United International **University**

Auto-Care System

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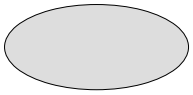
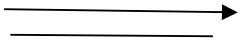
Context Diagram:

The Context Diagram shows the system under consideration as a single high-level process and then shows the relationship that the system has with other external entities (systems, organizational groups, external data stores, etc.).
Process Name is written in first letter in capital form. The external entities are represented as Squares,rectangles and written in capital letters. Line between the process and entities shows the data flow.

Rules to draw a context diagram:

Symbol	Meaning
	Single process: A circle is used to represent the entire system.
	External entity: A square or rectangle represents any person or organization that sends data or receives data from the system.
	Data flow: An arrow is used to represent the data between the process and external entities.

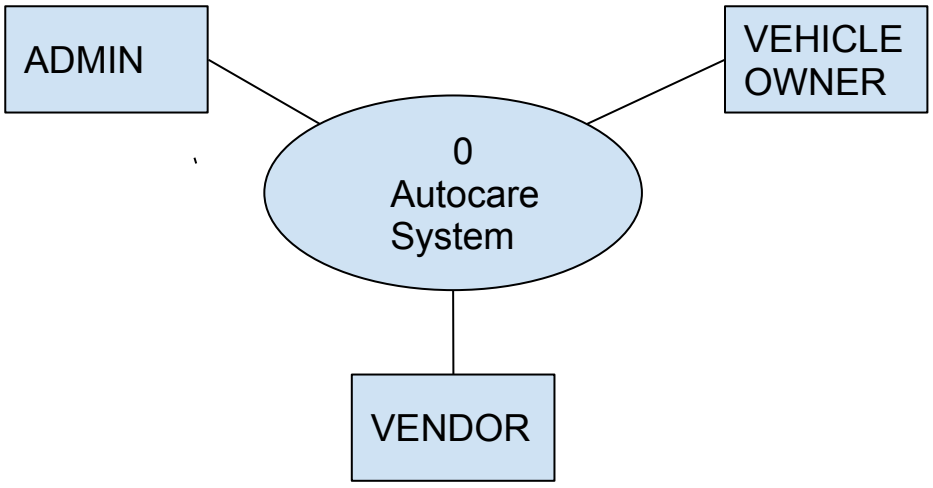
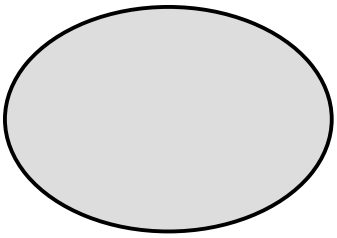


Fig: Context Diagram

Use case Diagram:

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses. The actors are often shown as stick figures.

Four major symbols of use case diagram:

Term and Definition	Symbol
An actor: ■ Is a person or system that derives benefit from and is external to the system. ■ Is labeled with its role. ■ Can be associated with other actors by a specialization/superclass association, denoted by an arrow with hollow arrowhead. ■ Is placed outside the system boundary.	
A use case: ■ Represents a major piece of system functionality. ■ Can extend another use case. ■ Can use another use case. ■ Is placed inside the system boundary. ■ Is labeled with descriptive verb-noun phrase.	
A system boundary: ■ Includes the name of the system inside or on top ■ Represents the scope of the system.	
An association relationship: ■ Links an actor with the use case(s) with which it interacts.	

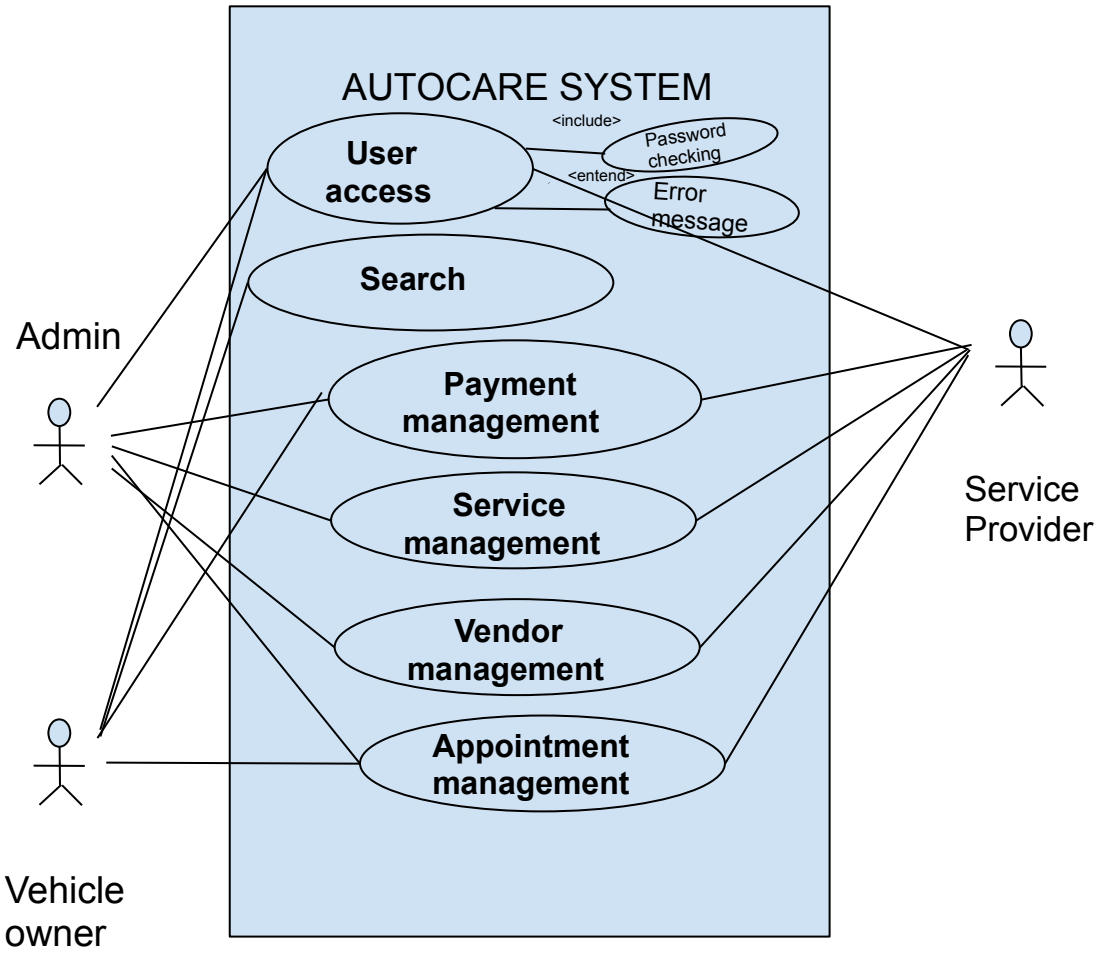


Fig: Use Case Diagram

Use Case Description:

A text-based use case description can be used to provide additional information to support the use case definition. This description can contribute significantly to the use case's value. The description text can be captured in the model as a single or multiple comments.

Descriptive form of Use Case:

1. Use case number and name
2. Primary Actor
3. Stakeholders and Interests
4. Preconditions-the conditions that must hold for the use case to begin.
5. Success Scenario
6. Alternate Scenario-the scenarios that are less frequent or other than nominal. The exception flows may reference extension points and generally represent flows that are not directly in support of the goals of the primary flow.
7. Post-conditions-the conditions that must hold once the use case has completed.

Descriptive form of Use Case

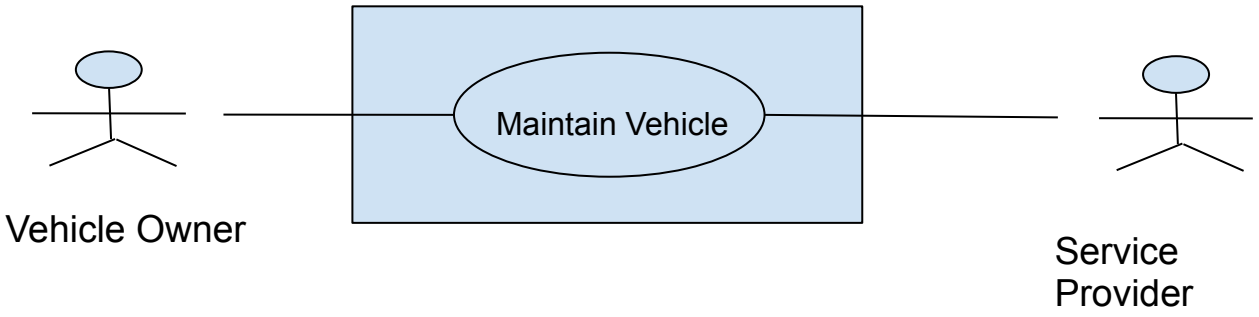


Fig: Descriptive use case

Maintain vehicle - Descriptive Form

Primary Actor : User / Vendor
Stakeholders and Interests:

Customer/ Users : Wants fast and proper services
Workshop/Vendor owner : Wants to sell more services online by giving home delivery.
Platform: Wants to get commission on every sales of services by vendors.

Preconditions: Workshops are verified and authenticated.

Success Scenario:

1. User register in the platform and adds vehicle(s)
2. Vehicles added with proper information of maintenance.
3. User browses services.
4. User orders their required service.
5. User set appointments for themselves.
6. Vendor accepts service orders.
7. Vendor schedules service for customer/ sends home services.
8. User selects payment method.
9. Platform generates receipt.
10. User provides rating to the service.

Alternative Scenario:

1. **At any time, user wants to delete placed order**

i. User clicks on cancel order within a specified time.
ii.Vendors are notified about cancellation.
iii.User selects the reason for cancellation.

2.User wants to change order

i.Selects order and clicks on changes.
ii. Selects changes.
iii.Vendors are notified.

3. Vendors unable provide services (too many orders)

i. Pause receiving orders
Ii. Notify user about unavailability of service.

4. Clashing of scheduled appointments.

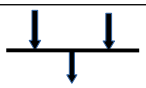
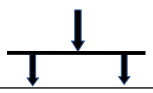
i. Notify user about unavailability of slot
Ii. Provide refund if payment already made.
Iii. Provide next immediate slot if customer wants.
Iv. Provide a discount due to inconvenience.

Post-conditions: Users receive proper services. Bill is correctly generated. Vendors successfully provide services. Platform receives commission.

Activity Diagram:

Activity diagrams are graphical representations of workflows of stepwise activities and action with support for choice, iteration and concurrency.activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.
Activity diagrams are constructed from a limited number of shapes, connected with arrows. The most important shape types:

1. Ellipses represent actions,
2. Diamonds represent decisions
3. Bars represent the start (split) or end (join) of concurrent activities
4. A black circle represents the start (initial node) of the workflow
5. An encircled black circle represents the end (final node).

Definition	Symbol
Start	
End	
Activity	
Connector	
Joint/Synchronization	
Fork	
Decision	

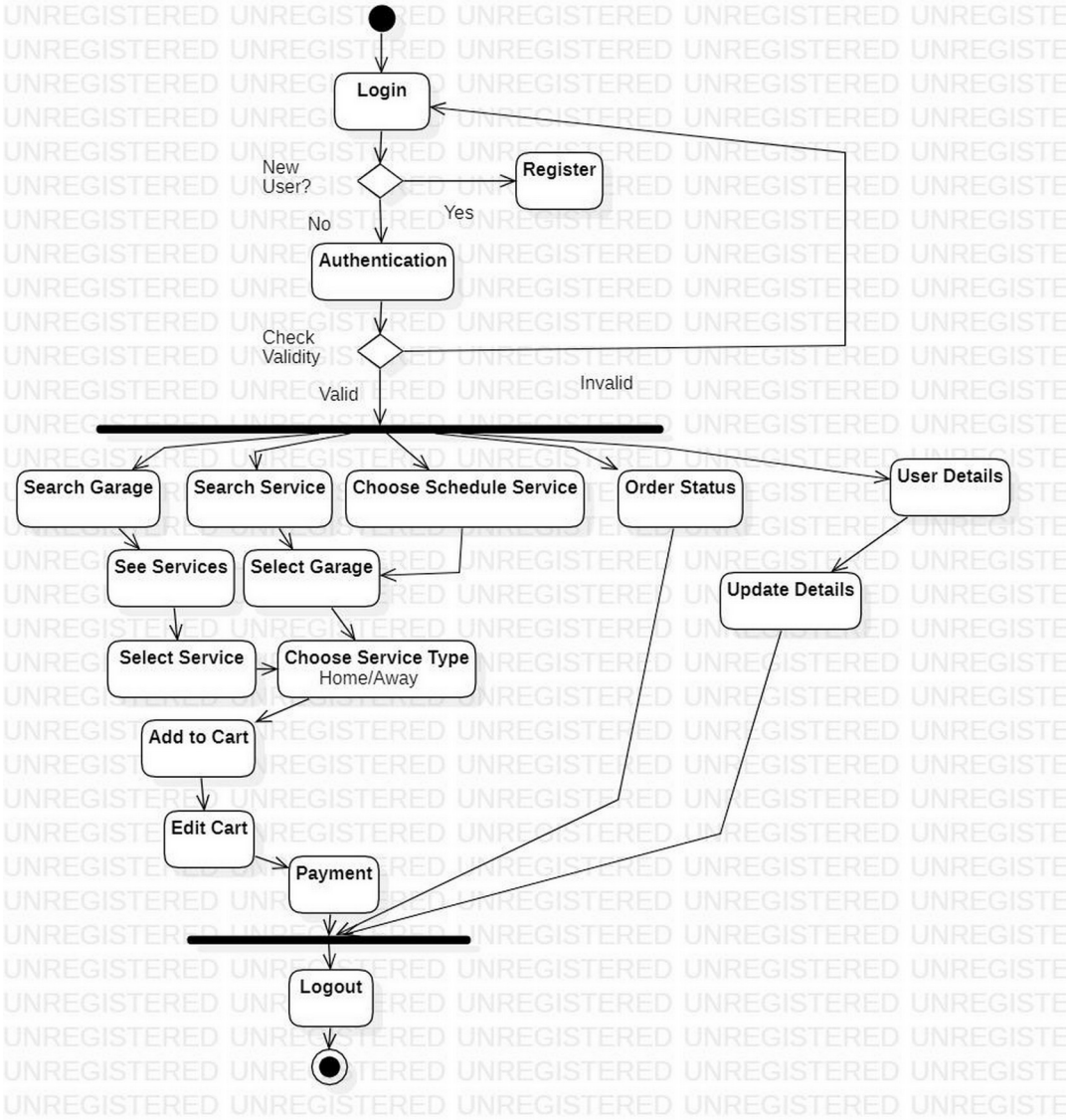


Fig: Data Flow Diagram

Swim Lane Diagram:

A swimlane diagram is a type of flowchart that delineates who does what in a process. Using the metaphor of lanes in a pool, a swimlane diagram provides clarity and accountability by placing process steps within the horizontal or vertical "swimlanes" of a particular employee, work group or department. It shows connections, communication and handoffs between these lanes, and it can serve to highlight waste, redundancy and inefficiency in a process.

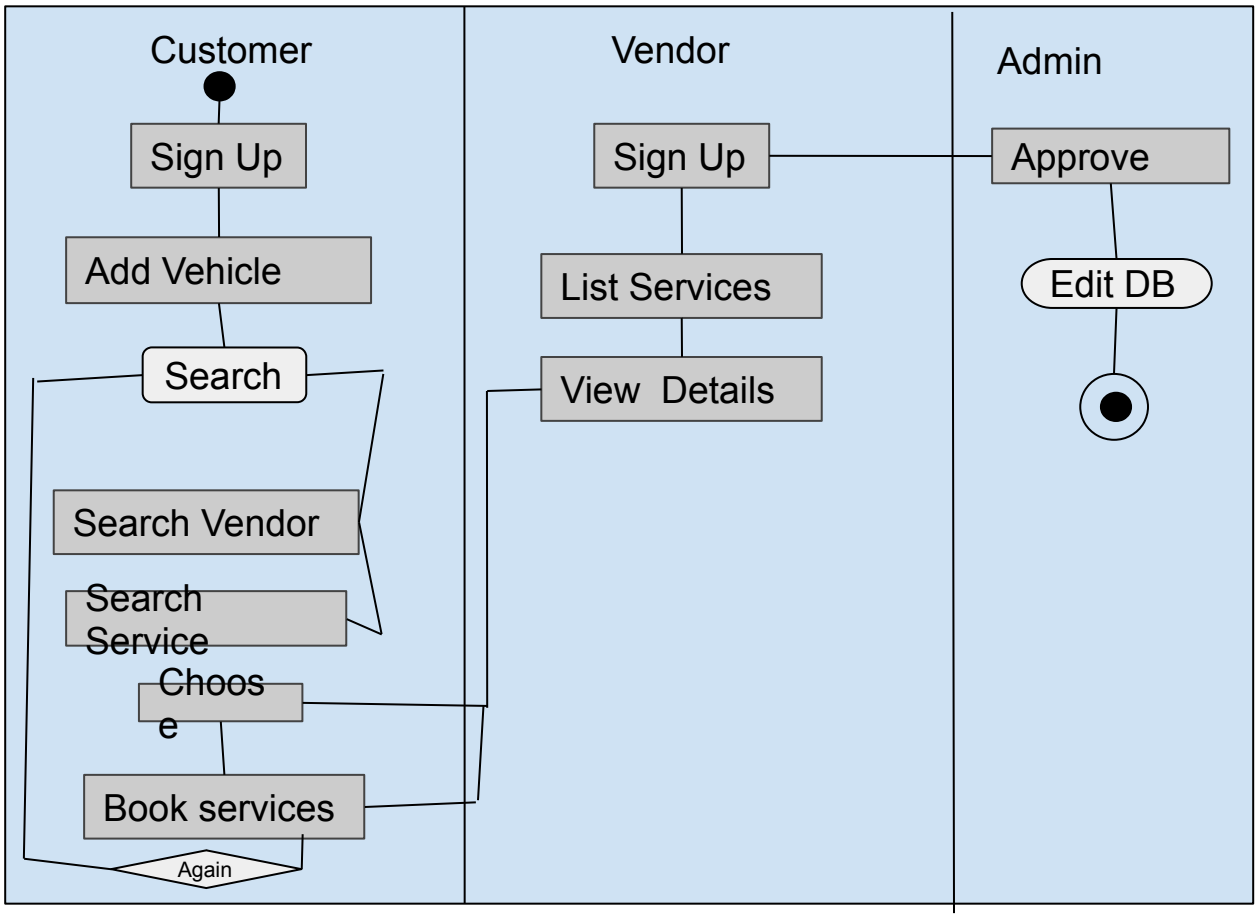


Fig: Swim lane Diagram

Data Flow Diagram:

Data Flow Diagram is a way of representing a flow of data through a process or a system. DFD provides information about the outputs and inputs of each entity and the process itself. DFD has no control flow, there are no Decision rules and no Loops.

DFD Symbols

Rules of DFD:

- Four Symbols: Process, External Entity (EE),Database(DB)/Table, Data Flow
- Database/DataStore, External Entities: ALL Capital letters
- Process naming: First letter of each Word in Capital letter
- DFD starts from Top-Left and ended at Bottom-Right
- No connection: DB to DB, DB to EE, EE to EE
- Each Process and Sub Process must have Name and Number

Fig: Data Flow Diagram