Software Modelling - UML Use Case and UML Class diagrams

Table

Description automatically generated

1. Identify the use-cases for the software. Draw the \*\*UML use-case diagram \*\*and include supporting use-case descriptions. At-least 3 scenarios must be identified.
2. Identify the objects and their respective classes. Draw the \*\*UML class diagrams \*\*and include supporting descriptions to explain the relationships. At-least 4 classes and respective relationships must be identified.
3. For all the identified classes create \*\*Python classes \*\*with the constructor, attributes, and appropriate setter/getter methods. Each class must include at-least 5 attributes. Create objects of all the identified classes and use the object’s functions to populate and display the details.

Use Cases:

* Generating receipts
* Managing vehicle information
* Managing customer information
* Calculating taxes and discounts

Use Case Diagram:



Cashier

Customer

Mechanic

Use Case Description 1:

|  |  |
| --- | --- |
| Use Case: | Generating Receipts |
| Trigger: | The costumer wants to get a receipt |
| Precondition: | The customer has received services from the auto repair shop |
| Main Scenario: |  |
| 1. | The employee selects the "Generate Receipt" use-case |
| 2. | The system displays a form to enter the customer information, vehicle information, and services provided |
| 3. | The employee enters the information and clicks "Generate Receipt" |
| 4. | The system generates a receipt and displays it on the screen |
| 5. | The employee prints the receipt and hands it to the customer. |

Use Case Description 2:

|  |  |
| --- | --- |
| Use Case: | Manage Customer Information |
| Trigger: | The costumer wants to get a receipt |
| Precondition: | The customer has received services from the auto repair shop |
| Main Scenario: |  |
| 1. | The employee selects the "Generate Receipt" use-case |
| 2. | The system displays a form to enter the customer information, vehicle information, and services provided |
| 3. | The employee enters the information and clicks "Generate Receipt" |
| 4. | The system generates a receipt and displays it on the screen |
| 5. | The employee prints the receipt and hands it to the customer. |