Indian Institute of Information Technology, Allahabad
Software Engineering (SE)
Mini Project-2

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SE Mini Project # 2: Occupancy monitoring system

Abstract
You are required to develop GUI enabled real-time occupancy monitoring system for IIITA buildings e.g., Auditorium. The system should be able to automatically register each individual's check-in and check-out concerning any building and present clear visual warnings and alerts based on the defined occupancy threshold of the building. The system should display regular updates regarding vacancy and make sure that no one enters the building if the place is fully occupied. Irrespective of the number of available entries and exits into the building all the applications must be in sync to display the same updated information.

Design

Following are the interface screens and associated functionalities that need to be developed:

1. Main screen:
    a. Configure Button:
        A new screen should appear:
        i. Set the occupancy limit: <Textfield> (Number type validation) (default value can be set to 0)
        ii. Alert message: <Textfield>
        iii. Save button: Action performed - save the configuration and return to the main screen.
        iv. Cancel button: To return to the main screen without saving.

    b. Person Registration (panel):
        i. No. of person: <Textfield> (Number type validation) - If entry then do '+' else do '-'.
        ii. Submit button: Action performed - should update the existing counter, update the log file along with the timestamp.
        (Log file should contain the timestamp, No. of person, Entry/Exit flag, Current occupancy).

    c. Display panel:
        i. Availability: <TextLabel> (to display the current availability)
        ii. Status: <TextLabel> (to display the occupancy status)

d. Generate report Button:
    i. All records: (Checkbox)
    ii. StartTime: <Textfield> (to define range of records) (Timestamp validation)
    iii. EndTime: <Textfield> (to define range of records) (Timestamp validation) (From and To validation)
    iv. Print button: Action performed - Generate and save the graphical plot of the logged records.

e. Quit

Note: There will be multiple instances of this system executing at the same time (multiple entry and exit points), so every program should be in sync with each other to display updated information in the panel.

Specific Technology
Java, Applet

Project Tasks
Use case analysis, Design, Implementation, and User Interface

Submission

The project presentation has to be done by each member to show periodically the progress and the complete project submission should contain the following:

UML diagrams:-Use Case diagram, Class diagram, CRC diagram(s), illustrating the design of your program.

- All the Java source code should be compiled and executed.

Weekly timeline:

Week 1: Design plan - Develop a sample diagram or flowchart of the implementation plan.

Week 2: UML diagrams - Discover classes and associations.

Week 3: Java code - Demonstration of the implemented design.

Week 4: Final submission - with all diagrams and executable code.