Assignment No. 2

1. Write a java program to print simple *"Hello World!!!"*

2. Write a java program to check type compatibility for following statements. Observe the effect. Make changes in terms of casting if needed and also display the width of all the above data types.

   - int : 9348.39
   - long int : 100
   - short : 80999
   - long : 2373467e18
   - byte : 129
   - float : 218.928
   - double : 2930.3f
   - char : -3
   - boolean : 0

3. Accept one integer number from command line and provide the following functionalities

   - Sum of digits. [e.g. for 1234 , 1 + 2 + 3 + 4 = 10]
   - Reverse number [e.g. for 1234 ,4321]
   - Check weather given number is palindrome or not.

     [Check reverse and original no. are same or not]

   - Perfect number. 28 = 1 + 2 + 4 + 7 + 14

     [Perfect number is a positive integer that is the sum of its proper positive divisors]

   - Strong number. 145=> 1! + 4! + 5! = 1 + 24 + 120 = 145

     [The sum of the factorials of digits of a number is equal to the original number.]

   - Armstrong number. 153 => $1^3 + 5^3 + 3^3$ = 1+125+27= 153

     [The sum of the cubes of digits of a number is equal to the original number.]

   - Prime number. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

[A prime number is a natural number that has exactly two *distinct* natural number divisors: 1 and itself.]

4. Write a program for addition, subtraction, multiplication and division of two numbers.

5. Modify above assignment and write a menu driven program. Accept input from command prompt.

6. Create a BMI *(Body Mass Index)* calculator that reads the user's weight in pounds and height in inches (or, if you prefer, the user's weight in kilograms and height in meters), then calculates and displays the user's body mass index. The formula for calculating BMI is

$$BMI = \frac{(WeightInKiloGrams)}{(HeightInMeters * HeightInMeters);}$$

BMI VALUES
Underweight if BMI is less than 18.5
Normal if BMI is in between 18.5 and 24.9
Overweight if BMI is in between 25 and 29.9
Obese if BMI is 30 or greater

7. Create an application that calculates your daily driving cost, so that you can estimate how much money could be saved by car pooling, which also has other advantages such as reducing carbon emissions and reducing traffic congestion. The application should input the following information and display the user's cost per day of driving to work:

a) Total miles driven per day.
b) Cost per gallon of gasoline.
c) Average miles per gallon.
d) Parking fees per day.
e) Tolls per day.

8. Input the current world population and the annual world population growth rate. Write an application to display the estimated world population after one, two, three, four and five years.

9. Write a program to accept 3 digits and print all possible combination of these three digits

(For example if three digits are 1, 2 and 3 then all possible combinations are 123,132,231,213,321 and 312)