Programming Assignment #3

These assignments progressively build upon each other, covering fundamental concepts related to defining classes, adding variables and methods, working with static elements, understanding static blocks, and utilizing class method parameters. Each assignment contributes to a deeper understanding of object-oriented programming principles in Java.

Q1: Define a Class and Add Variables

Objective: Create a class named `Person` with variables for storing the name, age, and occupation of an individual.

Task:

1. Define a class named `Person`.
2. Add variables for `name` (String), `age` (int), and `occupation` (String).
3. Include a constructor to initialize these variables.
4. Write a method to display information about the person.

Q2: Add Methods to the Class

Objective: Enhance the `Person` class by adding methods to modify the person's information.

Task:

1. Add a method to change the person's occupation.
2. Implement a method to increase the person's age.
3. Update the display method to show the modified information.

Q3: Introduce Static Variables and Methods

Objective: Extend the `Person` class to include static variables and methods.

Task:

1. Add a static variable `totalCount` to keep track of the total number of `Person` objects created.
2. Implement a static method `getTotalCount` to retrieve the total count.
3. Modify the constructor to increment `totalCount` each time a new `Person` object is created.
4. Test the static methods by creating multiple `Person` objects.

Q4: Explore Static Blocks

Objective: Understand the use of static blocks in class initialization.

Task:

1. Introduce a static block in the `Person` class.
2. Inside the static block, print a message indicating that the class is being initialized.
3. Test the class by creating a `Person` object and observe when the static block executes.

Q5: Class Method Parameters

Objective: Implement a class method with parameters to perform specific actions.

Task:

1. Add a class method `calculateRetirementAge` that takes the person's age and job type as parameters.
2. Inside the method, calculate and return the retirement age based on the job type.
3. Test the method by calling it with different ages and job types.