

WEEK 5

- 1.** Write a Java program to insert 10, 20, 30in an array and display them.

```
week5_1.java ×

1 import java.util.Scanner;
2
3 public class week5_1 {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter length of Array :");
7         int l = sc.nextInt();
8         int[] arr = new int[l];
9         System.out.println("Enter the elements :");
10        for(int i=0;i<l;i++) arr[i] = sc.nextInt();
11        System.out.print("Array : ");
12        for(int i=0;i<l;i++) System.out.print(arr[i]+" ");
13    }
14 }
15
```

```
Enter length of Array :
5
Enter the elements :
10 20 30 40 50
Array : 10 20 30 40 50
```

- 2.** Write a Java program to calculate the sum of all the array elements.

```
week5_1.java week5_2.java ×

1 import java.util.Scanner;
2
3 public class week5_2 {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter length of Array :");
7         int l = sc.nextInt();
8         int[] arr = new int[l];
9         int sum=0;
10        System.out.println("Enter the elements :");
11        for(int i=0;i<l;i++) {
12            arr[i] = sc.nextInt();
13            sum+=arr[i];
14        }
15        System.out.println("Sum of all elements = "+sum);
16    }
17 }
18
```

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```
Enter length of Array :  
5  
Enter the elements :  
1 2 3 4 5  
Sum of all elements = 15
```

- 3.** Write a java program to print the following pattern:

1
12
123
1234
12345

```
week5_1.java week5_2.java week5_3.java
1 public class week5_3 {
2     public static void main(String[] args) {
3         for (int i = 1; i <= 5; i++){
4             for (int j = 1; j <= 5-i; j++)
5                 System.out.print(" ");
6             for (int k = 1; k <= i; k++)
7                 System.out.print(k);
8             System.out.println();
9         }
10    }
11 }
12 }
```

1
12
123
1234
12345

4. Write a java program to find the sum of following series where n is input by the user:

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{n}$$

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```
week5_1.java week5_2.java week5_3.java

1 import java.util.Scanner;
2
3 ▷ public class week5_4 {
4 ▷     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter N :");
7         int n = sc.nextInt();
8         double sum=0;
9         for(int i=1; i<=n; i++) sum+=1.0/i;
10        System.out.println("Result = "+sum);
11    }
12 }
13
```

```
Enter N :
5
Result = 2.2833333333333333
```

5. Write a Java program and compute the sum of the digits of an integer.

```
week5_1.java week5_2.java week5_3.java week5_4.java

1 import java.util.Scanner;
2
3 ▷ public class week5_5 {
4 ▷     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter an integer :");
7         int n = sc.nextInt();
8         int sum=0;
9         while(n!=0){
10             sum+=n%10;
11             n/=10;
12         }
13         System.out.println("Sum of digits = "+sum);
14     }
15 }
```

```
Enter an integer :
123
Sum of digits = 6
```

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6. Write a Java program to calculate the factorial of a number.

```
week5_6.java
1 import java.util.Scanner;
2
3 public class week5_6 {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter number :");
7         int n = sc.nextInt();
8         int fact = 1;
9         for(int i=2; i<=n; i++) fact*=i;
10        System.out.println("Factorial = "+fact);
11    }
12 }
13
```

```
Enter number :
6
Factorial = 720
```

7. Write a Java program to find the largest element in a given integer array.

```
week5_7.java
1 import java.util.Scanner;
2
3 public class week5_7 {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         System.out.println("Enter length of Array :");
7         int l = sc.nextInt();
8         int[] arr = new int[l];
9         System.out.println("Enter the elements :");
10        int max=0;
11        for(int i=0;i<l;i++) {
12            arr[i] = sc.nextInt();
13            if(i==0) max = arr[i];
14            if(arr[i] > max) max = arr[i];
15        }
16        System.out.println("Biggest element = "+max);
17    }
18 }
19
```

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```
Enter length of Array  
5  
Enter the elements :  
6 4 8 3 2  
Biggest element = 8
```

8. Write a Java program to reverse the digits of a given integer.

```
1 import java.util.Scanner;  
2  
3 public class week5_8 {  
4     public static void main(String[] args) {  
5         Scanner sc = new Scanner(System.in);  
6         System.out.println("Enter an integer :");  
7         int n = sc.nextInt();  
8         int rev = 0;  
9         while(n!=0){  
10             rev = rev*10 + n%10;  
11             n/=10;  
12         }  
13         System.out.println("Reverse = "+ rev);  
14     }  
15 }  
16
```

```
Enter an integer  
12345  
Reverse = 54321
```

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9. Write a Java program to check if a given number is a palindrome or not.

```
week5_6.java week5_7.java week5_8.java week5_9.  
1 import java.util.Scanner;  
2  
3 public class week5_9 {  
4     public static void main(String[] args) {  
5         Scanner sc = new Scanner(System.in);  
6         System.out.println("Enter an integer :");  
7         int n = sc.nextInt();  
8         int copy = n;  
9         int rev = 0;  
10        while(copy != 0){  
11            rev = rev*10 + copy %10;  
12            copy /=10;  
13        }  
14        if(rev == n) System.out.println("Palindrome");  
15        else System.out.println("Not Palindrome");  
16    }  
17}  
18
```

```
Enter an integer :  
12321  
Palindrome
```

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10. Write a Java program to convert a decimal number into Hexadecimal number and vice-versa.

```
week5_6.java week5_7.java week5_8.java week5_9.java

1 import java.util.Scanner;
2
3 public class week5_10 {
4
5     static String decimalToHex(int num) { 1 usage
6         if (num == 0) return "0";
7         String hex = "";
8         char[] hexDigits = "0123456789ABCDEF".toCharArray();
9         while (num > 0) {
10             int rem = num % 16;
11             hex = hexDigits[rem] + hex;
12             num = num / 16;
13         }
14         return hex;
15     }
16
17     static int hexToDecimal(String hex) { 1 usage
18         int dec = 0;
19         hex = hex.toUpperCase();
20         for (int i = 0; i < hex.length(); i++) {
21             char ch = hex.charAt(i);
22             int value;
23             if (ch >= '0' && ch <= '9') {
24                 value = ch - '0';
25             } else {
26                 value = ch - 'A' + 10;
27             }
28             dec = dec * 16 + value;
29         }
30         return dec;
31     }
}
```

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```
32
33 > public static void main(String[] args) {
34     Scanner sc = new Scanner(System.in);
35     System.out.println("1. Decimal to Hex");
36     System.out.println("2. Hex to Decimal");
37     System.out.print("Choose option: ");
38     int choice = sc.nextInt();
39     sc.nextLine(); //clears input buffer
40
41     switch (choice) {
42         case 1:
43             System.out.print("Enter decimal number: ");
44             int dec = sc.nextInt();
45             String hex = decimalToHex(dec);
46             System.out.println("Hexadecimal: " + hex);
47             break;
48
49         case 2:
50             System.out.print("Enter hexadecimal number: ");
51             String hexInput = sc.nextLine();
52             int decimal = hexToDecimal(hexInput);
53             System.out.println("Decimal: " + decimal);
54             break;
55
56         default:
57             System.out.println("Invalid option");
58     }
59 }
60 }
61 }
```

```
1. Decimal to Hex
2. Hex to Decimal
Choose option: 2
Enter hexadecimal number: 4f
Decimal: 79
```

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11. Write a Java program to print the following pattern:

```
*  
**  
***  
**  
*
```

```
week5_6.java    week5_7.java    week5_8.java  
1 public class week5_11 {  
2     public static void main(String[] args) {  
3         for (int i = 1; i <= 3; i++) {  
4             for (int j = 1; j <= 3 - i; j++)  
5                 System.out.print(" ");  
6             for (int k = 1; k <= i; k++)  
7                 System.out.print("*");  
8             System.out.println();  
9         }  
10        for (int i = 2; i >= 1; i--){  
11            for (int j = 1; j <= 3 - i; j++)  
12                System.out.print(" ");  
13            for (int k = 3 - i; k < 3; k++)  
14                System.out.print("*");  
15            System.out.println();  
16        }  
17    }  
18 }  
19
```

```
*  
**  
***  
**  
*
```