

## 8. Exercises on Arrays

### 8.1 Print Array (Array)

```
import java.util.Scanner;

public class PrintArray {
    public static void main(String args[]) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter the number of items: ");
        int size = scan.nextInt();

        int[] items = new int[size];

        System.out.print("Enter the value of all items (separated  
by space): ");

        for (int i = 0; i < size; i++) {
            items[i] = scan.nextInt();
        }

        System.out.print("The values are: [");
        for (int i = 0; i < items.length; i++) {
            System.out.print(items[i] + " ");
        }
        System.out.print("]");
    }
}
```

output:

Enter the number of items: 5

Enter the value of all items (separated by space): 3 2 5 6 9

The values are: [3 2 5 6 9]

7.2 PrintArrayInStars (Array)

```

import java.util.Scanner;

public class PrintArrayInStars {
    public static void main (String args[]) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter the number of items: ");
        int size = scan.nextInt();

        int [] items = new int [size];

        System.out.print ("Enter the value of all items (seperated
        by space). ");

        for (int i=0; i<size; i++){
            items[i] = scan.nextInt();
        }

        for (int i=0; i<items.length; i++){
            System.out.print (i + " ");
            for (int j = 1; j<= items[i]; j++){
                System.out.print ("*");
            }
            System.out.print (" (" + items[i] + ") \n");
        }
    }
}

```

output:

Enter the number of items: 3

Enter the values of all items (seperated by space): 2 1 0

0: \*\* (2)

1: \* (1)

2: (0)

8.3 GradesStatistics (Array)

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

```
public class GradesStatistics {
```

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

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

```
        System.out.print("Enter the number of students: ");
```

```
        int size = scan.nextInt();
```

```
        int [] marks = new int [size];
```

```
        int sum = 0, max = 0, min = 100;
```

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

```
            System.out.print("Enter the grade for student " +  
                             (i+1) + ": ");
```

```
            int grade = scan.nextInt();
```

```
            marks[i] = grade;
```

```
            sum += grade;
```

```
            if (grade > max) {
```

```
                max = grade;
```

```
            }
```

```
            if (grade < min) {
```

```
                min = grade;
```

```
            }
```

```
        }
```

```
        System.out.printf("The average is: %.2f", (double) sum/size);
```

```
        System.out.println("\nThe minimum is: " + min);
```

```
        System.out.println("The maximum is: " + max);
```

```
    }
```

```
}
```

Output:

Enter the number of students : 5

Enter the grade for student 1: 98

Enter the grade for student 2: 77

Enter the grade for student 3: 77

Enter the grade for student 4: 77

Enter the grade for student 5: 76

The average is : 83.40

The minimum is : 76

The maximum is : 98

#### 8.4 Hex2Bin (Array for table lookup)

```
import java.util.Scanner;

public class Hex2Bin {
    public static void main (String args []) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter a Hexadecimal string: ");
        String input = scan.next();
        scan.close();
        String hex = input.toUpperCase();
        final String[] HexBits = { "0000", "0001", "0010", "0011",
                                     "0100", "0101", "0110", "0111",
                                     "1000", "1001", "1010", "1011",
                                     "1100", "1101", "1110", "1111" };
        int strlen = input.length();
        System.out.print("The equivalent binary for hexadecimal\n"
                        + input + "\n is : ");
    }
}
```

```

for(int charId=0; charId < strlen; charId++){
    char character = hex.charAt(charId);
    if (character >= '0' && character <= '9'){
        System.out.print(HexBits[character-48] + " ");
    }
    else if (character >= 'A' && character <= 'F'){
        System.out.print(HexBits[character-55] + " ");
    }
}
}
}

```

output :

Enter a hexadecimal string: labc

The equivalent binary for hexadecimal "labc" is: 0001 1010 1011 1100

### 7.5 Dec2Hex (Array for table lookup)

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

```
public class Dec2Hex{
```

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

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

```
        System.out.print("Enter a decimal number: ");
```

```
        int dec = scan.nextInt();
```

```
        if (dec < 0){
```

```
            System.out.println("please enter positive number");
```

```
        } else {
```

```
            System.out.println("The equivalent hexadecimal
```

```
            number is " + Integer.toHexString(dec).toUpperCase());
```

```
        }
```

```
    }
```

```
}
```

output:

Enter a decimal number: 1234

Its equivalent hexadecimal number is: 4D2