

Week 5 Homework Q45

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CE480 - Java and Internet Application

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10/12/2023

Author Note

The Question

- Attributes

-
- + number of eyes
- + number of noses
- + number of mouths

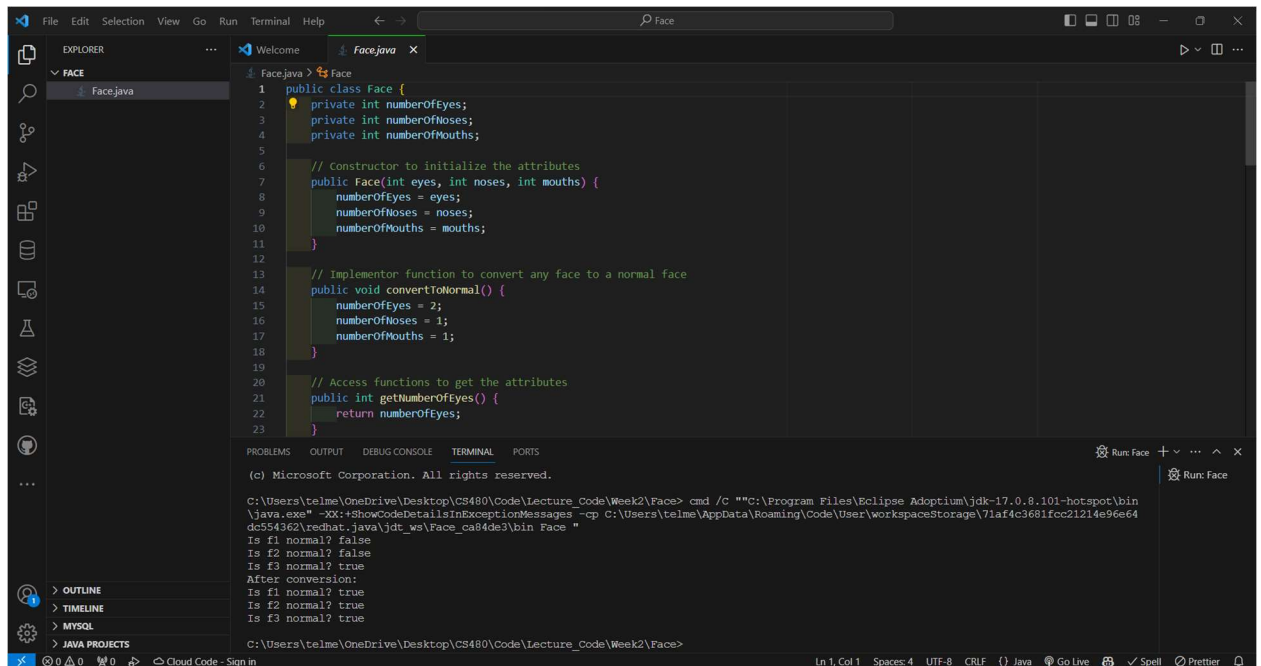
- Member functions

-
- + Manager functions
- * Constructor
- + Implementor
- * void convertToNormal()
- Note: This method will convert any face to a normal face:
- 2 eyes
- 1 nose
- 1 mouth
- + Access functions
- * 3 get functions
- * 3 set functions
- * Predicate
- - isNormal()

- Test your class by

-
- Step 1: Create 3 objects
- F1: 2 eyes, 2 noses, 1 mouths
- F2: 1 eyes, 1 noses, 2 mouths
- F3: 2 eyes, 1 noses, 1 mouths
- Step 2: Convert these three objects into normal ones.
- Step 3: Check whether the objects are normal after
- the conversion.

This looks like a normal OOP method exercise.



```
1 public class Face {
2     private int numberOfEyes;
3     private int numberOfNoses;
4     private int numberOfMouths;
5
6     // Constructor to initialize the attributes
7     public Face(int eyes, int noses, int mouths) {
8         numberOfEyes = eyes;
9         numberOfNoses = noses;
10        numberOfMouths = mouths;
11    }
12
13    // Implementor function to convert any face to a normal face
14    public void convertToNormal() {
15        numberOfEyes = 2;
16        numberOfNoses = 1;
17        numberOfMouths = 1;
18    }
19
20    // Access functions to get the attributes
21    public int getNumberOfEyes() {
22        return numberOfEyes;
23    }
24 }
```

```
(c) Microsoft Corporation. All rights reserved.
C:\Users\telme\OneDrive\Desktop\CS480\Code\Lecture_Code\Week2\Face> cmd /c "C:\Program Files\Eclipse Adoptium\jdk-17.0.8-hotspot\bin\java.exe" -XX:+ShowCodeDetailsInExceptionMessages -cp C:\Users\telme\AppData\Roaming\Code\User\workspaceStorage\71af4c3681fcc21214e96e64dc554362\redhat.java\jdt_ws\Face_ca84de3\bin Face "
Is f1 normal? false
Is f2 normal? false
Is f3 normal? true
After conversion:
Is f1 normal? true
Is f2 normal? true
Is f3 normal? true
```

The Source Code

```
public class Face {
    private int numberOfEyes;
    private int numberOfNoses;
    private int numberOfMouths;

    // Constructor to initialize the attributes
    public Face(int eyes, int noses, int mouths) {
        numberOfEyes = eyes;
        numberOfNoses = noses;
        numberOfMouths = mouths;
    }

    // Implementor function to convert any face to a normal face
    public void convertToNormal() {
        numberOfEyes = 2;
        numberOfNoses = 1;
        numberOfMouths = 1;
    }
}
```

```
// Access functions to get the attributes
public int getNumberOfEyes() {
    return numberOfEyes;
}

public int getNumberOfNoses() {
    return numberOfNoses;
}

public int getNumberOfMouths() {
    return numberOfMouths;
}

// Access functions to set the attributes
public void setNumberOfEyes(int eyes) {
    numberOfEyes = eyes;
}

public void setNumberOfNoses(int noses) {
    numberOfNoses = noses;
}

public void setNumberOfMouths(int mouths) {
    numberOfMouths = mouths;
}

// Predicate function to check if the face is normal
public boolean isNormal() {
    return numberOfEyes == 2 && numberOfNoses == 1 && numberOfMouths
== 1;
}

public static void main(String[] args) {
    // Step 1: Create 3 Face objects
    Face f1 = new Face(2, 2, 1);
    Face f2 = new Face(1, 1, 2);
    Face f3 = new Face(2, 1, 1);

    // Step 2: Check whether the objects are normal after the
conversion
    System.out.println("Is f1 normal? " + f1.isNormal());
    System.out.println("Is f2 normal? " + f2.isNormal());
    System.out.println("Is f3 normal? " + f3.isNormal());

    // Step 2: Convert these three objects into normal ones
```

```
f1.convertToNormal();
f2.convertToNormal();
f3.convertToNormal();
System.out.println("After conversion: ");

// Step 3: Check whether the objects are normal after the
conversion
System.out.println("Is f1 normal? " + f1.isNormal());
System.out.println("Is f2 normal? " + f2.isNormal());
System.out.println("Is f3 normal? " + f3.isNormal());
    }
}
```