

Institute of Computer Technology
B. Tech. Computer Science and Engineering

Semester: III

Sub: Object-Oriented Programming

Course Code: 2CSE303

Practical Number:8

Objective:

To learn about array (1D array, 2D array, multi-dimensional array, jagged array, and object type of array).

Q1. Make a program in Java to accept any random 10 number from the user, and then find out the addition and average value of user input number by using 1D array.

Code :

```
import java.util.Scanner;

public class sumandavg {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int[] numbers = new int[10];
        int sum = 0;

        System.out.println("Enter 10 numbers: ");
        for (int i = 0; i < 10; i++) {
            numbers[i] = sc.nextInt();
            sum += numbers[i];
        }

        double avg = sum / 10.0;

        System.out.println("Sum: " + sum);
        System.out.println("Average: " + avg);
    }
}
```

```
}  
}
```

Output :

Enter 10 numbers:

1 2 3 4 5 6 7 8 9 10

Sum: 55

Average: 5.5

Q2. Write an appropriate program to find the following without the use of loop and condition.

Code :

```
import java.util.Scanner;
```

```
public class evenodd {
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        int[] numbers = new int[10];
```

```
        int evencnt = 0;
```

```
        int oddcnt = 0;
```

```
        System.out.println("Enter 10 numbers: ");
```

```
        for (int i = 0; i < 10; i++) {
```

```
            numbers[i] = sc.nextInt();
```

```
        }
```

```
        System.out.print("Even numbers: ");
```

```
        for (int i = 0; i < 10; i++) {
```

```
            if (numbers[i] % 2 == 0) {
```

```
                System.out.print(numbers[i] + " ");
```

```
        evencnt++;
    }
}

System.out.print("Odd numbers: ");
for (int i = 0; i < 10; i++) {
    if (numbers[i] % 2 != 0) {
        System.out.print(numbers[i] + " ");
        oddcnt++;
    }
}

System.out.println("\nTotal count of even numbers: " + evencnt);
System.out.println("Total count of odd numbers: " + oddcnt);
}
}
```

Output :

Enter 10 numbers:

1 2 3 4 5 6 7 8 9 10

Even numbers: 2 4 6 8 10 Odd numbers: 1 3 5 7 9

Total count of even numbers: 5

Total count of odd numbers: 5

Q3. Perform the following program with 1D array:

1. Search an element from the array list.
2. Delete an element from the array list.

Code :

```
import java.util.Scanner;
```

```
public class searchdelete {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        int[] num = new int[10];  
  
        // Input 10 numbers  
        System.out.println("Enter 10 numbers: ");  
        for (int i = 0; i < 10; i++) {  
            num[i] = sc.nextInt();  
        }  
  
        // Search an element  
        System.out.print("Enter number to search: ");  
        int searchElement = sc.nextInt();  
        boolean found = false;  
        for (int i = 0; i < 10; i++) {  
            if (num[i] == searchElement) {  
                found = true;  
                System.out.println("Number found at index: " + i);  
                break;  
            }  
        }  
        if (!found) {  
            System.out.println("Number not found.");  
        }  
  
        // Delete an element  
        System.out.print("Enter number to delete: ");  
        int deleteElement = sc.nextInt();  
        found = false;  
        for (int i = 0; i < 10; i++) {
```

```
        if (num[i] == deleteElement) {  
            num[i] = 0; // Setting the value to 0 as a deletion  
            found = true;  
            System.out.println("Number deleted.");  
            break;  
        }  
    }  
    if (!found) {  
        System.out.println("Number not found.");  
    }  
}
```

Output :

Enter 10 numbers:

1 2 3 4 5 6 7 8 9 10

Enter number to search: 5

Number found at index: 4

Enter number to delete: 7

Number deleted.

Q4. Make a quiz-based character user interface program, where you have to create 5 questions, and have to give 4 option for all individual questions, and then, you should know, out of 4 option only one option will be true. So that, make an appropriate program for the fulfilment purpose of the above said requirements, and finally you have to give quiz result, on the basis of how many questions is correct or incorrect, and accordingly, you have to declare quiz result with percentage passing score.

Code :

```
import java.util.Scanner;
```

```
public class quiz {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        String[] questions = {  
            "What is the capital of India?",  
            "Who is known as the 'Father of the Nation' in India?",  
            "Which river is considered the holiest river in India?",  
            "Which Indian city is known as the 'Silicon Valley of India'?",  
            "Who was the first Prime Minister of independent India?",  
            "Which monument is known as the symbol of love in India?",  
            "In which year did India gain independence from British rule?",  
            "What is the national animal of India?",  
            "Which sport is considered the most popular in India?",  
            "What is the national currency of India?"  
        };  
  
        String[][] options = {  
            {"1) Mumbai", "2) Kolkata", "3) New Delhi", "4) Chennai"},  
            {"1) Jawaharlal Nehru", "2) Bhagat Singh", "3) Mahatma Gandhi", "4) Sardar Patel"},  
            {"1) Ganga", "2) Yamuna", "3) Godavari", "4) Krishna"},  
            {"1) Hyderabad", "2) Bengaluru", "3) Pune", "4) Gurugram"},  
            {"1) Dr. Rajendra Prasad", "2) Subhas Chandra Bose", "3) Indira Gandhi", "4)  
Jawaharlal Nehru"},  
            {"1) Red Fort", "2) Qutub Minar", "3) Taj Mahal", "4) India Gate"},  
            {"1) 1945", "2) 1947", "3) 1950", "4) 1965"},  
            {"1) Lion", "2) Elephant", "3) Bengal Tiger", "4) Peacock"},  
            {"1) Football", "2) Cricket", "3) Hockey", "4) Badminton"},  
            {"1) Dollar", "2) Rupee", "3) Pound", "4) Yen"}  
        };  
    }  
}
```

```
int[] answers = {3, 3, 1, 2, 4, 3, 2, 3, 2, 2};

int score = 0;

for (int i = 0; i < questions.length; i++) {
    System.out.println(questions[i]);
    for (String option : options[i]) {
        System.out.println(option);
    }
    System.out.print("Your answer: ");
    int userAnswer = sc.nextInt();
    if (userAnswer == answers[i]) {
        score++;
    }
}

double percentage = (score / 10.0) * 100;
System.out.println("\nYou got " + score + " out of 10 correct.");
System.out.println("Your score: " + percentage + "%");

if (percentage >= 35) {
    System.out.println("Result: Pass");
} else {
    System.out.println("Result: Fail");
}
}
```

Output :

What is the capital of India?

- 1) Mumbai
- 2) Kolkata
- 3) New Delhi
- 4) Chennai

Your answer: 4

Who is known as the 'Father of the Nation' in India?

- 1) Jawaharlal Nehru
- 2) Bhagat Singh
- 3) Mahatma Gandhi
- 4) Sardar Patel

Your answer: 3

Which river is considered the holiest river in India?

- 1) Ganga
- 2) Yamuna
- 3) Godavari
- 4) Krishna

Your answer: 2

Which Indian city is known as the 'Silicon Valley of India'?

- 1) Hyderabad
- 2) Bengaluru
- 3) Pune
- 4) Gurugram

Your answer: 3

Who was the first Prime Minister of independent India?

- 1) Dr. Rajendra Prasad
- 2) Subhas Chandra Bose
- 3) Indira Gandhi
- 4) Jawaharlal Nehru

Your answer: 2

Which monument is known as the symbol of love in India?

- 1) Red Fort

2) Qutub Minar

3) Taj Mahal

4) India Gate

Your answer: 3

In which year did India gain independence from British rule?

1) 1945

2) 1947

3) 1950

4) 1965

Your answer: 2

What is the national animal of India?

1) Lion

2) Elephant

3) Bengal Tiger

4) Peacock

Your answer: 3

Which sport is considered the most popular in India?

1) Football

2) Cricket

3) Hockey

4) Badminton

Your answer: 2

What is the national currency of India?

1) Dollar

2) Rupee

3) Pound

4) Yen

Your answer: 3

You got 5 out of 10 correct.

Your score: 50.0%

Result: Pass

Q5. Perform the following program:

1. Array element sorting program in ascending order.
2. Array element sorting program in descending order.

Code :

```
import java.util.Arrays;
import java.util.Collections;

public class sorting {
    public static void main(String[] args) {
        Integer[] numbers = {5, 1, 9, 3, 7, 2, 4, 6, 8, 10};

        // Ascending order
        Arrays.sort(numbers);
        System.out.println("Array in Ascending Order: " + Arrays.toString(numbers));

        // Descending order
        Arrays.sort(numbers, Collections.reverseOrder());
        System.out.println("Array in Descending Order: " + Arrays.toString(numbers));
    }
}
```

Output :

Array in Ascending Order: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Array in Descending Order: [10, 9, 8, 7, 6, 5, 4, 3, 2, 1]

Q6. Perform one jagged array program as per your thoughts of knowledge.

Code :

```
public class jaggedarray {  
    public static void main(String[] args) {  
        // Jagged array definition  
        int[][] jaggedArray = new int[3][];  
        jaggedArray[0] = new int[]{1, 2};  
        jaggedArray[1] = new int[]{3, 4, 5};  
        jaggedArray[2] = new int[]{6, 7, 8, 9};  
  
        // Display the elements of the jagged array  
        for (int i = 0; i < jaggedArray.length; i++) {  
            for (int j = 0; j < jaggedArray[i].length; j++) {  
                System.out.print(jaggedArray[i][j] + " ");  
            }  
            System.out.println();  
        }  
    }  
}
```

Output :

```
1 2  
3 4 5  
6 7 8 9
```