

Exercise 3

Task 1 - Creating a Class with Variables

In this task, you compile and execute a Customer class with several variables. Complete the following steps to create your Customer class.

1. Create a new Java project named Exercise3.
2. In the newly created project, add new Java class called Customer.
3. In Customer class, define and assign variables for the following information:
 - a. A customer ID
 - b. The customer status of 'N' for new and 'O' for old.
 - c. Total purchases for the year.
4. Create a method within the class called displayCustomerInfo that uses the System.out.println method to print each value to the screen with a corresponding label (such as "Purchases are: ").
5. Create a new Java class called CustomerTest and add below codes to the class.

```
public class CustomerTest {  
  
    public static void main (String args[]) {  
  
        Customer myCustomer = new Customer();  
        myCustomer.displayCustomerInfo();  
    }  
}
```

6. Compile and run the program using the CustomerTest class file.
7. Check the output to be sure that it contains the values you assigned.

Task 2 - Calculating Age Using Operators

In this task, you use operators to calculate age in minutes and milliseconds. Follow these steps to create a Person class that calculates various ages.

1. Create a new Java class called Person.
2. Add the following code to your Person class.
 - a. Create member variables to store age in years, days, minutes, seconds, and milliseconds.
 - b. Set an initial value of 1 to the variable which stores the age in years.
 - c. Create a calculateAge method in the Person class.
 - d. In the method, calculate the age in days, minutes, seconds, and milliseconds and assign the new values to the corresponding member variables.
 - e. In the method, print out all ages in various units, each in a separate line with an appropriate message. For example, "You are 315360000 seconds old."
 - f. Create another Java class called PersonTest and add below codes.

```
public class PersonTest {  
  
    public static void main (String args[]) {  
  
        Person myPerson = new Person();  
        myPerson.calculateAge();  
    }  
}
```

- g. Test the program using the PersonTest class.
 - h. Perform tests, by setting the value of age as 1, 24, and 80 in the Person class.

Note – For one year, the results should be: You are 365 days old. You are 31536000 seconds old. You are 525600 minutes old. You are 3153600000 milliseconds old. For 24 years, the results should be: You are 8760 days old. You are 756864000 seconds old. You are 12614400 minutes old. You are 756864000000 milliseconds old.

Task 3 - Using Casting to Prevent Data Loss

In this task, you use casting to ensure that data loss does not occur in your programs. Perform the following steps.

1. Create a class called Order that contains three member variables as follows.
 - a. long orderValue = 0
 - b. int itemQuantity = 10000000
 - c. int itemPrice = 555500
2. Create a calculateTotal method that will calculate the total order value and print it. Ensure that you type cast the result of the multiplication before storing it in orderValue.
3. Create a new Java class called OrderTest and add below codes.

```
public class OrderTest {  
  
    public static void main (String args[]) {  
  
        Order myOrder = new Order();  
        myOrder.calculateTotal();  
    }  
}
```

4. Test the program by running OrderTest class file. Verify the result of orderValue by performing the calculation in a calculator.
5. Open Order class and remove the type casting done in the calculateTotal method. Save the changes.
6. Run the OrderTest again and compare the result with previous one.
7. Test the program by replacing the value of the integer number variables of Order class by
 - a. One-digit int types.
 - b. Five-digits int types.
 - c. Nine-digits int types.
8. Ensure that you get the same result with the programs as you do when doing each calculation using a calculator.

Task 4 – Creating a Temperature Program

In this task, you write a program to convert temperature from Fahrenheit to Celsius. Write code to complete the following steps.

1. Create a Temperature class with a member variable which stores the temperature in Fahrenheit. Declare the variable with an appropriate data type, such as int, float, or double.
2. Create a calculateCelsius method.
3. In the calculateCelsius method, use the following information to convert the temperature value from Fahrenheit to Celsius.
 - a. To convert from Fahrenheit to Celsius, subtract 32, multiply by 5, and divide by 9.
4. Create a new Java class called TemperatureTest and add below codes.

```
public class TemperatureTest {  
  
    public static void main (String args[]) {  
  
        Temperature myTemperature = new Temperature();  
        myTemperature.calculateCelsius();  
    }  
}
```

5. Test the program using the TemperatureTest class.
6. Ensure that you get the same result with the programs as you do when doing each calculation using a calculator.
7. Test the program using several values of temperatures.

Task 5 – Creating Customer Accounts

THE END.