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College of Informatics and Computing Sciences

FINAL PROJECT DOCUMENTATION
CICS Scheduler: A Advanced Reservation and
Scheduling Solution for Classroom Projectors
and View Boards

CS121: ADVANCED COMPUTER PROGRAMMING

Submitted By:

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IT – 2106



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I. PROJECT OVERVIEW

The **CICS Scheduler** is designed to make managing shared resources like projectors and view boards within an organization easy and efficient. In a busy office, it's often hard to keep track of who's using what and when, which can lead to double-booking or wasted resources. This system helps solve that problem by providing an intuitive platform for users to reserve resources, view availability, cancel reservations, and track their bookings—all in real-time.

The system helps streamline how shared resources are used in an organization. Without a central reservation system, resources can be overbooked, underutilized, or forgotten about altogether. The CICS Scheduler keeps everything organized, allowing staff to reserve resources when needed, avoid conflicts, and make sure no resource goes unused.

Included Features:

- **Login/Registration:** Create and manage user accounts securely.
- **Reservation System:** Reserve projectors and view boards for specific time slots.
- **View Availability:** See which time slots are free for each resource.
- **Cancel Reservations:** If plans change, users can easily cancel their bookings.
- **View Reservations:** Track all current and upcoming bookings.

Excluded Features:

- Resource inventory management (e.g., tracking resource condition).
- Financial features, like payments or billing.
- Scheduling other types of resources outside of projectors



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II. PYTHON CONCEPTS AND LIBRARIES

The CICS Scheduler is built using Python, making it simple, efficient, and easy to maintain. Here's a look at some key concepts used in the development of this system:

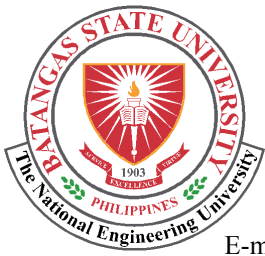
Python Concepts:

1. **Dictionaries:** These are used to store and manage data like user credentials, available time slots, and reservations. Dictionaries allow quick access to this information, making the system fast and responsive.
2. **Functions:** We've broken down the tasks into specific functions, like **login**, **reserve**, and **cancel_reservation**, which makes the code modular and easier to manage.
3. **Conditional Statements:** These check if a user is logged in, if a time slot is available, or if input is valid. It ensures that the system works correctly based on the user's actions.
4. **Loops:** The system continuously runs, allowing the user to make multiple decisions (e.g., booking resources, viewing available slots) without needing to restart.

III. SUSTAINABLE DEVELOPMENT GOALS

The chosen Sustainable Development Goal (SDG) for the CICS Scheduler project is SDG 17: Partnerships for the Goals. This goal emphasizes collaboration and partnerships as essential for achieving sustainable development by leveraging shared resources, knowledge, and expertise. SDG 17 focuses on fostering innovation, enhancing cooperation among institutions, and promoting efficient resource management to maximize impact.

The CICS Scheduler aligns with SDG 17 by addressing the need for efficient resource sharing and collaboration within academic institutions. It integrates the principles of this SDG in several ways. First, it optimizes resource utilization by facilitating shared access to limited classroom resources, such as projectors and view boards, ensuring equitable use across faculty



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and students. By preventing double bookings and reducing idle time for equipment, the system promotes efficient management practices that embody collective resource optimization. Second, it fosters collaboration and coordination by providing a centralized platform for scheduling shared resources. This minimizes miscommunication and ensures resources are available when needed, cultivating a cooperative environment.

Additionally, the Scheduler builds capacity through technology by offering a modern solution to common administrative challenges, enabling institutions to improve operations and align with SDG 17's emphasis on technological advancement. It also strengthens institutional partnerships by supporting resource-sharing initiatives between departments, campuses, or partner institutions, enhancing operational synergy. Finally, the system promotes accountability and transparency through detailed tracking of reservations, making it easier to identify trends, allocate resources effectively, and ensure responsible usage.

By embedding the principles of SDG 17, the CICS Scheduler contributes to better operational efficiency, reduced resource wastage, and a more collaborative environment. This integration highlights how technology can drive sustainable practices, empowering institutions to work together more effectively and supporting the broader goal of sustainable development.

IV. PROGRAM/SYSTEM INSTRUCTIONS

To use the CICS Scheduler, follow these steps:

1. Run the Application:

- Start the program in your preferred Python environment.
- The system will greet you and present options to Register, Login, or Exit.

2. Registration:

- If you're a new user, choose the Register option.
- Enter a unique username and a password.



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- If the username already exists, the system will notify you, and you can either retry with a new username or proceed to log in.

3. Login:

- If you already have an account, select the Login option.
- Enter your registered username and password.
- Upon successful authentication, you will gain access to the system.

4. Resource Management:

- Once logged in, you can manage reservations for resources like projectors and view boards:

a. Reserve a Resource:

- Select the Reserve Resource option.
- Choose the resource you want to reserve (Projector or View Board).
- Enter the time slot (e.g., 8:00 - 9:00), your name, and the location for the reservation.
- The system will confirm the reservation if the time slot is available.

b. Cancel a Reservation:

- Select the Cancel Reservation option.
- Enter the resource type and the time slot of the reservation you wish to cancel.
- The system will verify the details and cancel the reservation if it exists.

c. View Available Slots:

- Select the View Available Slots option to see the current availability of resources.



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- The system will display all available time slots and the number of resources remaining for each type.

d. View All Reservations:

- Select the View Reservations option to view all existing reservations for projectors and view boards.
- The system will list the reserved time slots along with the names and locations associated with each reservation.

5. Logout:

- Once you're finished managing resources, select the Logout option to log out of your account.
- To exit the program entirely, choose Exit from the main menu.