**Project : Invoice Generator**

**Project Overview**

This project is designed to handle essential e-commerce functions with a strong focus on flexibility in product and customer management, as well as sophisticated handling of discounts and taxes. The modular approach, where each aspect such as products, categories, and customers is managed through separate forms, ensures scalability and maintainability of the application.

The project follows enterprise application architecture, specifically a 3-tier structure, consisting of the following layers:

UIL (User Interface Layer): Handles all user interactions.

BLL (Business Logic Layer): Implements business rules and logic.

DAL (Data Access Layer): Manages data storage and retrieval.

This design promotes clean separation of concerns, making the application more adaptable to changes and easier to maintain.

**1. Homepage**

* **Features**: The homepage serves as the control center for managing the core data of the application, including Products, Categories, and Customers.
* **Actions Available**:
  + **Create**: Add new products, categories, or customers to the system.
  + **Update**: Modify existing entries for products, categories, or customers.
  + **Delete**: Remove products, categories, or customers from the system.

Product has as attributes like:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| name | description | category | price | quantity | discount rate |

Categoy has as attributes like:

|  |  |  |
| --- | --- | --- |
| name | description | tax rate |

Customer has as attributes like:

|  |  |  |  |
| --- | --- | --- | --- |
| name | email | address | contact num |

* **Implementation**: Each of these actions is managed via separate forms to keep the data handling clean and modular.

**2. Cart Window**

* **Purpose**: The cart window allows users to add products from the available stock to their shopping cart.
* **Key Functionality**:
  + Displays the available products in stock.
  + Allows the user to add selected products to the cart for purchase.

**3. Payment Window**

* **Purpose**: The payment window handles the final calculation of the order total, incorporating discounts and taxes. And shows option to proceed payment by selecting one of the payment option.
* **Key Features**:
  + **Percentage Discounts**: Each product may have a percentage discount applied during calculation.
  + **Tax Application**: Tax is applied based on the category of the product.
  + **Flat Discount**: If a coupon code is entered and the total order amount is greater than Rs.500, a flat discount of Rs.500 is applied.

(Example coupen code considered here as ‘**FLAT500**‘)

**4. Invoice Generation**

* **Purpose**: Once the payment process is completed, an invoice is generated.
* **Key Features**:
  + **Customer Details**: Displays the relevant customer information.
  + **Purchased Products**: Lists all the products included in the order.
  + **Discount and Tax Breakdown**: Shows the discounts (both percentage and flat) and the taxes applied to each product.
  + **Final Amount**: The total payable amount after all discounts and taxes are factored in.

**Conclusion**

This system is designed to handle essential e-commerce functions, with a focus on flexibility in product and customer management, as well as sophisticated discount and tax handling. The modular approach of managing each aspect (products, categories, customers) through separate forms ensures scalability and maintainability of the application.