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Practical No. 6 – Activity Diagram for Pharmacy Management System

Aim:

To design and study the Activity Diagram for the Pharmacy Management System, representing the flow of control and activities performed within the system.

Introduction:

An Activity Diagram is one of the most important behavioral diagrams in UML that demonstrates the dynamic aspects of a system. It describes the sequence of actions and the flow of control from one activity to another. In the Pharmacy Management System, it represents the workflow of operations such as medicine purchase, billing, inventory updates, and record maintenance.

Objectives:

1. To illustrate the workflow of various processes within the Pharmacy Management System.
2. To identify key decision points, concurrent activities, and dependencies.
3. To understand how system functions are triggered and executed.
4. To enhance system understanding through visualization of control flow.

Theory:

The Activity Diagram represents the flow of actions in a system, focusing on the order in which operations occur rather than their structural relationships. It is similar to a flowchart but provides additional capabilities for representing concurrency, synchronization, and transitions. Each activity represents a function or task within the system, while decision nodes and synchronization bars show how processes branch or merge. In the Pharmacy Management System, activities such as “Customer Requests Medicine,” “Check Stock Availability,” “Generate Bill,” and “Update Inventory” are sequentially organized to represent the real workflow.

Case Study:

In the Pharmacy Management System, the Activity Diagram depicts the overall process of managing sales and stock operations. The process begins when a customer requests a medicine. The pharmacist checks the stock; if available, the system proceeds to billing. After payment, the stock count is updated, and the transaction record is stored for reference. In case the medicine is unavailable, the

system may log a purchase request or suggest alternatives. This diagram helps to visualize the smooth flow of operations and ensure that each stage is efficiently executed. By representing all activities and decision points, it assists in identifying bottlenecks and optimizing workflow within the pharmacy's daily operations.

Advantages:

1. Provides a clear understanding of the dynamic behavior of the system.
2. Aids in visualizing parallel and sequential processes within the pharmacy.
3. Helps identify inefficiencies and areas of improvement in workflow design.
4. Simplifies communication among developers and stakeholders.
5. Acts as a basis for designing functional components of the software.

Conclusion:

The Activity Diagram for the Pharmacy Management System provides a detailed representation of the operational flow of the system. It enhances understanding of system processes and interactions by visually mapping how activities are carried out in sequence. Through this diagram, the workflow of the pharmacy is better structured, ensuring efficiency and clarity in design and development stages.

References:

1. Sommerville, Ian. "Software Engineering." Pearson Education.
2. Pressman, Roger S. "Software Engineering: A Practitioner's Approach." McGraw-Hill.
3. UML Documentation – Object Management Group (OMG).