Assignment no.6

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```
//Task no.1
```

```
public class Assignment{
  int tasks;
  String difficulty;
  boolean submission;
  public void printDetails(){
    System.out.println("Number of tasks : "+tasks);
    System.out.println("Difficulty level : "+difficulty);
    System.out.println("Submission required :
"+submission);
  }
  public void makeOptional(){
    if(this.submission == false){
      System.out.println("Submission is already not
required");
    }
    else{
      this.submission = false;
      System.out.println("Assignment will not require
submission");
    }
  }
}
```

```
public class AssignmentTester{
  public static void main(String [] args){
    Assignment as1 = new Assignment();
    as1.printDetails();
    System.out.println("1---------------");
    as1.tasks = 11;
    as1.difficulty = "Moderate";
    as1.submission = true;
    as1.printDetails();
    System.out.println("2---------------");
    as1.makeOptional();
    System.out.println("3---------------");
    as1.printDetails();
    System.out.println("4---------------");
    Assignment as2 = new Assignment();
    as2.tasks = 12;
    as2.difficulty = "Hard";
    as2.submission = false;
    as2.printDetails();
    System.out.println("5---------------");
    as2.makeOptional();
  }
}
```

```
//Task no.2
```

```
public class Shelf{
  int capacity;
  int books;
  public void showDetails(){
    System.out.println("Self capacity :"+capacity);
    System.out.println("Number of books :"+books);
  }
  public void addBooks(int add){
    if(capacity <= 0){
      System.out.println("Zero capacity. Cannot add
books.");
    }
    else if(capacity < books+add){
      System.out.println("Exceeds capacity");
    }
    else{
      books += add;
      System.out.println(books+" books added to shelf");
    }
  }
}
```

```
public class ShelfTester{
  public static void main(String [] args){
    Shelf shelf = new Shelf();
    shelf.showDetails();
    System.out.println("1---------------");
    shelf.addBooks(3);
    System.out.println("2---------------");
    shelf.capacity = 7;
    shelf.addBooks(3);
    System.out.println("3---------------");
    shelf.showDetails();
    System.out.println("4---------------");
    shelf.addBooks(5);
    shelf.showDetails();
    shelf.capacity += 4;
    System.out.println("6---------------");
    shelf.addBooks(5);
    shelf.showDetails();
  }
}
```

```
//Task no.3
```

```
public class LightController{
  boolean off = true;
  int level = 0;
  public void showLightStatus(){
    if(off){
      System.out.println("Light status: OFF");
    } else {
      System.out.println("Light status: ON");
    }
    System.out.println("Brightness Level: " + level);
  }
  public void adjustBrightness(int adjust){
    if(off){
      System.out.println("Please turn on the light first!");
      return;
    }
    int newlevel = level + adjust;
    if (newlevel < 0 || newlevel > 10) {
      System.out.println("Brightness out of range. Set
between 0 to 10.");
    }
    else{
      level = newlevel;
      System.out.println("Brightness adjusted.");
    }
  }
  public void switchLight(){
    if(off){
      off = false;
      level = 1;
      System.out.println("Lights are now ON.");
    }
    else{
      off = true;
      level = 0;
      System.out.println("Lights are now OFF.");
    }
  }
  public String resetSettings() {
    level = 1;
    return "Light settings have been reset.";
  }
}
```

```
public class LightControllerTester{
  public static void main(String args []){
    LightController c1 = new LightController();
    c1.showLightStatus();
    System.out.println("1---------------");
    c1.adjustBrightness(4);
    c1.switchLight();
    System.out.println("2---------------");
    c1.showLightStatus();
    System.out.println("3---------------");
    c1.adjustBrightness(4);
    System.out.println("4---------------");
    c1.showLightStatus();
    System.out.println("5---------------");
    c1.adjustBrightness(-2);
    c1.adjustBrightness(9);
    System.out.println("6---------------");
    c1.showLightStatus();
    System.out.println("7---------------");
    System.out.println(c1.resetSettings());
    c1.showLightStatus();
    System.out.println("8---------------");
    c1.switchLight();
    System.out.println("9---------------");
    c1.showLightStatus();
  }
}
```

```
//Task no.4
```

```
public class ChickenBurger{
  public String bun = "Sesame";
  public int price = 200;
  public String sauceOption = "Less";
  public String spiceLevel = "Not Set";
  public String[] spiceLevels =
{"Mild","Spicy","Naga","Extreme"};
  public String serveBurger(){
    if(spiceLevel.equals("Not Set")){
      return "Cannot serve now. Customize Spice Level
first.";
    }
    else{
      return "The burger is being served:-\nBun Type:
"+bun+"\nPrice: "+price+"\nSauce Option:
"+sauceOption+"\nSpice Level: "+spiceLevel;
    }
  }
  public void customizeSpiceLevel(String level){
    boolean valid = false;
    for(int i = 0; i < spiceLevels.length; i++){
      if(spiceLevels[i].equals(level)){
        spiceLevel = level;
        valid = true;
        break;
      }
    }
    if(valid){
      System.out.println("Spice level set to " + spiceLevel +
".");
    }
    else{
      System.out.println("This spice level is unavailable.");
      spiceLevel = "Spicy";
    }
  }
```

```
}
```

```
public class BurgerMaker{
  public static void main(String [] args){
    ChickenBurger b1 = new ChickenBurger();
    System.out.println(b1.bun);
    System.out.println(b1.price);
    System.out.println(b1.sauceOption);
    System.out.println(b1.spiceLevel);
    System.out.println("----------1----------");
    System.out.println(b1.serveBurger());
    System.out.println("----------2----------");
    b1.customizeSpiceLevel("Extreme Jhaal");
    b1.customizeSpiceLevel("Spicy");
    System.out.println("----------3----------");
    System.out.println(b1.serveBurger());
    System.out.println("----------4----------");
    ChickenBurger b2 = new ChickenBurger();
    b2.bun = "Brioche";
    b2.price += 50;
    b2.sauceOption = "Regular";
    b2.customizeSpiceLevel("Naga");
    System.out.println("----------5----------");
    System.out.println(b2.serveBurger());
  }
}
```

```
//Task no.5
```

```
public class MobilePhone{
  int contactCapacity;
  String[] contactNames;
  int[] contactNumbers;
  int contactCount;
  MobilePhone(){
    this.contactCount = 0;
  }
  public void setContactCapacity(int capacity){
    this.contactCapacity = capacity;
    this.contactNames = new String[capacity];
    this.contactNumbers = new int[capacity];
  }
  public void addContact(String name, int number){
    if (contactCount < contactCapacity) {
      contactNames[contactCount] = name;
      contactNumbers[contactCount] = number;
      contactCount++;
      System.out.println("The contact of " + name + " is
added.");
    }
    else{
      System.out.println("Storage Full!!");
    }
  }
  public void makeCall(int number){
```

```
  boolean found = false;
  for(int i=0;i<contactCount;i++){
   if(contactNumbers[i] == number){
    System.out.println("Calling " + contactNames[i] + " . .
.");
    found = true;
    break;
   }
  }
  if(!found){
   System.out.println("Calling " + number + " . . .");
  }
 }
 public void details(){
  System.out.println("Total Contacts: " + contactCount);
  System.out.println("Contact List:");
  for(int i=0;i<contactCount;i++){
   System.out.println(contactNames[i] + ":" +
contactNumbers[i]);
  }
 }
}
```

```
public class MobilePhoneTester{
  public static void main(String args []){
    MobilePhone m1 = new MobilePhone();
    MobilePhone m2 = new MobilePhone();
    m1.setContactCapacity(5);
    m2.setContactCapacity(100);
    m1.details();
    System.out.println("1----------------");
    m1.addContact("John", 9866);
    m1.addContact("Maria", 7865);
    System.out.println("2----------------");
    m1.makeCall(9866);
    System.out.println("3----------------");
    m1.addContact("Henry", 2365);
    System.out.println("4----------------");
    m1.makeCall(7552);
    m1.makeCall(2365);
    System.out.println("5----------------");
    m1.addContact("Gomes", 4589);
    m1.addContact("Antony", 8421);
    m1.addContact("Tony", 5789);
    System.out.println("6----------------");
    m1.details();
  }
}
```

```
//Task no.6
```

```
public class Course {
    String courseName;
    String courseCode;
    String[] syllabus;
    int contentCount;

    // Constructor initializes the syllabus array
    public Course() {
        this.syllabus = new String[4];
        this.contentCount = 0;
    }

    // Method to create a course
    public void createCourse(String name, String code) {
        courseName = name;
        courseCode = code;
    }

    // Method to add a single content
    public void addOneContent(String content) {
        if (contentCount < syllabus.length) {
            syllabus[contentCount] = content;
            contentCount++;
            System.out.println(content + " was added.");
        } else {
            System.out.println("Cannot add more content");
        }
    }

    // Method to add two contents
    public void addTwoContent(String content1, String
content2) {
        if (contentCount + 2 <= syllabus.length) {
            syllabus[contentCount] = content1;
            syllabus[contentCount + 1] = content2;
            contentCount += 2;
            System.out.println(content1 + " was added.");
            System.out.println(content2 + " was added.");
        } else {
            System.out.println("Cannot add more content");
        }
    }

    // Method to print course details
    public void printDetails() {
        System.out.println("Course details:");
        System.out.println("Course Name: " + courseName);
        System.out.println("Course Code: " + courseCode);
        System.out.println("Course Syllabus: ");
        if (contentCount == 0) {
            System.out.println("No content yet.");
        } else {
            for (int i = 0; i < contentCount; i++) {
                if (i > 0) {
                    System.out.print(", ");
                }
                System.out.print(syllabus[i]);
            }
            System.out.println();
        }
    }
```

```
}
```

```
public class CourseTester{
  public static void main(String [] args){
    Course c1 = new Course();
    c1.createCourse("PL II", "CS11");
    System.out.println("--------1--------");
    c1.printDetails();
    System.out.println("--------2--------");
    c1.addOneContent("Overloading");
    c1.printDetails();
    System.out.println("--------3--------");
    c1.addOneContent("Encapsulation");
    c1.addTwoContent("Static", "Polymorphism");
    c1.printDetails();
    System.out.println("--------4--------");
    c1.addOneContent("Inheritance");
    System.out.println("--------5--------");
    Course c2 = new Course();
    c2.createCourse("DS", "CS22");
    c2.addOneContent("Stack");
    c2.addTwoContent("Recursion","Tree");
    c2.addTwoContent("Heap","Hashing");
    System.out.println("--------6--------");
    c2.printDetails();
  }
}
```

//Task no.7

```
public class Course2{
  String courseName;
  String courseCode;
  String[] syllabus;
  int contentCount;
  public Course2(){
    this.syllabus = new String[4];
    this.contentCount = 0;
  }
  public void createCourse(String name, String code){
    courseName = name;
    courseCode = code;
  }
  public void addContent(String content){
    if (contentCount < syllabus.length){
      syllabus[contentCount] = content;
      contentCount++;
      System.out.println(content + " was added.");
    }
    else{
      System.out.println("Cannot add more content");
    }
  }
  public void addContent(String content1, String content2){
    if(contentCount + 2 <= syllabus.length){
```

```
    syllabus[contentCount] = content1;
    syllabus[contentCount + 1] = content2;
    contentCount += 2;
    System.out.println(content1 + " was added.");
    System.out.println(content2 + " was added.");
  }
  else{
    System.out.println("Cannot add more content");
  }
}
public void printDetails(){
  System.out.println("Course details:");
  System.out.println("Course Name: " + courseName);
  System.out.println("Course Code: " + courseCode);
  System.out.println("Course Syllabus: ");
  if(contentCount == 0){
    System.out.println("No content yet.");
  }
  else{
    for(int i=0;i<contentCount;i++){
      if(i>0){
        System.out.print(", ");
      }
      System.out.print(syllabus[i]);
    }
    System.out.println();
  }
  }
}
```

```
public class CourseTester2{
  public static void main(String [] args){
    Course2 c1 = new Course2();
    c1.createCourse("PL II", "CS11");
    System.out.println("--------1--------");
    c1.printDetails();
    System.out.println("--------2--------");
    c1.addContent("Overloading");
    c1.printDetails();
    System.out.println("--------3--------");
    c1.addContent("Encapsulation");
    c1.addContent("Static", "Polymorphism");
    c1.printDetails();
    System.out.println("--------4--------");
    c1.addContent("Inheritance");
    System.out.println("--------5--------");
    Course2 c2 = new Course2();
    c2.createCourse("DS", "CS22");
    c2.addContent("Stack");
    c2.addContent("Recursion","Tree");
    c2.addContent("Heap","Hashing");
    System.out.println("--------6--------");
    c2.printDetails();
  }
}
```

```
//Task no.8
```

```
public class Shape {
    String shapeName;
    double area;
    public void setParameters(String shape, double radius){
        shapeName = shape;
        area = 3.1416 * radius * radius;
    }
    public void setParameters(String shape, double base,
double height){
        shapeName = shape;
        area = 0.5 * base * height;
    }
    public void setParameters(String shape, double a,
double b, double height){
        shapeName = shape;
        area = 0.5 * (a + b) * height;
    }
    public String details() {
        return "Shape Name: " + shapeName + "\nArea: " +
area;
    }
}
```

```
public class ShapeTester{
  public static void main(String args []){
    Shape circle = new Shape();
    Shape triangle = new Shape();
    Shape trapezium = new Shape();

    circle.setParameters("Circle", 5);
    triangle.setParameters("Triangle", 4, 7);
    trapezium.setParameters("Trapezium", 2, 4, 9);

    System.out.println(circle.details());
    System.out.println("---------------");
    System.out.println(triangle.details());
    System.out.println("---------------");
    System.out.println(trapezium.details());
  }
}
```