Case Study – I (Retail Sales Application)

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Problem Statement:

Write case study for retail sale application – Bike Sale

Analyzing Requirements:

Hardware:

- EPOS (Electronic point of sales)
  - Barcode Scanners
  - Card Readers
  - QR codes (Wallet Transactions)
- Barcoded items
- Touch screens/Output screens

Software:

- Database Software
- AI, ML Software's
- Extra Security Software for large payments and integration with banks
- Some Graphical software for digital demo

Algorithm:

Supply Chain:

- Manufacturer
- Distributor/Sales Agent
- Retail

- Consumer

Modules:

- Manufacturer Module
  - Following attributes should be included
    - Date of manufacturing
    - Country of manufacturing
    - Place of manufacturing
    - And related technical details
  - Following methods should be there
    - Taking Orders
    - Analyzing requirements
    - Supplying orders / keeping record
- Distributor Module
  - Following attributes should be included
    - Name of the distributor
    - Authorization credentials
    - Models exported to the distributor
    - Extra Parts of vehicle and other related stuff
    - Area covered by distributor
  - Following methods should be there
    - Taking models record from manufacturer
    - Giving requirements to the manufacturer
    - Send models/products to retail stores according to their order (two functionalities are expected)
      - Taking Orders
      - Supplying Orders
- Retail Module
  - Following attributes should be included
    - Name of retail showroom
    - Authorization credentials
    - Available Models of bike (May be list or dictionary)
    - Zone/Area covered by store
    - Keeping customer records
  - Following methods should be there
    - Taking order from customer
    - Maintaining additional expenses on modes

                - For example: test ride expense should be added through this method
            - Completing orders of customers
            - Taking models (Records) from distributor and add them to database
            - Maintaining database according to sales
    - Consumer Module
        - Following attributes should be included
            - Name of the consumer
            - Unique identification id
            - Connection Record with retail store
            - Past services provided
            - Customer feedback
        - Following methods should be there
            - Update consumer detail
            - Add service details
            - Update payment related info
            - Take feedback and necessary actions for the consumer

Along with the above modules following modules are suggested/required:

- Bike Model Module
    - Attributes
        - All technical details of bike
        - All non-technical details of the bike
        - Current response from the users/customer satisfaction (may be in %tage)
    - Methods
        - Getter and Setter methods
        - Updates, Discontinue and related functionality
- Module for related accessories
    - Attributes
        - All technical details
        - Non-technical details
    - Methods
        - Getter and Setter methods
        - Requirement related stuff

Algorithm:

1. Identify the requirement of consumer
2. If he/she wants to buy a bike add it to appropriate module/method
    a. Redirect to test drive
    b. Then go for technical and nontechnical details
    c. Take feedback
    d. If positive go to payment section
3. If he/she wants to service bike, identify models and send details to manufacturer
    a. Get details and service the model
    b. Take feedback
    c. If positive go to payment section
4. When consumer buys/services bike update details in retail store database
5. Take payment
6. Update in database
7. Exit

Programming Paradigm and Programming Language:

Programming Paradigm:

Object Oriented Programming paradigm will be preferred because of the following features:

- Object and classes – map real world entities
- Message passing – interaction between objects/classes
- Encapsulation – Hiding unneccessary details
- Inheritance – Inherit the module details from the parent module
- Polymorphism – Single method for multiple things to be done
- Semantics availability

Programming Language:

Java will be preferred for the projects because it supports above mentioned programming paradigm along with it has many features which are help in implementation of modules like interfaces and Object Oriented functionalities.

Conclusion:

The usage of technological advancement has changed the face of buying anything (from small to big). Computers make it possible for the selling of items to thousands of customers, from home deliveries to self-checkouts, smoother.

Digitalism makes things more smoother, faster and safer. We can save time and money from both perspectives (seller and buyer). This digital management will replace conventional methods for sure in near future.