Department of Computer Engineering

Academic Term: First Term 2023-24

Class: T.E /Computer Sem – V / Software Engineering

Practical No:	7
Title:	Design using Object Oriented approach with emphasis on Cohesion and Coupling
Date of Performance:	
Roll No:	9567, 9552
Team Members:	Shruti Patil, Mrunal Kotambkar

Rubrics for Evaluation:

Sr. No	**Performance Indicator**	**Excellent**	**Good**	**Below Average**	**Total Score**
1	On time Completion & Submission (01)	01 (On Time)	NA	00 (Not on Time)	
2	Theory Understanding(02)	02(Correct)	NA	01 (Tried)	
3	Content Quality (03)	03(All used)	02 (Partial)	01(rarely followed)	
4	Post Lab Questions (04)	04(done well)	3 (Partially Correct)	2(submitted)	

Signature of the Teacher:

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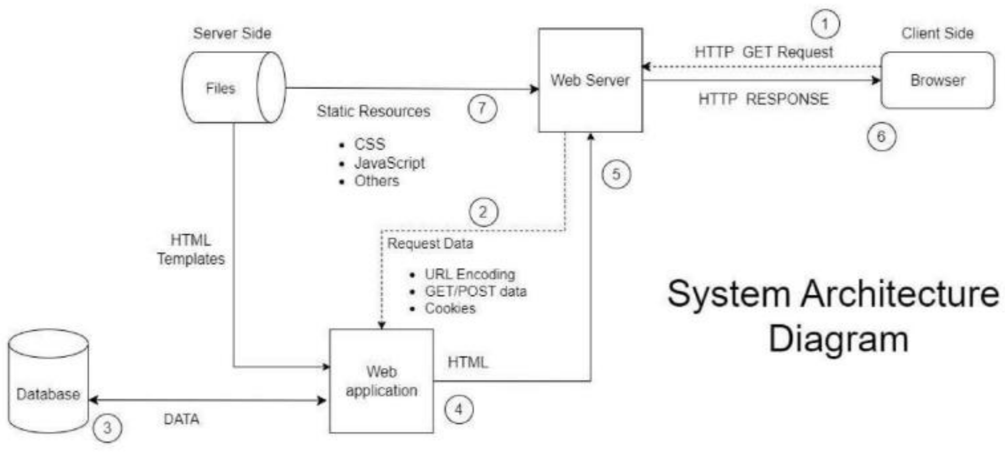
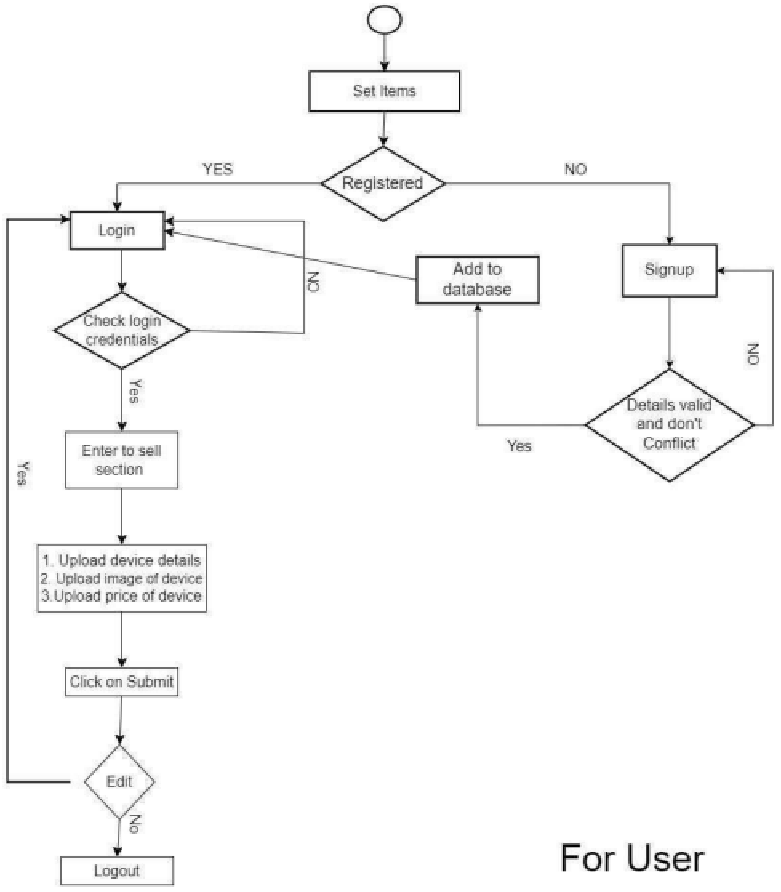
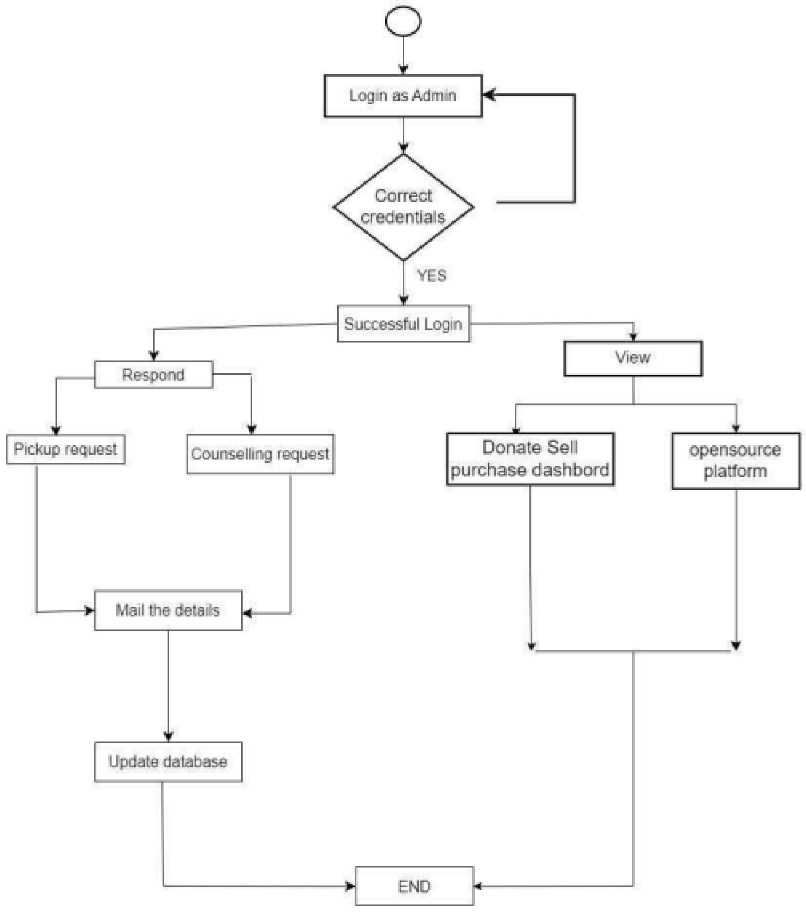


System Architecture
Diagram


Set Items
Registered
YES
NO
Login
Signup
Add to database
Check login credentials
NO
Yes
Details valid and don't Conflict
NO
Yes
Enter to sell section
1. Upload device details
2. Upload image of device
3.Upload price of device
Click on Submit
Edit
Yes
No
Logout

For User



Login as Admin
Correct credentials
YES
Successful Login
Respond
View
Pickup request
Counselling request
Donate Sell purchase dashbord
opensource platform
Mail the details
Update database
END

For Admin

POSTLAB:

a) Analyse a given software design and assess the level of cohesion and coupling, identifying potential areas for improvement:
The software design of the "Samachaar website demonstrates reasonably good levels of cohesion and coupling Cohesion is apparent in well-defined components with distinct functions, while loose coupling allows for flexibility and minimal interdependence between components. To improve the design, the website can benefit from further enhancing cohesion by minimizing overlapping functions and ensuring each component has a single, dar responsibility. Additionally, refining interfaces and interactions between components, focusing on modularity, and conducting regular testing and refactoring efforts are recommended for ongoing software quality and maintainability.

b) Apply Object-Oriented principles, such as encapsulation and inheritance, to design a class hierarchy for a specific problem domain. In the "Vehicle" domain, we establish a class hierarchy using Object-Oriented principles: 1. Vehicle (Base Class) -Properties: make, model, year - Methods: start, stop, accelerate, brake 2 Car (Inberts from Vehide) -Additional Properties: numDoors, fuelType -Additional Methods: lockDoors, unlockDoors 3. Motorcycle (Inherits from Vehide): -Additional Properties: hasHelmet Storage -Additional Methods: putOnHelmet takeOffHelmet 4. Truck (Inhents from Vehide) -Additional Properties: cargoCapacity -Additional Methods: loadCargo, unload Cargo This hierarchy exemplifies encapsulation, where properties and methods are contained within each dass, and inheritance, which allows specialized classes to inherit properties and methods from the base dass, promoting code reusability and structure.
c) Evaluate the impact of cohesion and coupling on software maintenance, extensibility, and reusability in a real-world project scenario. In a real-world project, cohesion and coupling have significant effects: -Software Maintenance: High cohesion simplifies changes, and low coupling reduces unintended impacts during maintenance. -Software Extensibility: High cohesion and low coupling ease the addition of new features and components. -Software Reusability: Well-structured, cohesive, and loosely coupled code is more reusable in various contexts. In practice, striking a balance between cohesion and coupling is crucial for business agility, cost savings, team collaboration, and quality assurance in long-term projects.