IT5512- WEB TECHNOLOGY LAB-SESSION-4

DATE: 27/09/2021 FN

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PASS AND RETURN BY REFERENCE

1) AIM:

To write a java program to pass the object as reference

ALGORITHM:

- ✓ Create a class Student with private varaibles name,roll number,gender
- ✓ Create a constructor intializing the values
- ✓ Create a getter methods for each variables
- ✓ Create a ArrayList of students and enter the n student objects
- ✓ Enter the student details that is to be searched for
- ✓ Create own equalTo function to compare the objects and return accordingly

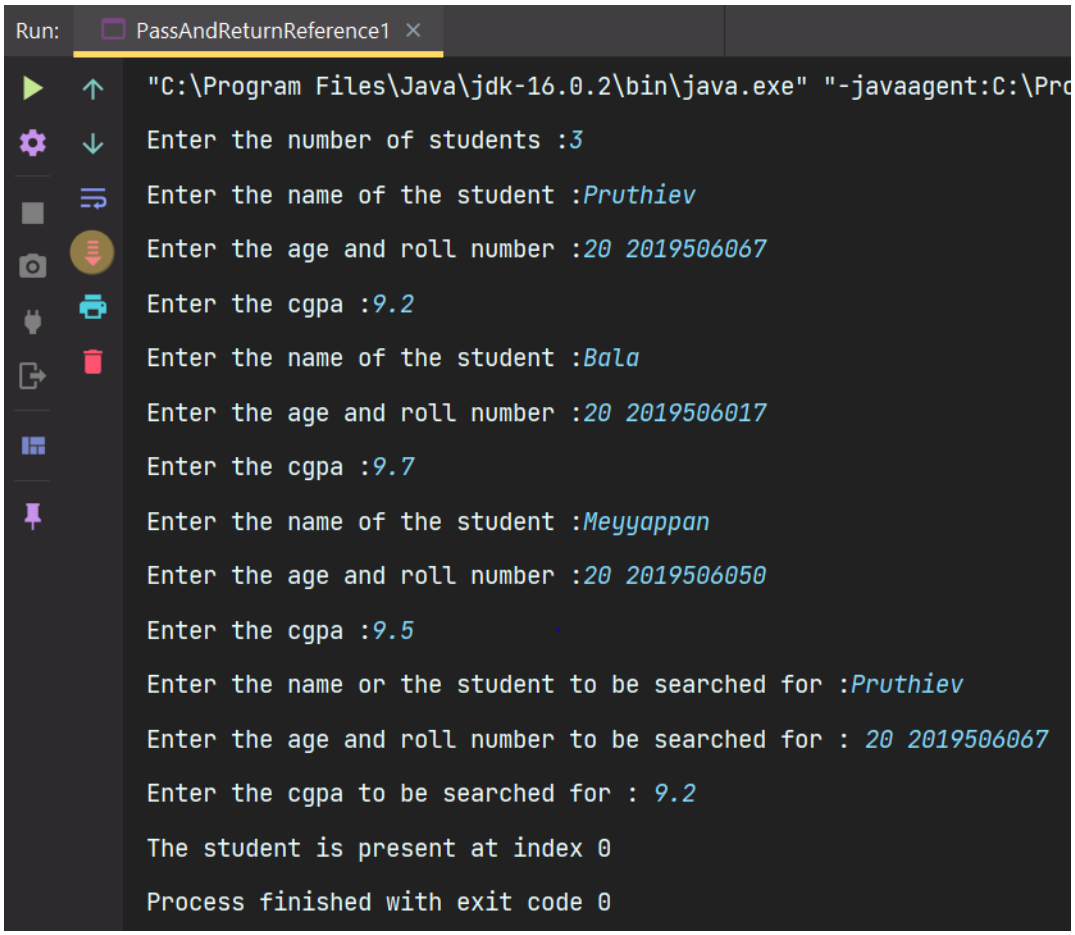
PROGRAM CODE:

```
package Java.Lab.Lab4;

public class Student{
   private int age;
   private String name,rollNumber;
   double cgpa;
   public Student(int age, String name, String rollNumber, double cgpa) {
      this.age = age;
      this.name = name;
      this.rollNumber = rollNumber;
      this.cgpa = cgpa;
   }
   public Student(Student s){
      this.name = s.name;
```

```
            this.age = s.age;
            this.rollNumber = s.rollNumber;
            this.cgpa = s.cgpa;
        }
        public int getAge() {
            return age;
        }
        public String getName() {
            return name;
        }
        public String getRollNumber() {
            return rollNumber;
        }
        public double getCgpa() {
            return cgpa;
        }
        public boolean equalsTo(Student y) {
            return (this.age == y.age && this.name.equals(y.name) &&
this.rollNumber.equals(y.rollNumber)
                    && this.cgpa == y.cgpa);
        }
}

    public class PassAndReturnReference1 {
        private static final Scanner input = new Scanner(System.in);
        public static void main(String[] args) {
            int n;
            System.out.print("Enter the number of students :");
            n = input.nextInt();
            ArrayList<Student>students = new ArrayList<>(n);
            int age;
            String name,rollNumber;
            double cgpa;
            for(int i = 0 ; i < n ; i++){
                input.nextLine();
```

```
            System.out.print("Enter the name of the student :");
            name = input.nextLine();
            System.out.print("Enter the age and roll number :");
            age = input.nextInt();
            rollNumber = input.next();
            System.out.print("Enter the cgpa :");
            cgpa = input.nextDouble();
            students.add(new Student(age,name,rollNumber,cgpa));
        }
        input.nextLine();
        System.out.print("Enter the name or the student to be searched for :");
        name = input.nextLine();
        System.out.print("Enter the age and roll number to be searched for : ");
        age = input.nextInt();
        rollNumber = input.next();
        System.out.print("Enter the cgpa to be searched for : ");
        cgpa = input.nextDouble();
        Student find = new Student(age,name,rollNumber,cgpa);
        Student found = students.stream().filter((x) ->
x.equalsTo(find)).findFirst().orElse(null);
        if(found != null){
            System.out.print("The student is present at index " +
students.indexOf(found));
        }

    }
}
```

OUTPUT:



RESULT:

Thus, the program has been executed successfully.

2)

AIM:

To write a java program to pass and return by reference

ALGORITHM:

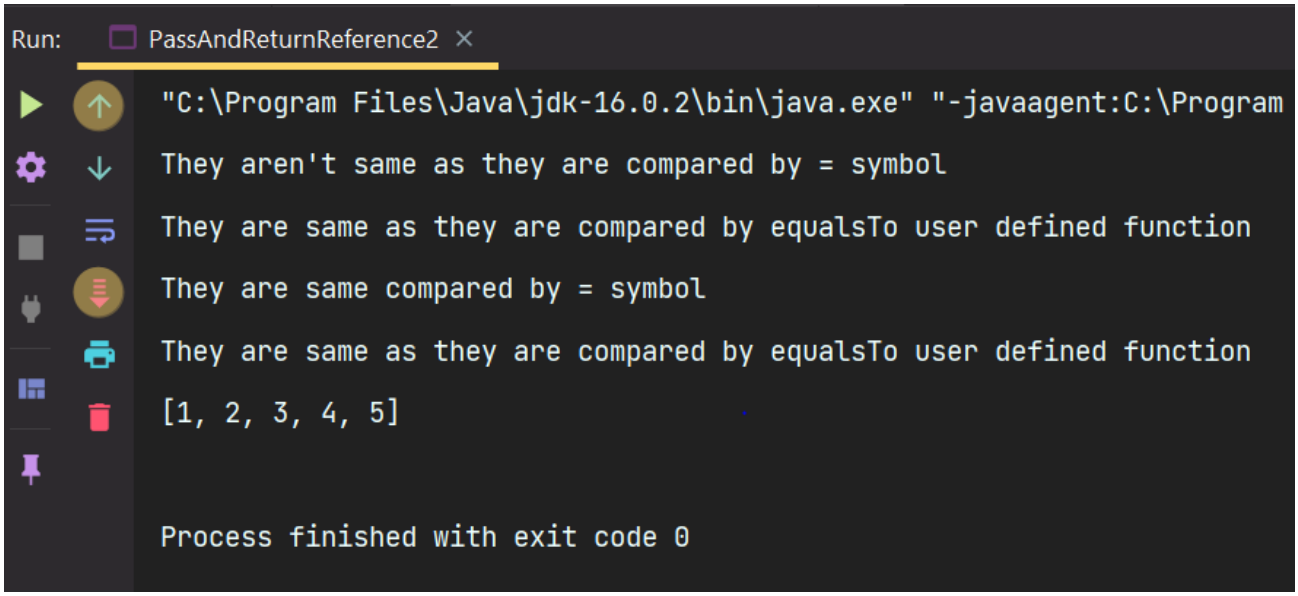
- ✓ Create a class Student with private varaibles name,roll number,gender
- ✓ Create a constructor intializing the values
- ✓ Create a getter methods for each variables
- ✓ Create three student objects
- ✓ Create a student object by a copy constructor and another student object using equal to another student object
- ✓ Compare them using == operator and equals functions and the output the results accordingly

PROGRAM CODE

```
package Java.Lab.Lab4;

import java.util.Arrays;

public class PassAndReturnReference2 {
   public static void main(String[] args) {
      Student st1 = new Student(20,"Pruthiev","2019506067",9.3);
      Student st2 = new Student(20,"Bala","2019506017",9.7);
      Student st3 = new Student(19,"Meyyappan","2019506050",9.5);
      Student st4 = new Student(st1);
```

```
        //st4 creates new student object so the reference of st1 and st4 are differently allocated on heap
        Student st5 = st1;
        //st5 now points to st1 and both refer to the same object in the heap
        if(st1 == st4){
           System.out.println("They are same compared by = symbol");
        }
        else System.out.println("They aren't same as they are compared by = symbol");
        if(st1.equalsTo(st4)){
           System.out.println("They are same as they are compared by equalsTo user defined function");
        }
        else System.out.println("They aren't same as they are compared by equalsTo user defined function");
        if(st1 == st5){
           System.out.println("They are same compared by = symbol");
        }
        else System.out.println("They aren't same as they are compared by = symbol");
        if(st1.equalsTo(st5)){
           System.out.println("They are same as they are compared by equalsTo user defined function");
        }
        else System.out.println("They aren't same as they are compared by equalsTo user defined function");
        Integer []p = new Integer[]{1,2,3,4,5};
        Arrays.sort(p);
        System.out.println(Arrays.toString(p));
    }

}
```

OUTPUT:



RESULT:

Thus, the program has been executed successfully.