

4. ARRAY OF OBJECTS

Experiment no. 4

class: 30/11/24

Roll no: 8019

Aim: To verify the concept of array of objects in Java.

Theory:

Class and objects

- In Java, classes and objects are basic concepts of Object oriented Programming (OOPS) that are used to represent real-world concepts and entities. The class represents a group of objects having similar properties and behaviours.

eg:- the animal type 'Dog' is a class while a particular dog named 'Tom' is an object of the Dog class.

Syntax: MyClass myObject = new MyClass();

Use of 'new' keyword to allocate memory:

The Java 'new' keyword is used to create an instance of the class. In other words, it instantiates a class by allocating memory for a new object and returning a reference to that memory.

Syntax: Newer obj = new Newer();

Declaration of an array in Java:

Java array is an object which contains elements of a similar data type. The elements of an array are stored in a contiguous memory location. Array in Java is index-based, the 1st element is stored at the (0th), index, 2nd element is stored on (1st) index, etc.

System of 1 dimensional array declaration is:

- `int [] myArray = new int [] {1, 2, 3};`

eg:-

`int [] age = new int [5];` → declaration

`age [0] = 12;`

`age [1] = 4;`

`age [2] = 5;`

`age [3] = 16;`

`age [4] = 16;`

→ initialization.

Array of objects:

• An array of objects is created using the object class, and the object class is the root class of all classes.

• The array of objects stores an array of objects.

They are stored as elements in an array.

Syntax: `ClassName obj[] = new ClassName [array-length];`

eg:-

`students s[] = new students [5];`

Procedure:

1. Program 1:

import java.util.Scanner;
class array2

public static void main (String [] args) {

Scanner sc = new Scanner (System.in);

int sum = 0;

int i;

(12)

```
int arr[] = new int [5];
System.out.println("enter array elements: ");
for (int i = 0; i < 5; i++) {
    arr[i] = sc.nextInt();
    sum += arr[i];
}
System.out.println("sum of array elements: " + sum);
}
```

Program 2:

import java.util.Scanner;
~~public class~~

public class studmain {

public static void main (String [] args) {

Scanner sc = new Scanner (System.in);

System.out.println ("enter the details of the student: ");

Student s[] = new Student [3];

for (int i = 0; i < 3; i++) {

System.out.println ("enter name: ");

String name = sc.next();

System.out.println ("enter roll no: ");

int rollno = sc.nextInt();

System.out.println ("enter department: ");

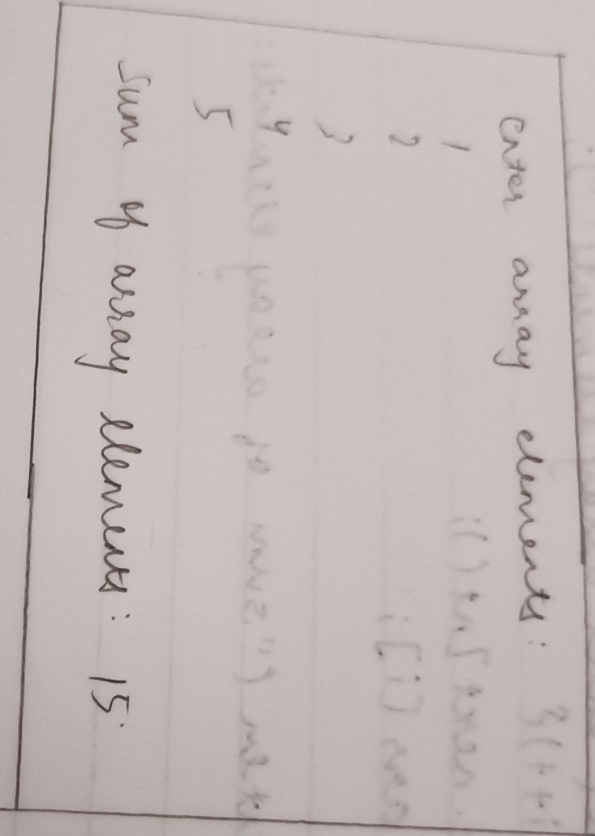
String dept = sc.next();

Program 1: output:

Enter array elements:

- 1
- 2
- 3
- 4
- 5

Sum of array elements: 15.



$[i] + [i+1]$
 $[2] + [3]$
 $[1] + [2]$

array elements

array elements

array elements

array elements

array elements

array elements

array elements

s[i] = new student (name, rollno, dept);
s[i].displayInfo();
}

for (int i=0; i<5; i++)
{ s[i].displayInfo();
}

```
class student {  
    string name;  
    int rollno;  
    string dept;  
}
```

```
public student (string name, int rollno, string dept) {  
    this.name = name;  
    this.rollno = rollno;  
    this.dept = dept;  
}
```

```
public void displayInfo() {  
    System.out.println ("name of student: " + name);  
    System.out.println ("roll no of student: " + rollno);  
    System.out.println ("department: " + dept);  
}
```

Program: Output: name)

enter name: Rudraa

enter rollno: 14

enter department: CSE

Name of the student: Rudraa

Rollno of the student: 14

Department: CSE

enter name: Yyanni

enter rollno: 9

enter department: CSE

Name of the student: Yyanni

Rollno of the student: 9

Department: CSE

enter

enter

enter

Name

Rollno

Department

CSE

Yyanni
9
CSE

CSE

CSE

Conclusion: Hence, we have performed program on array of objects in Java. (2/1)

~~Pragna~~