Marathwada Mitramandal's

COLLEGE OF ENGINEERING, PUNE

An Autonomous Institute

Project Based Learning

Report Writing

Title of Project：Design a Cyber Cafe Management System

Sr.No	Name of Students	PRN
1	Saksham Yadav	B24IT1007
2	Rudresh Nikhare	B24IT1008
3	Varad Kurade	B24IT1017
4	Sarthak Sawant	B24IT1007

Date : Faculty In-Charge

Marathwada Mitramandal's

COLLEGE OF ENGINEERING, PUNE

An Autonomous Institute

1) Research :

In today's digital age, cyber cafes remain important hubs for internet access, gaming, and communication. Managing a cyber cafe, especially one with multiple users and a variety of services, presents numerous challenges. These challenges include managing user access, resource allocation, billing, and service requests, while ensuring system security. A Cyber Management System is an innovative solution that addresses these issues by integrating a client-server architecture, automating key processes, and providing seamless user experiences.

A Cyber Management System typically consists of two primary components: the server module and the client module. The server acts as the central control unit that manages the overall operations, including user authentication, resource allocation, billing, and monitoring. The client module, on the other hand, is installed on each computer used by customers and allows them to interact with the system by logging in, accessing resources, and requesting services.

Despite its advantages, the implementation of a Cyber Management System involves some challenges. Initial setup costs, including hardware, software, and networking infrastructure, can be high. Additionally, staff and customers may need training to effectively use the system. Ongoing maintenance and regular updates are also required to ensure the system remains secure and efficient.

The Cyber Management System is a powerful tool for cyber cafes looking to modernize operations, improve security, and enhance customer satisfaction. By automating processes like billing, resource allocation, and service requests, the system streamlines operations and reduces errors. While challenges like cost and training exist, the long-term benefits of increased efficiency, security, and

profitability make it a valuable investment for cyber cafes in an increasingly competitive market.

2) Analysis :

A cyber café management system is essential for streamlining operations in an internet café, enhancing customer satisfaction, and maximizing profitability. The system is designed to manage user sessions, billing, security, and other operational aspects.

Core Features and Benefits

1. User Session Management: The system tracks user activities in real-time, enabling precise session timing. Customers can log in via accounts, temporary codes, or membership cards, with features to handle prepaid and postpaid payment options.

2. Billing and Payments: Automated billing systems calculate charges based on usage time and additional services, reducing manual errors. They support various payment methods, including cash, card, and digital wallets. Customizable pricing options, such as discounts and loyalty programs, attract repeat customers.

3. Security: A robust system ensures user privacy and data protection. It also restricts access to prohibited websites and includes safeguards against malware, ensuring a secure browsing experience for users.

4. Inventory and Service Management: The system tracks the usage of peripheral services such as printing, scanning, or gaming. It also manages

inventory for consumables like snacks or stationery, ensuring seamless operations.

5. Monitoring and Control: Admins can remotely monitor and control workstations, such as locking PCs when sessions end or assisting users with technical issues.

6. Analytics and Reporting: Detailed reports on revenue, peak usage hours, and customer demographics help café owners make informed decisions to improve profitability and user experience.

Challenges and Implementation :

While offering extensive benefits, developing a cyber café management system requires attention to usability, scalability, and integration with existing hardware. Leading software like CafeSuite exemplifies how these systems can handle large operations effectively, ensuring that businesses remain competitive and user-friendly.

3) Ideate :

A Cyber Cafe Management System is designed to streamline the operations of a cyber cafe, ensuring smooth management of resources, security, billing, and customer services. The system operates through a client-server architecture, where the server manages resources, user authentication, and service requests, while clients access the system through individual computers.

Key features include secure login options for guests and registered members, ensuring authorized access. The system also supports automated billing, where charges are calculated based on time spent on

computers and additional services requested, such as printing or refreshments.

The system offers real-time monitoring, tracking computer usage, idle time, and ensuring that resources are allocated efficiently. Service request handling allows users to order coffee, snacks, or print documents directly from their workstations, streamlining operations and improving customer satisfaction. Reporting tools generate detailed insights into usage patterns, revenue, and system performance.

Security features include data encryption, session monitoring, and automatic logout to prevent unauthorized access. The system can be configured to send alerts for irregular activities or security breaches.

A Cyber Cafe Management System reduces the manual workload for staff, increases operational efficiency, and enhances the customer experience, making it a crucial tool for modern cyber cafes looking to stay competitive.

4) Build :

Building a Cyber Cafe Management System involves several steps, from initial planning to system deployment. Below is a structured approach to creating such a system:

1. Requirement Gathering and Analysis

Identify Key Features: Determine the features needed, such as secure logins, session time tracking, billing, service requests (e.g., food, printing), and reporting.

Understand User Roles: Define roles like admin, staff, and users (guests or members), and outline their access levels.

System Specifications: Define hardware (computers, network infrastructure) and software requirements (e.g., database management system, programming languages).

A. User Authentication

- Implement login systems for guests and members with different access rights.
- Store user credentials securely using hashing algorithms (e.g., bcrypt).

B. Session Management

- Track usage time for each user.
- Automatically log out users after a certain period or when they finish their session.
- Allow users to extend their session if desired (if no one is waiting).

C. Billing System

- Time-based Billing: Charge users based on session duration.
- Additional Services: Allow users to request services like printing, refreshments, etc., and add those costs to their bill.
- Payment Methods: Implement payment methods (cash, card, or prepaid accounts).

D. Service Request Handling

- Enable users to request services (e.g., snacks or printing) through the interface.
- Notify staff when a request is made, and track completion.
- E. Real-Time Monitoring and Logging

- Track and display the status of each computer (active, idle, logged out).
- Monitor overall system performance and log any unusual activity.
- Generate usage reports and billing summaries.

5) Test :

To effectively test a Cyber Cafe Management System, follow these key testing steps:

1. Unit Testing

Test individual components (e.g., user authentication, session management, billing, service requests) to ensure they function correctly in isolation.

Verify that login, password encryption, time tracking, and payment calculations work as expected.

2. Integration Testing

Check the interaction between modules like the client and server, ensuring data flows correctly between them (e.g., login info, session data, billing).

Test database interactions to ensure data is properly stored, updated, and retrieved.

3. Functional Testing

Verify core functionalities like user login (guest/member), session time tracking, automated billing, and service request handling.

Ensure the system handles correct billing based on usage and additional services (e.g., printing, snacks).

4. Usability Testing

Test the system's user interface for ease of use. Ensure customers can easily log in, track usage, request services, and make payments.

Check staff interface for ease of managing sessions, service requests, and reporting.

5. Security Testing

Ensure secure login, data encryption (SSL/TLS), and protection against unauthorized access.

Test for potential vulnerabilities like SQL injection or session hijacking.

6. Performance Testing

Test the system under load (many users accessing simultaneously) to ensure it handles peak traffic efficiently.

7. User Acceptance Testing (UAT)

Involve real users to verify the system meets their expectations, collecting feedback for improvements.

6) Implement :

The Cyber Cafe Management System is designed to streamline operations in a cyber cafe, facilitating tasks such as user authentication, session management, billing, and service requests. The system follows a client-server architecture, where the server manages all core functionalities and the client interfaces with individual computers.

Key Implementation Details:

User Authentication:

- Implement a login system for guest and member users. Members have unique credentials, while guests can log in temporarily.
- Passwords are securely stored using hashing algorithms like bcrypt for added security.

Session Management:

- Track session time and automatically log out users after a defined period.
- Provide an option for users to extend their session if no other user is waiting.

Billing System:

- Charge users based on the time spent on computers.
- Allow additional service charges (e.g., printing, snacks) to be added to the bill.
- Support prepaid and postpaid billing models.

Service Requests:

- Users can request services (e.g., food or printing) directly from their computer, with staff notified to fulfill these requests.

Reporting:

- The server generates real-time reports on session times, revenue, and service requests.
- Data is stored in a relational database (e.g., MySQL) for easy access and reporting.
- This system automates key processes, ensuring efficient management and improved user experience.