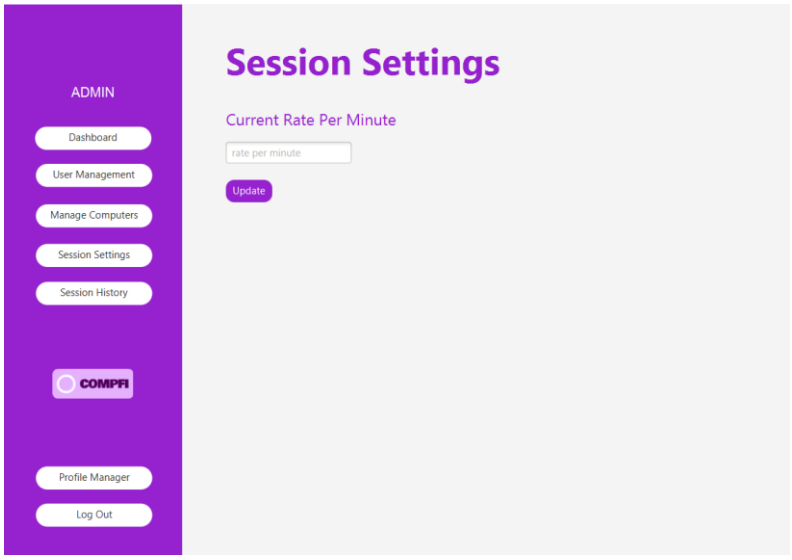


**Figure 17: Admin Session Settings**

Figure 17 shows the session settings which displays the current rate per minute, and allows the admin to update the session rate.

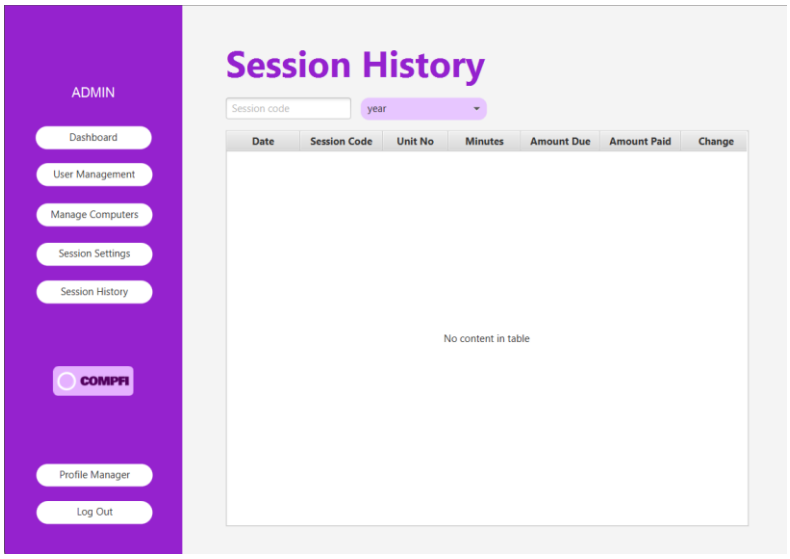


**Figure 18: Admin Session History**

Figure 18 displays the admin session history, where the admin can view and search for sessions. In the upper left the admin can search past or present sessions, by typing the session code and the year. The interface shows the date, session code, unit number, minutes, the amount due, amount paid, and change.

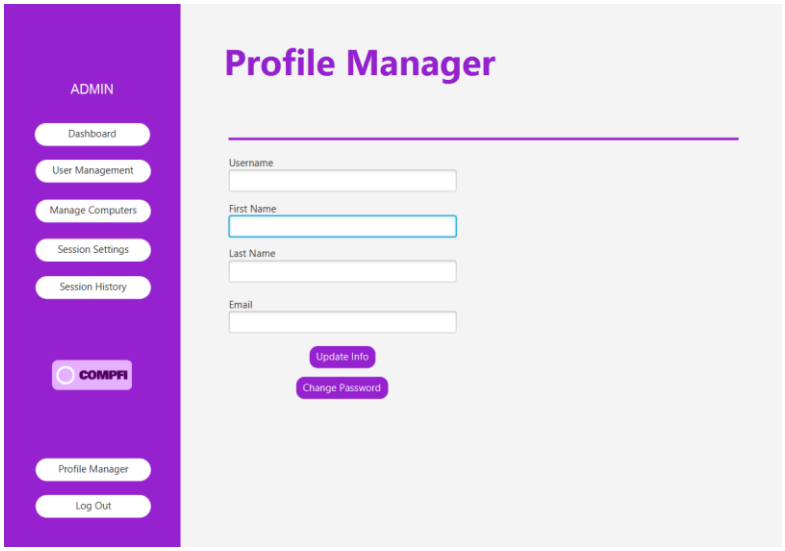


**Figure 19: Admin Profile Manager**

Figure 19 shows the profile manager section, where the admin can update their username, first name, last name, email, and change their password.

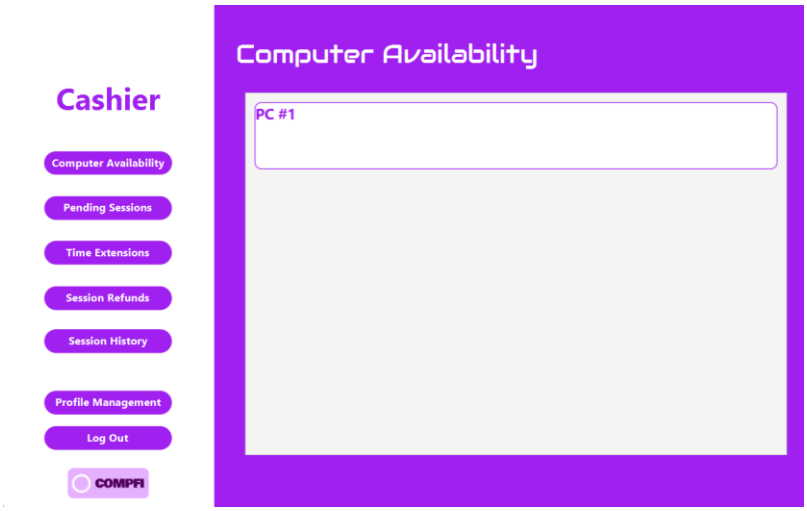


**Figure 20: Cashier Computer Availability**

Figure 20 shows the Cashier Computer Availability where it displays the current available computers.

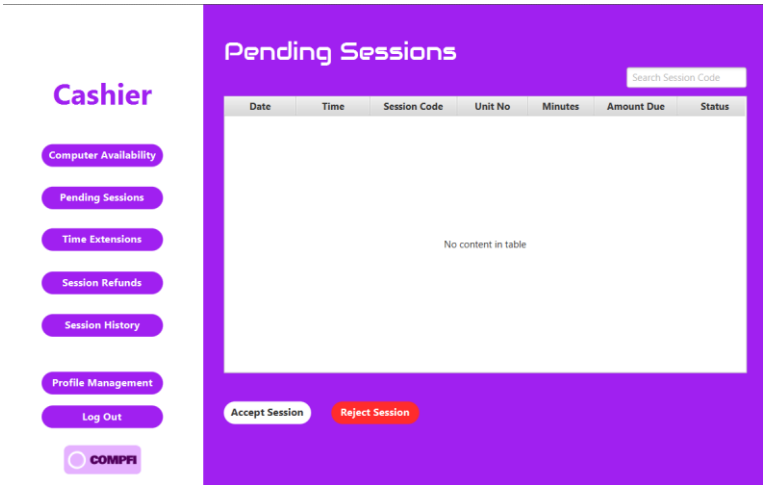


**Figure 21: Cashier Pending Sessions**

Figure 21 shows the cashier pending sessions, where the cashier can view the user's session requests. In the upper right a search bar is added so that the cashier can look for a specific session code. While in the pending sessions table shows the details of the session requests, such as: date, time, session code, unit number, minutes, amount due, and status. The cashier can then accept the session (proceed to Figure 19) or reject the session.

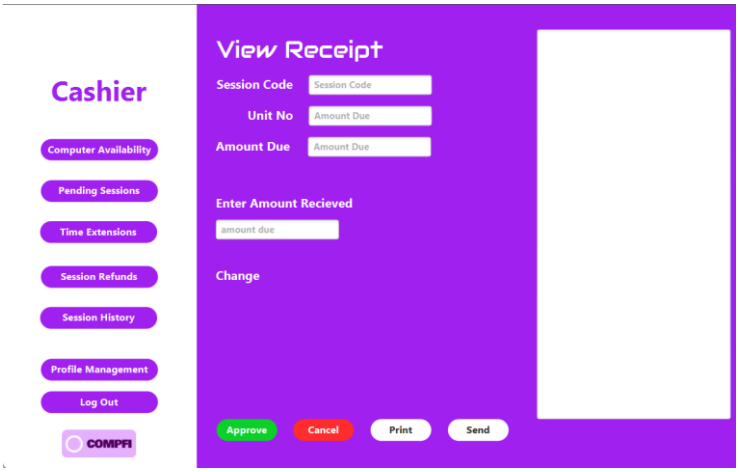


**Figure 22: Cashier View Receipt**

Figure 22 displays the cashier view receipt after the cashier accepted the session request in Figure 21. This section displays a text field where cashier can type the session code, unit number, amount due, the amount received, and shows the change. Then the cashier can choose whether they approve, cancel, or print the customer's receipt.

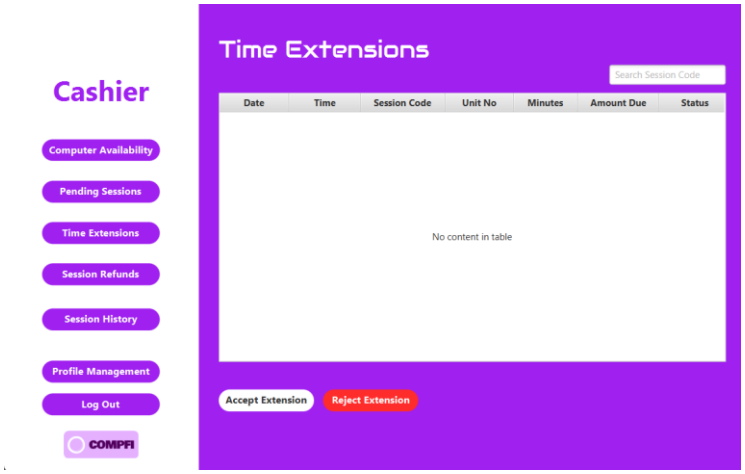


**Figure 23: Cashier Time Extensions**

Figure 23 shows the cashier time extensions, where the cashier can update and extend the user's session. It displays a search bar to search the session code, and a sessions table to display the date, time, session code, unit number, minutes, amount due, and status. Then the cashier can choose to accept or reject the extension.

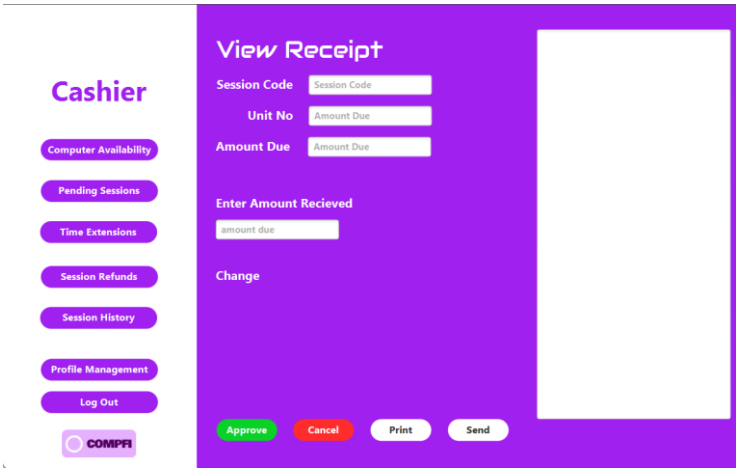


**Figure 24: Cashier View Receipt**

Figure 24 displays the cashier view receipt after the cashier accepted the session request in Figure 23. This section displays a text field where cashier can type the session code, unit number, amount due, the amount received, and shows the change. Then the cashier can choose whether they approve, cancel, or print the customer's receipt.

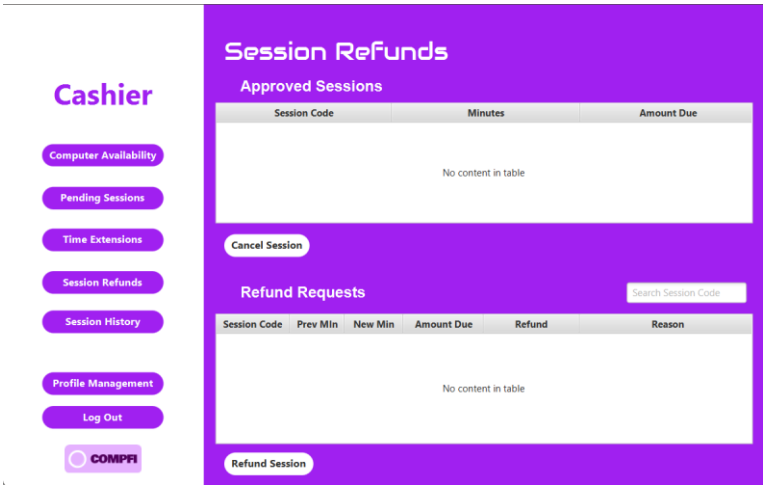


**Figure 25: Cashier Session Refund**

Figure 25 shows the cashier session refund, where it displays the approved sessions table in the upper part, and a refund requests table in the lower part. The Approved sessions table contains session code, minutes, and amount due, as well as a cancel session button located below the table. While the refund requests table contains a session code, preview minutes, new minutes, amount due, refund, reason, and a search bar, as well as a refund session button located outside the table.

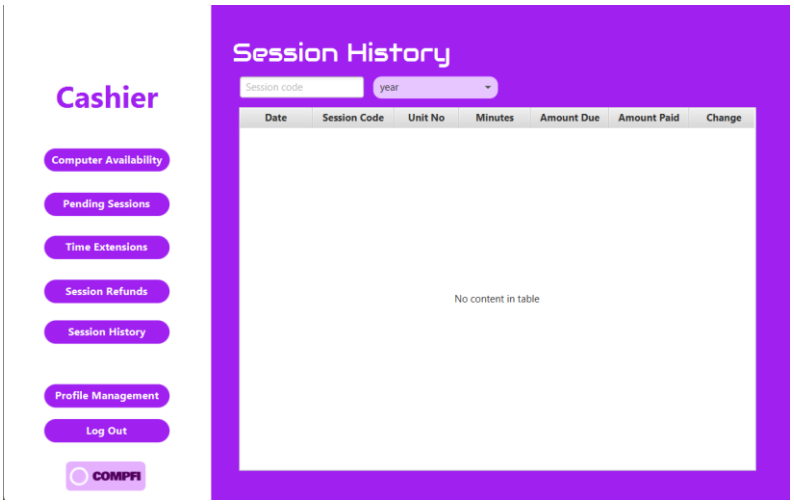


**Figure 26: Cashier Session History**

Figure 26 shows the cashier session history, in which a sessions table is shown with the same content in Figure 18, but a search bar and a year selection is located outside the table on the top right corner.

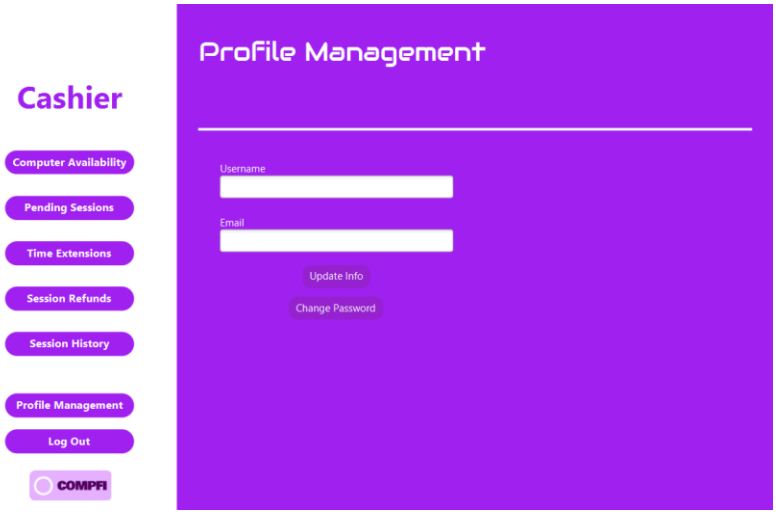


**Figure 27: Cashier Profile Management**

Figure 27 shows the cashier profile management, where a cashier can update their information by changing their username, email, and change their password.


**Figure 28: User Computer View Start Session Window**

Figure 28 shows the user computer view start session window, which displays a press to start button, that leads users to Figure # and an (x) symbol to close the window and lead to Figure 29.

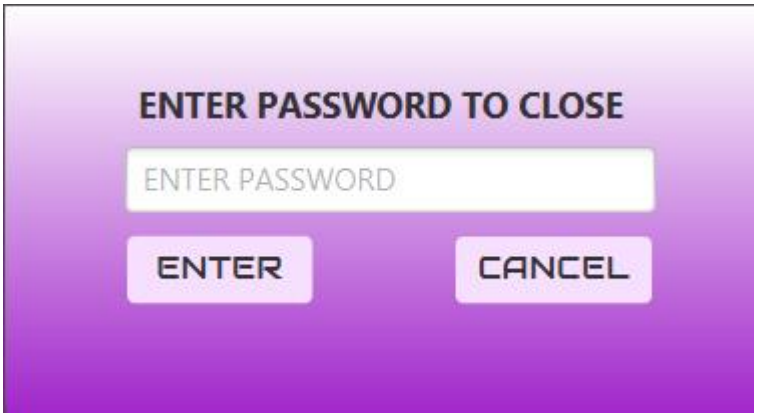


**Figure 29: User Computer View Enter Password to Close**

Figure 29 shows the user computer view enter password to close, it asks a password from the user to easily and securely exit the application.

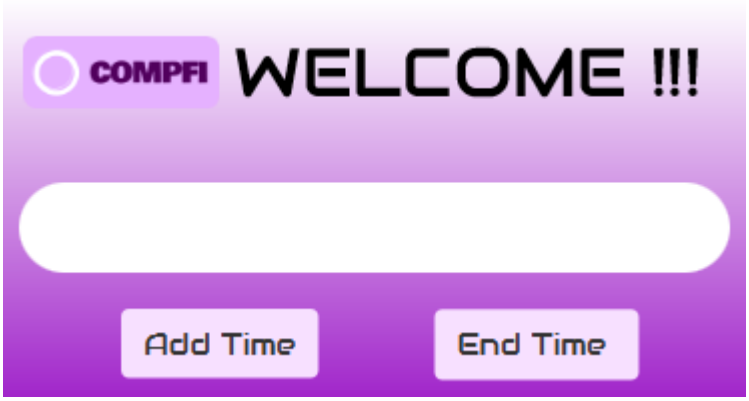


**Figure 30: User Computer View Timer Window**

Figure 30 shows the user computer view timer window, where the users can type in their session time. The customer can then add time session or end time session.

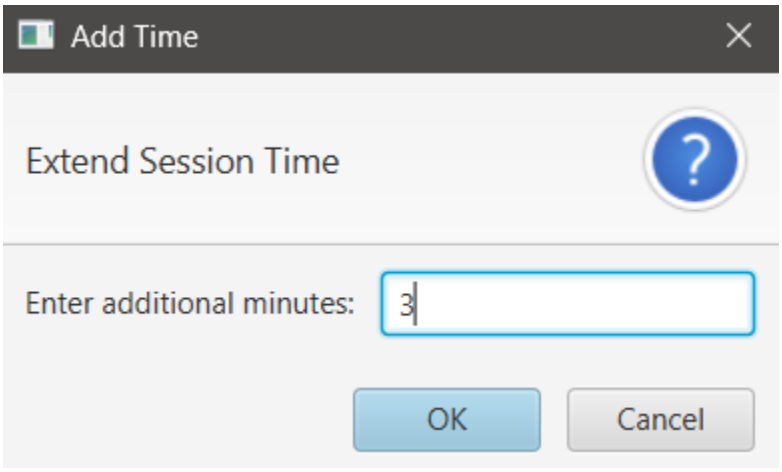


**Figure 31: User Computer View Extend Session Time**

Figure 31 displays the user computer view extend session time, this window allows the user to input the minutes they want to extend their session time. It also shows an OK button (leads to figure 32) and a Cancel button.

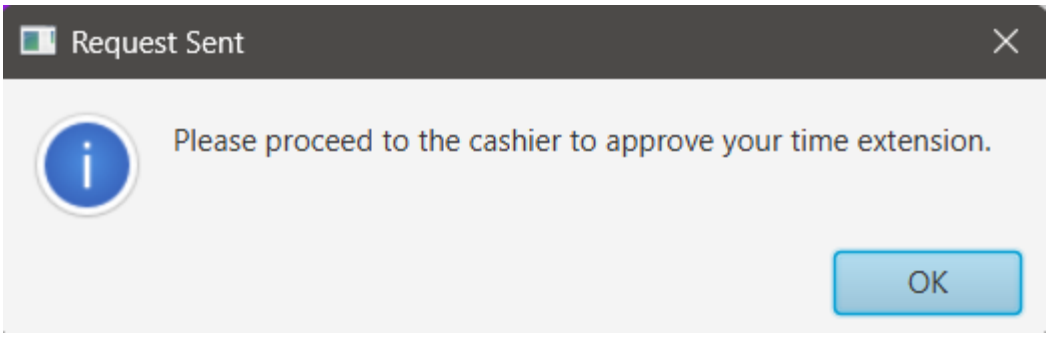


**Figure 32: User Computer View Request Sent**

Figure 32 shows the user computer view request sent, which notifies the user a confirmation that their extended session time request has been successfully sent and that they may proceed to the cashier for payment.

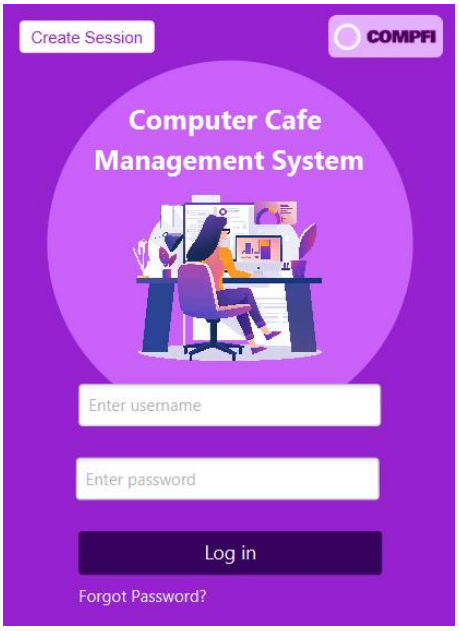


**Figure 33: User Kiosk View Window**

Figure 33 shows when the user opens the kiosk system. In the center an enter username, enter password, log in button, and a forgot password is displayed (for admin and cashier).

While in the upper left corner has a create a session button. For costumers to create a session, they will have to choose the create a session button, which will lead to Figure 34.

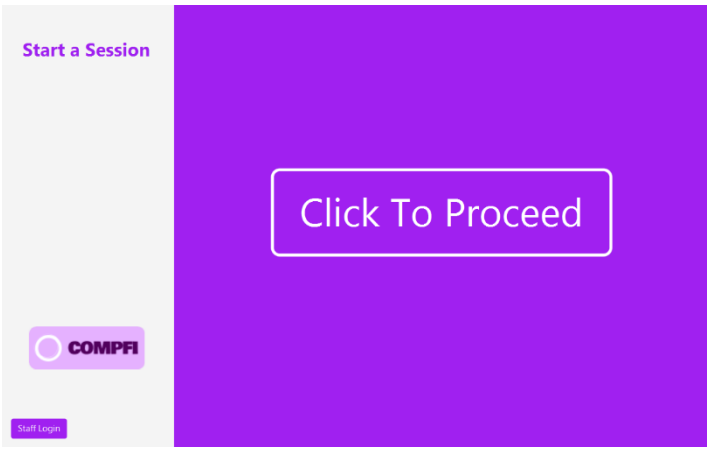


**Figure 34: User Kiosk View Start a Session**

Figure 34 shows the user kiosk view to start a session, it displays a click to proceed button to start a new session.


**Figure 35: User Kiosk View Select a PC**

Figure 35 shows the available PC's Table. Where the user can choose the displayed available computers and then choose whether to back, proceed, or cancel their chosen computer.

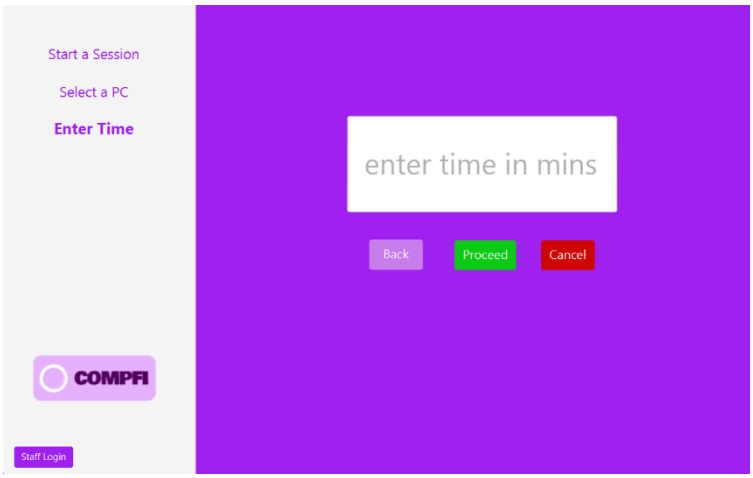


**Figure 36: User Kiosk View Enter Time**

Figure 36 displays the user kiosk view to enter time. The user can type their preferred time in minutes in the text field and then choose whether to back, proceed, or cancel their chosen time.

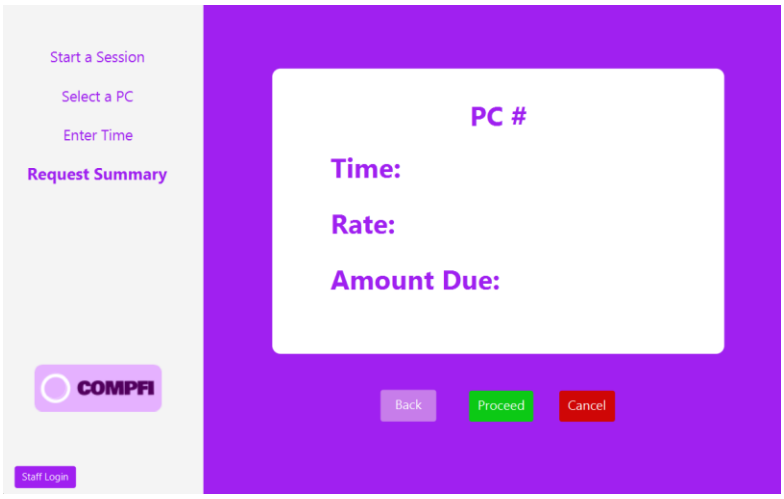


**Figure 37: User Kiosk View Request Summary**

Figure 37 shows the user kiosk view request summary. Where the user can view their session summary, which displays the computer number, entered time, rate, amount due. Then the user can choose to back, continue, or cancel the session request.

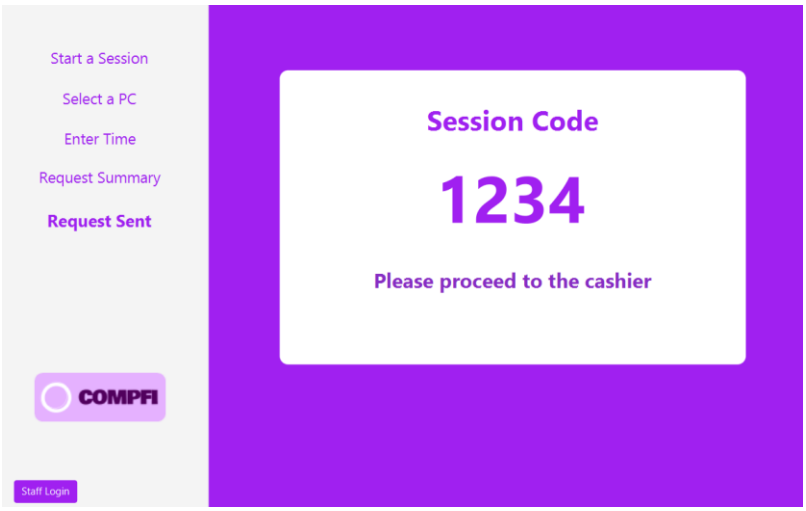


**Figure 38: User Kiosk View Request Sent**

Figure 38 shows the user kiosk request sent. Where the session code is shown and a note that says proceed to the cashier for the payment. After 5 seconds or 3 successive clicks it then loops back to Figure 31.

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