

WEEK 5

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

```
week5_1.java x
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 x
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              }  
9              System.out.println();  
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:
 $1 + 1/2 + 1/3 + 1/4 + \dots + 1/n$

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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 }
16
```

```
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 x
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_6.java  week5_7.java x
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.

```
week5_6.java  week5_7.java  week5_8.java x
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.java
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
```

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