2 *Basics*

1. Write a Java program to convert temperature from Fahrenheit to Celsius degree.

Celsius = (Fahrenheit - 32)/1.8

Java Code:

```
Package exer1;
import java.util.Scanner;
public class Exer1 {

    public static void main(String[] Strings) {

        Scanner input = new Scanner(System.in);

        System.out.print("Input a degree in Fahrenheit: ");
        double fahrenheit = input.nextDouble();

        double  celsius =((fahrenheit - 32.0)) / 1.8);
        System.out.println(fahrenheit + " degree Fahrenheit is equal to " + celsius
+ " in Celsius");
    }
}
```

Sample Output:

```
Input a degree in Fahrenheit: 212
212.0 degree Fahrenheit is equal to 100.0 in Celsius
```

******* Try to compute the Fahrenheit , given Celsius.**

2. Write a Java program that reads a number in inches, converts it to meters. Note: One inch is 0.0254 meter.

Java Code:

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```
import java.util.Scanner;
public class Exercise2 {

    public static void main(String[] Strings) {

        Scanner input = new Scanner(System.in);

        System.out.print("Input a value for inch: ");
        double inch = input.nextDouble();
        double meters = inch * 0.0254;
        System.out.println(inch + " inch is " + meters + " meters");

    }
}
```

Sample Output:

```
Input a value for inch: 1000
1000.0 inch is 25.4 meters
```

3. Write a Java program that reads an integer between 0 and 1000 and adds all the digits in the integer.

Java code :

```
import java.util.Scanner;
public class Exercise3 {

    public static void main(String[] Strings) {

        Scanner input = new Scanner(System.in);

        System.out.print("Input an integer between 0 and 1000: ");
        int num = input.nextInt();

        int firstDigit = num % 10;
        int remainingNumber = num / 10;
        int SecondDigit = remainingNumber % 10;
```

```
        remainingNumber = remainingNumber / 10;
        int thirdDigit = remainingNumber % 10;

        int sum = thirdDigit + SecondDigit + firstDigit;

        System.out.println("The sum of all digits in " + num + " is " + sum);

    }
}
```

Sample Output:

```
Input an integer between 0 and 1000: 565
The sum of all digits in 565 is 16
```

******* Try to edit the program to compute the sum of digit to any input number.**

Solution :

```
import java.util.Scanner;

public class Exercise3.1 {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Input an integer between 0 and 1000: ");

        int num = input.nextInt();

        int onum = num;

        int newnum, sum =0;

        while(num != 0) {

          newnum = num % 10;

          System.out.println(newnum);
```

```
        num = num / 10;
        sum = sum + newnum;
      }
      System.out.println("The sum of all digits in " + onum + " is " + sum);
   }
}
```

4. Write a Java program to display the speed, in meters per second, kilometers per hour and miles per hour.
User Input : Distance (in meters) and the time was taken (as three numbers: hours, minutes, seconds).
Note : 1 mile = 1609 meters

Java Code:

```
import java.util.Scanner;
public class Exercise4 {

   public static void main(String[] args) {
                Scanner scanner = new Scanner(System.in);

                float timeSeconds;
                float mps,kph, mph;

                System.out.print("Input distance in meters: ");
                float distance = scanner.nextFloat();

                System.out.print("Input hour: ");
                float hr = scanner.nextFloat();

                System.out.print("Input minutes: ");
                float min = scanner.nextFloat();

                System.out.print("Input seconds: ");
```

```
                float sec = scanner.nextFloat();

                timeSeconds = (hr*3600) + (min*60) + sec;
                mps = distance / timeSeconds;
                kph = ( distance/1000.0f ) / ( timeSeconds/3600.0f );
                mph = kph / 1.609f;

                System.out.println("Your speed in meters/second is "+mps);
                System.out.println("Your speed in km/h is "+kph);
                System.out.println("Your speed in miles/h is "+mph);

                scanner.close();
        }
}
```

Sample Output:

```
Input distance in meters: 2500
Input hour: 5
Input minutes: 56
Input seconds: 23
Your speed in meters/second is 0.11691531
Your speed in km/h is 0.42089513
Your speed in miles/h is 0.26158804
```

5. Write a Java program that reads a number and display the square, cube, and fourth power.

Java Code:

```
import java.util.Scanner;
public class Exercise5 {

    public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);
```

```
        System.out.print("Input the side length value: ");
        double val = in.nextDouble();

        System.out.printf("Square: %12.2f\n", val * val);
        System.out.printf("Cube: %14.2f\n", val * val * val);
        System.out.printf("Fourth power: %6.2f\n", Math.pow(val, 4));
    }
}
```

Sample Output:

```
Input the side length value: 15
Square: .2f
Cube: .2f
Fourth power: 50625.00
```

6. Write a Java program that accepts two integers and then prints the sum, the difference, the product, the average, the distance (the difference between integer), the maximum (the larger of the two integers), the minimum (smaller of the two integers).

Java Code:

```
import java.util.Scanner;
public class Exercise6 {

    public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);
        System.out.print("Input 1st integer: ");
        int firstInt = in.nextInt();
        System.out.print("Input 2nd integer: ");
        int secondInt = in.nextInt();

        System.out.printf("Sum of two integers: %d%n", firstInt + secondInt);
        System.out.printf("Difference of two integers: %d%n", firstInt - secondInt);
        System.out.printf("Product of two integers: %d%n", firstInt * secondInt);
```

```
        System.out.printf("Average of two integers: %.2f%n", (double) (firstInt +
secondInt) / 2);
        System.out.printf("Distance of two integers: %d%n", Math.abs(firstInt -
secondInt));
        System.out.printf("Max integer: %d%n", Math.max(firstInt, secondInt));
        System.out.printf("Min integer: %d%n", Math.min(firstInt, secondInt));
    }
}
```

Sample Output:

```
Input 1st integer: 25
Input 2nd integer: 5
Sum of two integers: 30
Difference of two integers: 20
Product of two integers: 125
Average of two integers: 15.00
Distance of two integers: 20
Max integer: 25
Min integer: 5
```

7. Write a Java program to test a number is positive or negative.

Java Code:

```
import java.util.Scanner;
public class Exercise7 {
  public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);
        System.out.print("Input number: ");
        int input = in.nextInt();

        if (input > 0)
        {
            System.out.println("Number is positive");
        }
```

```
        else if (input < 0)
        {
            System.out.println("Number is negative");
        }
        else
        {
            System.out.println("Number is zero");
        }
    }
}
```

Sample Output:

```
Input number: 35
Number is positive
```

8. Write a Java program to to find the largest of three numbers.

Java Code:

```
import java.util.Scanner;
public class Exercise8 {
  public static void main(String[] args) {
  Scanner in = new Scanner(System.in);
  System.out.print("Input the 1st number: ");
  int num1 = in.nextInt();

  System.out.print("Input the 2nd number: ");
  int num2 = in.nextInt();

  System.out.print("Input the 3rd number: ");
  int num3 = in.nextInt();

  if (num1 > num2)
          if (num1 > num3)
                  System.out.println("The greatest: " + num1);
```

```
  if (num2 > num1)
          if (num2 > num3)
                  System.out.println("The greatest: " + num2);

  if (num3 > num1)
          if (num3 > num2)
                  System.out.println("The greatest: " + num3);
 }
}
```

Sample Output:

```
Input the 1st number: 25
Input the 2nd number: 78
Input the 3rd number: 87
The greatest: 87
```

******* try to develop above program to find the maximum and the minimum of 10 numbers.**

9. Write a Java program that takes a year from user and print whether that year is a leap year or not.

Java Code:

```
import java.util.Scanner;
public class Exercise9 {
  public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);

        System.out.print("Input the year: ");
        int year = in.nextInt();

        boolean x = (year % 4) == 0;
        boolean y = (year % 100) != 0;
        boolean z = ((year % 100 == 0) && (year % 400 == 0));
```

```
        if (x && (y || z))
        {
            System.out.println(year + " is a leap year");
        }
        else
        {
            System.out.println(year + " is not a leap year");
        }
    }
}
```

Sample Output:

```
Input the year: 2016
2016 is a leap year
```

10. Write a Java program to calculate the modules of two numbers without using any inbuilt modulus operator.

Java Code:

```
import java.util.*;
 public class Exercise10 {
 public static void main(String[] args)
    {
        Scanner in = new Scanner(System.in);
        System.out.print("Input the first number : ");
        int a = in.nextInt();
                    System.out.print("Input the second number: ");
                    int b = in.nextInt();
                    int divided = a / b;
                    int result = a - (divided * b);
                    System.out.println(result);
            }
 }
```

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Sample Output:

Input the first number : 19
Input the second number: 7
5

Exercises

1. Write a program in Java to input 5 numbers from keyboard and find their sum and average.
2. Write a Java program to compare (==, !=, <, >) two numbers. Sample Output: Input first integer: 25
   Input second integer: 39
   25 != 39
   25 < 39
   25 <= 39
3. Write a Java program to accept a number and check the number is even or not. Prints “EVEN” if the number is even or “ODD” if the number is odd.
4. Write a Java program to accept a number and check the number is prime or not. Prints “prime” if the number is prime or “not-prime” if it is not.
5. Write a Java program to calculate the sum of two integers and return true if the sum is equal to a third integer. Sample Output:

   Input the first number : 5
   Input the second number: 10
   Input the third number : 15
   The result is: true

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6. Write a Java program that accepts three integers from the user and return true if the second number is greater than first number and third number is greater than second number. If "abc" is true second number does not need to be greater than first number.

   Sample Output:

   Input the first number : 5
   Input the second number: 10
   Input the third number : 15
   The result is: true

7. Write a Java program to reverse any input number.

   Sample Output:

   Input number : 1234

   Reverse number : 4321

8. Write a Java program that accepts two integer values from the user and return the larger values. However if the two values are the same, return 0 and return the smaller value if the two values have the same remainder when divided by 6.
   Test Data:
   Input the first number : 12
   Input the second number: 13
   Result: 13
   Input the first number : 12
   Input the second number: 12
   Result: 0
   Input the first number : 6
   Input the second number: 18
   Result: 6
9. Write a Java program that accepts two integer values between 25 to 75 and return true if there is a common digit in both numbers.
10. Write a Java program that keeps a number from the user and generates an integer between 1 and 7 and displays the name of the weekday.