TY CSE AY-2024-25 Sem-II

Sub: iOS Lab (6CS381)

Assignment No 5

Due date- 17/2/2025

(Structures)

1. Define a Book structure with properties: title (String), author (String), price (Double), and yearPublished (Int). Create an instance of Book and display its details using function displayBook ().

2. Create a Rectangle structure with properties width and height. Add a function calcArea () to calculate area that returns the area of the rectangle.

3. Create a Temperature structure that has a property celsius (Double). Add an initializer that takes Fahrenheit and converts it to Celsius.

4. Define a Student structure with properties name, rollNumber, and marks. Provide a custom initializer that assigns default values.

5. Define a Smartphone structure with properties:
   brand (String), model (String), storageGB (Int), price (Double)
   Use the memberwise initializer to create an instance of Smartphone and print its specifications.

6. Create a struct BankAccount with:
   accountHolder: String, balance: Double
   Add a custom initializer that: Ensures a minimum balance of ₹500, If the provided balance is lower, set it to ₹500.
   Initialize accounts with different balances and print the results.

7. Create a struct CarDetails with: brand: String, model: String, year: Int
   Provide a custom initializer where: If no year is provided, it defaults to the current year.
   Create instances with and without specifying the year.

8. Define a struct BankAccount with: accountHolder: String, balance: Double
   Add instance methods:
   deposit (amount: Double): Increases the balance by the given amount.
   withdraw (amount: Double): Decreases the balance only if sufficient funds are available.

9. In above structure mentioned in question no 8, Add mutating methods:
   deposit (amount: Double): Increases the balance.
   withdraw (amount: Double): Deducts the amount only if balance is sufficient.
   Create an instance and test the deposit and withdrawal functionality.
10. Define a struct Car with:

fuelLevel: Double (percentage between 0 and 100)
mileage: Double
Add mutating methods:
refuel(amount: Double): Increases fuelLevel, ensuring it doesn't exceed 100%.
drive(distance: Double): Decreases fuelLevel based on the mileage.
Simulate refueling and driving to check fuel updates.

11. Define a struct Employee with:
    name: String
    basicSalary: Double
    Add a computed property:
    netSalary: Double → Returns the salary after a 10% tax deduction.
    Initialize and print the net salary.

12. Define a struct Speed with:
    metersPerSecond: Double
    Add computed properties:
    kmPerHour: Double → Converts m/s to km/h (metersPerSecond × 3.6).
    milesPerHour: Double → Converts m/s to mph (metersPerSecond × 2.237).
    Create an instance and convert speed to different units.

13. Define a struct CarSpeed with:
    speed: Double
    Use property observers:
    willSet → Display the current and upcoming speed.
    didSet → Print a warning if speed exceeds 120 km/h.
    Create a car instance and modify its speed.

14. Create copy of structure CarSpeed using another instance and display the details.

15. Define a struct Circle with:

    radius: Double

    Add a type property: pi: Double = 3.14159 (constant for all circles).

    Add a type method:
    Area (radius: Double) -> Double → Calculates and returns the area of a circle using pi × r^2.
    Call the method without creating an instance.

16. Define struct Customer with properties:

    name: String, id: Int

    use init method to initialize properties using ‘self’. Create instance and display details.

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