Assignment 2
Inheritance

Strict plagiarism will apply

In this assignment our focus is on Road Accident Insurance coverage scenario. Consider a client has come to you with these requirements and wants you to implement a system through which they can settle accident issues. You have to figure out what should be the classes from the problem statement and properties of each class (fields and methods). A better design will ensure better marks.(we'll discuss some of these things in lab session).
There is no absolute correct solution but you can easily design around 6-7 classes which will follow a hierarchy.
For ex: **Engine powered vehicle** can extend **vehicle**.
Engine-powered Two-wheelers can extend **engine-powered**.

Insured Vehicle:

- When requested, would produce the insurance policy
- Would do settlement with oncoming vehicle in case of a collision
- Would throw an exception if something goes wrong in settlement

Design a system with following features

1. All engine powered vehicles are required to be insured and should have a policy

2. Every four wheeler is advised to have a Package Policy.

3. Every vehicle has a property called number of wheels and owner name.

4. It should have 2 Engine-powered Two-wheelers (one has valid policy other has expired), Pick any model.

5. It should have 2 Four-wheelers (one has valid policy other has expired), Pick any model.

6. 2 Cycles, Pick any model.

7. Every vehicle (referred as self) would collide with every other vehicle (referred as oncoming)

In case of collision

1. Assign a any damage amount to both self and oncoming vehicle.

2. If self is required to have a policy then

   Self would do a settlement with oncoming vehicle.

   - If self has valid policy then it would decrease damages of oncoming vehicle as per the policy else throw exception with sorry message

   - If self has valid package policy then it would decrease damages of oncoming and self as per the policy.

3. else throw exception with sorry message

Vehicle Insurance Policies: Every policy is issued to a vehicle has expiry date and policy number.

We have two different types of Vehicle Insurance Policies.

Third Party Policy:

If policy owner vehicle (called self) collides with another vehicle (called third party), policy covers 80% of the damage to the third party vehicle.

Package Policy:

If policy owner vehicle (called self) collides with another vehicle (called third party), policy covers 80% of the damage to the third party and 50% of the damage of self.

Output of the Program.

1. Tabular details of the vehicle that are created in the system.
   Ex:
   Model, owner name, number of wheels, policy class, policy expiry

2. Collision loop start message

3. Collison details (for each collision)
   Ex:
   I am <model, owner name>, collided with <model, owner name>
   Damages self:
   Damages oncoming:
   Settlement details.
   oncoming vehicle damage status.
   self damage status.

   Ex: (in case of any issues with settlement exception)
   I am <model, owner name>, collided with <model, owner name>
   Damages self:
   Damages oncoming:

   Settlement details:
   Exception thrown

   Exception is caught: error message
   message what went wrong in settlement