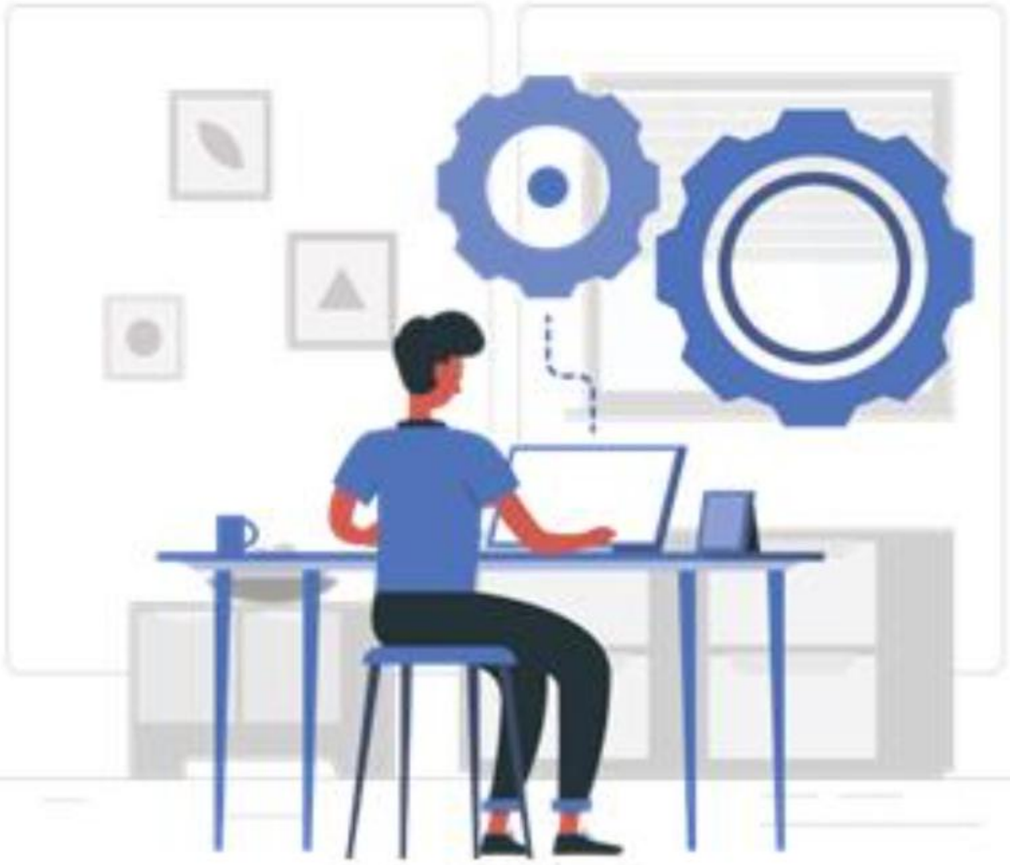

Practice

Introduction to Encapsulation and Data Abstraction

Exercise

- Practice 1: Voter eligibility
- Practice 2: Furniture mart

PRACTICE

Practice 1: Voter Eligibility

An election is a formal group decision-making process by which a population chooses an individual or multiple individuals to hold public office. People vote for eligible candidates during the election process. The eligible age to vote is 18 and above.

Write a program that verifies whether an individual is eligible to vote or not.

Tasks

- Create a class called `Voter` inside the package
- Declare the `private` attributes `name` and `age` with the appropriate data type in the `Voter` class.
- Declare a static and final variable VOTER_ELIGIBLE_AGE of type `int` with a value `18`.
- Define a no-argument constructor in the `Voter` class.
- Create `public` getter and setter methods for the instance variables `name` and `age`.
- Define a `getAgeCriteria()` method that will return a String according to the conditions provided below:
  - The method must return " `Name + Is Eligible to Vote` " if age >=18.
  - The method must return "`Name + Is Not Eligible to Vote` " if age is between 0 and 18.
  - The method must return "`Age Can't Be Negative or Zero` " if age < 0.
  - Call the getter methods and final static variable to write the logic in the method.

Tasks (cont'd)

- Create the implementation class `VoterImpl` inside the package
- Declare and initialize objects of the `Voter` class in the main method of the `VoterImpl` class.
- Call the setter methods to set values to the instance variables.
- Call the `getAgeCriteria()` method to validate if the user is eligible to vote.
- Display the value returned from the `getAgeCriteria()` method inside the main method.

```
Sample Input: age = 10 and name = "John".
Sample Output: John Is Not Eligible to Vote .
```

PRACTICE

Furniture Mart

A company manufactures plastic furniture in different colors , such as red, blue, and green. Plastic furniture comes in three grades: grade 1, grade 2, and grade 3. The furniture manufactured is for both indoor and outdoor use.

The types of furniture manufactured are tables, chairs, cupboards, and stools. The company is giving a 5% flat discount to customers who order grade 1 outdoor furniture.

Tasks

- Create a class `FurnitureItem` inside the package.
- Declare the `private` attributes `furnitureCode, furnitureType, gradeOfFurniture, furnitureUsage,` and `furniturePrice` with appropriate data types in the `FurnitureItem` class.
- Declare a static and final int variable DISCOUNT with value 5.
- Define a no-argument constructor in the `FurnitureItem` class.
- Create `public` getter and setter methods for all the instance variables.
- Define a `calculateDiscount()` method that will return the calculated discount as a `float` value according to the conditions provided below:
  - Calculate the discount on furniture, with `gradeOfFurniture` being "grade1" and `furnitureUsage` being "outdoor."
  - Call the getter methods and final static variable to write the logic in the method.

Tasks (cont'd)

- Create the implementation class `FurnitureItemImpl` in the package
- Declare and initialize objects of the `FurnitureItem` class in the main method of the `FurnitureItemImpl` class.
- Call the setter methods to set values to the variables.
- Call the `calculateDiscount()` method to calculate the discount.
- Display the discounted price returned from the `calculateDiscount()` method in the main method.

Sample Input: furnitureCode= 101,furnitureType="table",gradeOfFurniture = "grade1",furnitureUsage = "outdoor" price = $10.

Sample Output: Discounted price is $9.5.