Programming Basics – live exercises

Exceptions

We have the following `CoffeeCup` class:

```
public class CoffeeCup {
	/**
	 *  45 degrees Celsius: the best temperature for coffee
	 */
	public static final int OPTIMUM_TEMPERATURE = 45;
	private int temperature;

	public CoffeeCup(){
		this.temperature = OPTIMUM_TEMPERATURE;
	}

	public CoffeeCup(int temperature){
		this.temperature = temperature;
	}

	public int getTemperature(){
		return temperature;
	}
}
```

Task 1: Trigger exceptions

Declare a `Person` class that has two final class attributes:

i. Integer value indicating when a cup of coffee is considered too cold; initialise it with 30 degrees Celsius.
ii. Integer value indicating when a cup of coffee is considered too hot; initialise it with 60 degrees Celsius.

Also implement a `drinkCoffee` method that accepts as a parameter a `CoffeeCup` object and returns nothing. First, the method determines the temperature of the object passed and, depending on the given situation, the method triggers an exception, either with the information text "Coffee too cold!" or with the information text "Coffee too hot!".

Task 2: Handling exceptions

a) Declare a `CoffeeApp1` application class which tests the two classes `Person` and `CoffeeCup`, regardless of the possibility of errors. In the test scenario, a person should drink a cup of coffee with a temperature of 25 degrees Celsius.
b) Now declare a `CoffeeApp2` application class that adequately handles the possible exception situations.

Task 3: User-defined exception classes

a) Declare two separate exception classes `TooColdException` and `TooHotException`, whereby each exception object can be given a suitable text.

b) Then rewrite the `drinkCoffee` method of the `Person` class so that the customised exception class is used in the respective exception situation.

c) Declare a `CoffeeApp3` application class which tests the two classes `Person` and `CoffeeCup`. In the test scenario, the first person should drink a cup of coffee with a temperature of 25 degrees Celsius and then a second person drinks a cup of coffee with a temperature of 80 degrees Celsius. In doing so, all possible exception situations should be handled appropriately.