1. Tour Management System

PackageID	Destinations	Fare for a customer
101	London	15000
103	Melbourne	25000
105	Sydney	40000
107	Capetown	20000
109	Paris	80000
106	Switzerland	30000

If there is an additional traveler who is an Adult included in the package, extra person would incur a charge of 30 % of the given fare. If the additional traveler is a child of the couple, then 15% of the fare is to be included along with fare mentioned for the corresponding package ID. In case of a single customer, only 55% of the fare mentioned is applicable. A senior citizen is entitled to get a discount of 12% of the fare mentioned above. If customer is booking a cruise package from Sydney, 15% tax will be applicable. If customer booking a cruise package from London, 12% tax will be applicable.

Note: Traveller can pay the amount in terms Euro, Rs. Conversion rate is 1$ = 0.75 Euro and 1$ = 62 Rs.

Identify the classes, objects and its responsibilities by the use of constants where ever applicable. Reusability of currency converter, discount calculator and Tax calculator routines are mandatory.

Chauffeur Rates

Day	Daily Bata
Day 1	120
Day2	140
Day 3	160
Day 4	165
Day5& above	170

Car Security Deposit (Capacity without Chauffeur)

Vehicle	Security Deposit	Capacity
Land Rover	12000	6 + 2 kids
Toyota	14000	4
Suzuki	16000	4
Mitsubishi	11000	4
Honda	9000	4
General Motors	16500	4
Renault	12900	4
Peugeot	13000	4
Jeep	14500	6 + 2 kids
Kia	14800	6 + 2 kids

Vehicle Rate per mile

Vehicle	Rate per mile(In euros)
Land Rover	7.873
Toyota	6.921
Suzuki	15.321
Mitsubishi	16.987
Honda	12.375
General Motors	16.307
Renault	14.218
Peugeot	16.317
Jeep	17.316
Kia	16.318

1. If the distance is more than 100 miles
 a. Repeated customers will get 2% discount
        b. Repeated senior citizen customers will get 5 % discount
  2. General customer will get 2% discount on total bill if the distance
     is more than 400 miles.
  3. If the customer is booking more than one vehicle at a time for more than 100 miles
        a. All repeated customers are eligible for additional discount of 5%
        b. General Customers are eligible for additional discount of 3%

Using OOPS concepts, write the following programs
        1. Create a parent class called customer and derived classes namely repeated customer, repeated senior citizen and general customer. Using the three classes calculate the total bill when a general motors vehicle is rented for 2 days without chauffeur and utilized
         for 200 miles

3. **P**ower-Tech, a dominant player in the city , specializes in Electricity and Water board services to the customers at a premium. Power-Tech will be provided a common interface to Electricity and water board with which he can facilitate customers in availing features like Registering to the service(Water or Electricity connection), Generating monthly bill, Monthly bill payment and generating defaulters report. Details of the services provided by the agency are given below

A. When a new customer approaches the agency requesting for electricity or water connection, agency uses the **register_for_Service** to register the user and a Customer ID will be generated for the user. During registration, user name, address, phone number along with the purpose of usage (domestic/commercial) should also has to be captured

B. At the end of every month, agency uses the generate monthly bill service to record unit consumed by any given customer of the services availed. Billing date and the address of Board(Electricity/Water board) should be displayed as part of the billing information

C. Agency uses payment services to record payment made by the customer. Following business rules are used to calculate the payment.

       Business Rules

       1. If the service is water, per unit charge is Rs 6 for domestic usage and Rs.12 for Commercial purposes
       2. If the service is electricity, per unit charge for domestic consumption is Rs.20 and it is Rs.35 for Commercial.

      4. **Libraray Management System**
Create an application in order to assist a public library in automating their functions.

Admin Roles
Add new books to the library:
      Admin can add new arrivals in the database. They can also view suggestions made by

users and proceed for procurement.

Issue/Renewal of books:
        A particular user can issue a maximum of 3 books and they can be retained for a period of 2 weeks.
Collecting of fines from defaulters:
         A base fine of Rs 50/- to be charged from defaulters which will increase at the rate of RS 5/day if dues are not cleared.

User roles
Create accounts
        Users can login into their account and do various activities.
Search for books.

View details of issued books.
        Keep track of issued books and pending dues if any.
Suggest for new book :
        Users can place orders for particular books .

5. An online marketing store requires an application to carry out its business.

Product Management:- The admin should have authority of following:-
    - Adding the products
    - Updating the inventory
    - View log of sales

Customer roles:- The customer can
    -     Create an account
    - Place order for items
    - View order history
    - Cancel orders

Bill Management:- A customer can add, update, delete his orders and also view his/her bill details.
    - Shipping charges applicable for total cost below 500.
    - Discount to be provided on purchase above 2500.
    - Discount for payment made using credit cards for purchase above 5000.
    - Implement point system.

6.Develop an employee management system for a leading IT company so as to meet the following requirements.

Employee Management:- The employee can perform the following operations
- Adding new employee details
- Updating the details
- Applying for leave

Supervisor roles:- The supervisor can carry out the following operations
- Granting leaves
- Generating payrolls
- View employee details
- Removing employees

Project Management:-This system will help to monitor the projects ,map employees into projects etc.
- Adding project details
- Mapping employees into projects
- View all project details

7. School Management System
Develop an application for an international school so as to meet the following requirements.

Admin Roles
- Add/Remove teachers
- View Details
- Generate payrolls
- Grant Leaves

Teacher Roles
- Add Student details
- Generate Report Cards

⊙ View Student Details

Student Roles
   ⊙ Login into account
   ⊙ View Performance Report

8. **Bank Account Management**:

  A bank maintains two kinds of account (savings and current). The savings account provides compound interest and withdrawal facilities. The current account provides no interest. The Current account holders should also maintain a minimum balance (agreed at the time of opening account). Current account provides overdraft withdrawal facility, i.e., customer can withdraw beyond the account limit maximum up to the minimum balance agreed. A service charge is imposed on every overdraft i.e., 10% of the overdraft amount. The following needs to be adjusted in the next deposit.
  Customer can open either of the accounts and perform basic withdraw, deposit and generate statement transactions.
  Develop a solution-block to perform the given scenarios for different customers

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9. **Cafeteria Management:**

Store a list of items and their price details in the database. Check the credentials of the bill manager (BM) before login into the application. Allow BM to generate bill based on list of items taken by the customer. Admin should be allowed to modify rates of existing items or add new items. Generate income report on monthly basis

10. Knowledge Management System
Create an application to implement an online learning system. The following functionalities should be implemented.

Admin Roles
    ▪ Admin should be able to moderate the other users
    ▪ Delete /block users

User Roles
    ▪ Able to log in
    ▪ Post a question
    ▪ View posted question
    ▪ Answer the question which the user knows