Tribhuvan University

Institute of Science and Technology

Central Department of Computer Science and Information Technology

Object-Oriented Software Engineering Assignment 2

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Date: May 5, 2025

Assignment Question and Solutions

Question 1:

Compare between Hierarchical Object Oriented Design vs Object Modeling Technique vs Responsibility -Driven Design.

Comparison of HOOD, OMT, and RDD

Aspect	HOOD	OMT	RDD
Definition	HOOD is a detailed software design method based on hierarchical decomposition of a software problem.	OMT is a methodology for developing software systems through object-oriented analysis and design.	Responsibility-driven design (RDD) is an object-oriented design methodology that focuses on defining the roles and responsibilities of each class in an application.
Origin	It was Developed by ESA for real-time embedded systems.	It was Developed by James Rumbaugh in the early 1990s.	It was introduced by Rebecca Wirfs-Brock.
Objective	It focuses on Hierarchical decomposition into modules/objects.	It aims for Visual modeling for analysis and design.	It works on Assigning responsibilities and collaborations.
Design Approach	Top-down:function-to-object decomposition	Structured visual modeling with object analysis	Behavior-first: focuses on object responsibilities
Diagrams Used	Hierarchical tree diagrams	Object, Dynamic, Functional Models	CRC (Class Responsibility Collaborator) cards
Strengths	It is great for embedded systems with strict hierarchy.	It aids Comprehensive support for modeling.	It promotes true object collaboration and encapsulation
Weaknesses	It is less flexible; rigid structure as compared to others	It may become too detailed for large projects	It may be informal which lacks strong tool support
Use Case	It supports Real-time, safety-critical systems	It works for General-purpose software development.	It is Agile, interactive or user-driven systems.
Tool Support	As compared to others, it has limited modern tools available.	It is widely supported by CASE tools (e.g., Rational Rose)	It has Manual tools (CRC cards, whiteboards)
Modeling Style	Structure-first, behavior later	Balanced across structure, behavior, function	Behavior-first, role-driven
Example	Patient Admission System	Managing Patient Records	Online Appointment Booking System

Comparison through diagram of HOOD, OMT, and RDD

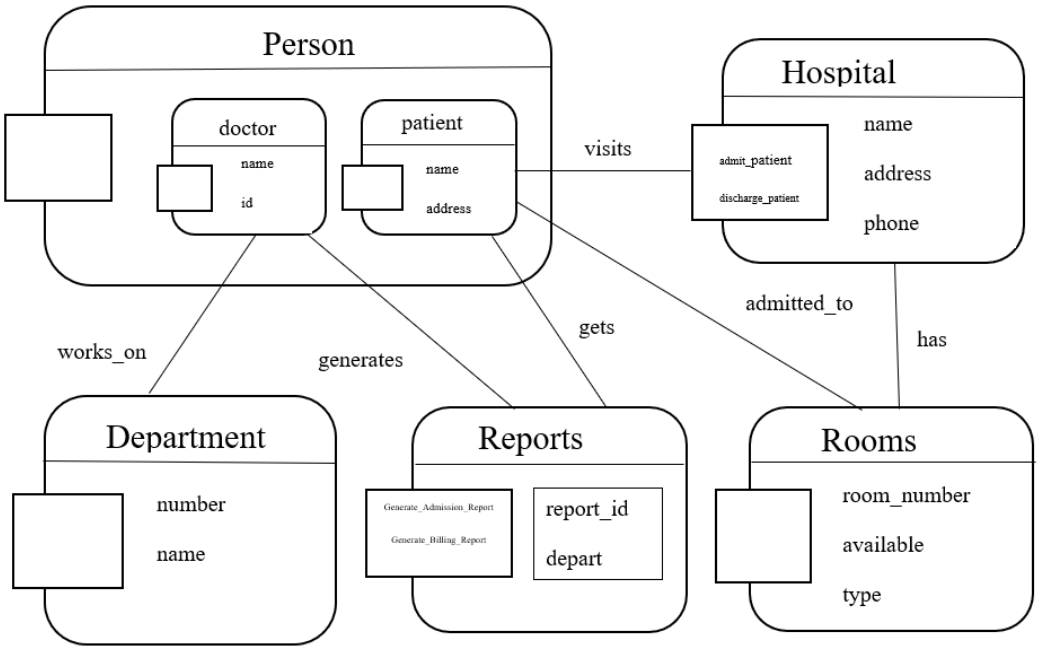

Figure 1: HOOD Diagram for Patient Admission System

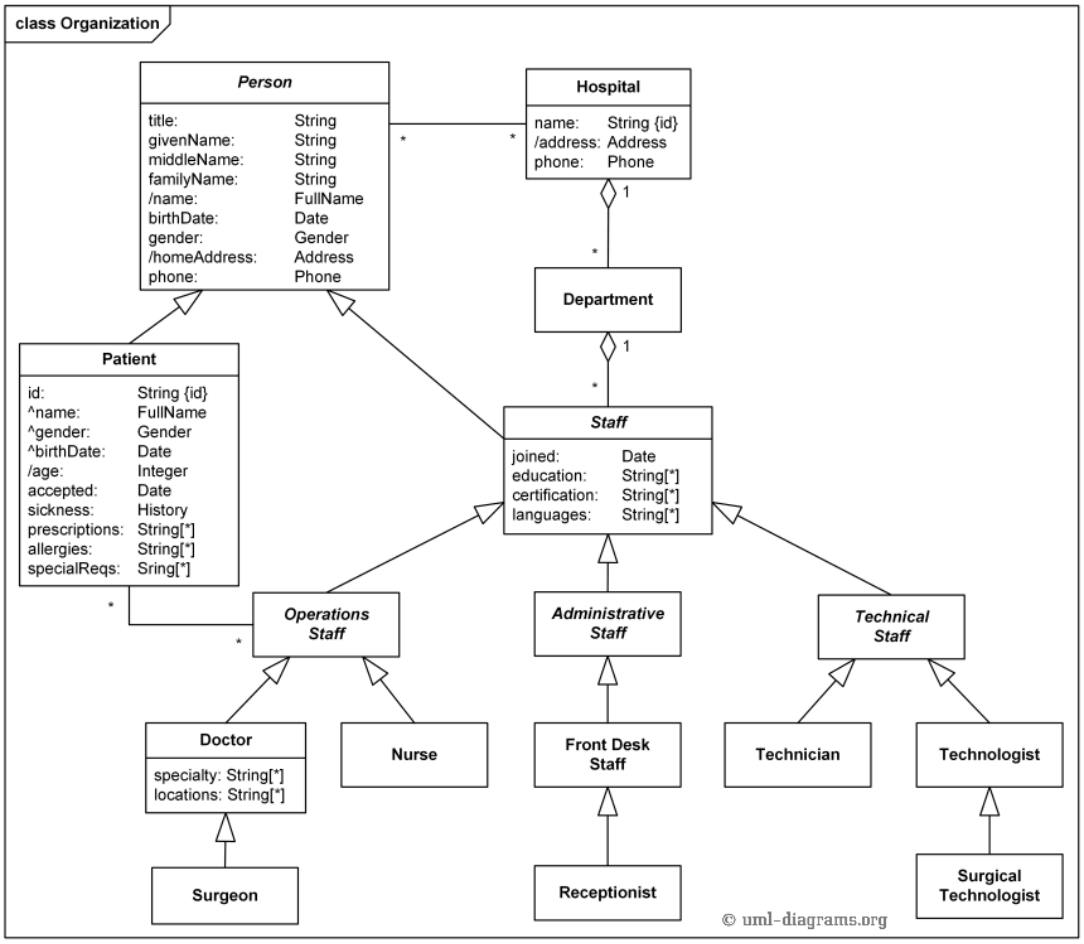

Figure 2: OMT Diagram for Patient Admission System

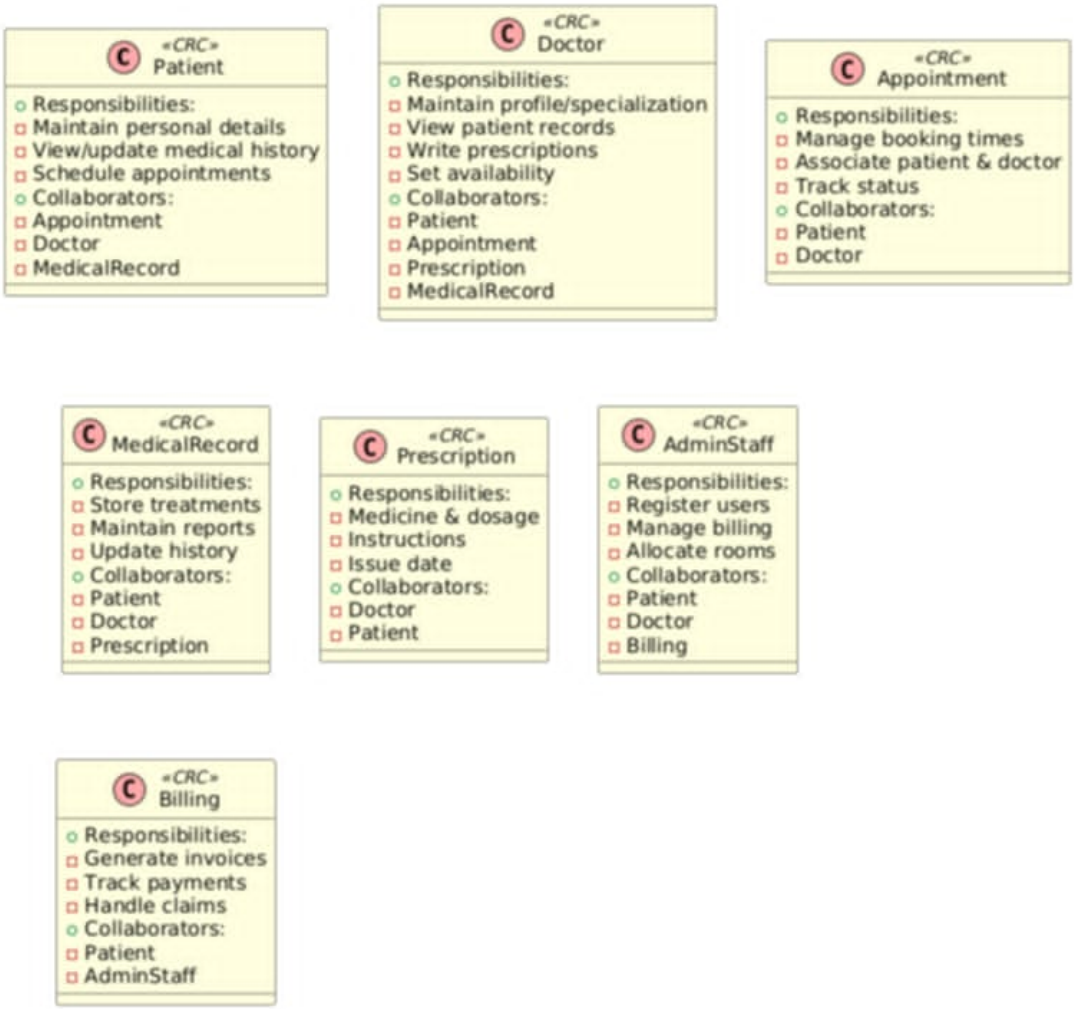

Figure 3: RDD Diagram for Patient Admission System