KINGDOM OF SAUDI ARABIA | JAZAN UNIVERSITY

COLLEGE OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

ASSIGNMENT-2 / 2022-2023

Academic Year	2022-2023	**Semester**	Second
Course with code	Programming-2 (comp-213)	**Marks**	10
Type of Assignment	Exercises	**Deadline**	05/02/2023
Date of Announcement	29/01/2023	**Group**	1827, 1802
Student Name		**Student ID**	

Important notes:

- *Duplicated or copied submission will strictly affect your grade (**both students will receive zero mark!**)*
- *Late submission, after deadline, may affect your grade.*

ASSIGNMENT PROBLEM STATEMENT

Q1: Assume an array ***arr*** is declared in the main program. What is the values of the variables ***(first, last,*** and ***mid)*** each time calling ***binarySearch*** method in order to find the key: **(3 marks)**

int [ ] arr = {10, 20, 30, 40, 50, 60, 70, 80, 90};

1) **binarySearch (arr, 0, arr.length-1, 50);**

First	Last	mid
0	8	4

2) **binarySearch (arr, 0, arr.length-1, 70);**

First	Last	mid
0	8	4
5	8	4

3) binarySearch (arr, 0, arr.length-1, 0);

First	Last	mid
0	8	4
0	3	1
0	0	0
0	-1	-1

Q2: Assume that a String ArrayList **courses** are defined, which contains the following elements:

("Math", "Science", "English", "Art") **(2 marks)**

- Write one statement that use an ArrayList method to find if the list contains "Science" or not.

```
if (courses.contains("Science")) {
  // do something
    }
```

- Write one statement that use an ArrayList method to find the index of "Art".

```
int index = courses.indexOf("Art");
```

Create an array of objects by completing the following parts: **(5 marks)**

- Declare a class **Car** and Declare three private instance variables (**name, brand, model**) as (**String, String, and int)** respectively.
- Define the setter and getter methods for these variables.
- Define **display** method to print out a car's information **(name, brand, model).**

In the main program:

- Create an array of the defined class **Car** with size **6**.
- Create two objects from class **Car** and add them into the array.
- Set values **(name, brand, model)** for these two objects after adding them in the array.
- Show the two objects in the output using **display** method.

```
class Car {
    private String name;
    private String brand;
    private int model;
```

```
    // setter methods
    public void setName(String name) {
        this.name = name;
    }

    public void setBrand(String brand) {
        this.brand = brand;
    }

    public void setModel(int model) {
        this.model = model;
    }

    // getter methods
    public String getName() {
        return this.name;
    }

    public String getBrand() {
        return this.brand;
    }

    public int getModel() {
        return this.model;
    }

    // display method
    public void display() {
        System.out.println("Name: " + this.name);
        System.out.println("Brand: " + this.brand);
        System.out.println("Model: " + this.model);
    }
}

public class Main {
    public static void main(String[] args) {
        Car[] carArray = new Car[6];

        // creating two objects
        Car car1 = new Car();
        Car car2 = new Car();

        // adding objects to the array
        carArray[0] = car1;
        carArray[1] = car2;

        // setting values for the objects
        car1.setName("Car 1");
        car1.setBrand("Brand 1");
        car1.setModel(2021);

        car2.setName("Car 2");
```

```
        car2.setBrand("Brand 2");
        car2.setModel(2022);

        // displaying objects
        System.out.println("First car:");
        carArray[0].display();
        System.out.println();
        System.out.println("Second car:");
        carArray[1].display();
    }
}
```