

Assignment - 1.

Sum of natural numbers upto n

```
import java.util.Scanner;  
public class SumofNaturalNumbers  
{  
    public static void main (String [ ] args)  
    {  
        Scanner scanner = new Scanner (System.in)  
        System.out.print ("Enter a number : ");  
        int n = scanner.nextInt();  
        int sum = 0;  
        for (int i=1; i<=n; i++) {  
            sum += i  
        }  
        System.out.println ("The sum of natural numbers upto " + n + " is "  
                           + sum);  
        scanner.close();  
    }  
}
```

O/p: 5050

② The given number is prime or not

```
import java.util.Scanner;  
public class Primecheck {  
    public static void main (String [ ] args) {  
        Scanner scanner = new Scanner (System.in);  
        System.out.print ("Enter a number");  
        int n = scanner.nextInt();  
        boolean isPrime = n>1;
```

```

for (int i = 2; i <= Math.Sqrt(n) && isPrime; i++)
{
    if (n % i == 0)
        isPrime = false;
}

```

(if n is divisible by i, then it is not prime)

System.out.println("Is " + n + " a prime number? : " + isPrime);

```
Scanner.close();
```

O/p: Not a prime number

③ find the n factorial.

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

```
public class Factorial {
```

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

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

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

```
        int number = scanner.nextInt();
```

```
        System.out.println (fact (number));
```

```
        scanner.close();
```

}

```
public static long factorial (int n) {
```

```
    long result = 1;
```

```
    for (int i = 1; i <= n; i++) {
```

```
        result *= i;
```

}

```
        return result;
```

3
I/p: 5

O/p: 120

④ Reverse the number:

```
public class Main {
```

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

```
        String originalstr = "Hello";
```

```
        String revstr = " ";
```

```
        System.out.println ("original str :" + originalstr);
```

```
        for (int i=0, i < originalstr.length(); i++) {
```

```
            revstr = originalstr.charAt(i) + revstr;
```

3

```
        System.out.println ("Rev string :" + revstr);
```

3

O/p: Hello

⑤ Armstrong number: -

```
public class ArmstrongNumber {
```

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

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

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

```
        int number = scanner.nextInt();
```

```
        scanner.close ();
```

```
        int originalNumber = number;
```

```
        int sum = 0;
```

```

while (number > 0) {
    int digit = num % 10;
    sum += (digit * digit * digit);
    num /= 10;
}

if (sum == origNum) {
    System.out.println ("Originalnum + " is an Armstrong number.");
}
else {
    System.out.println ("Originalnum + " is not an Armstrong number.");
}

```

E12

Y O/P: 371 is an Armstrong number

⑥ Happy number:-

```

public static int numSquareSum (int n) {
    int num = 0;
    while (n != 0) {
        int digit = n % 10;
        num += digit * digit;
        n /= 10;
    }
    return num;
}

static boolean isHappyNumber (int n) {
    HashSet<Integer> set = new HashSet<Integer>();
    while (true) {
        n = numSquareSum(n);
        if (set.contains(n))
            break;
        set.add(n);
    }
    return false;
}

```

```

if (n == 1)
    return true;
if (st.contains(n))
    return false;

```

3
3

st.add(n);
O/P: 82 is a happy number
true

Palindrome.

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

```
    int r, sum = 0, temp;
```

int n = 454

temp = n;

while (n > 0)

{

r = n % 10;

sum = (sum * 10) + r;

n = n / 10;

}

if (temp == sum)

System.out.println ("palindrome number");

else

System.out.println ("not palindrome");

O/P: palindrome

Sum of the digit::

```
Public class SumofDigits {
```

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

{

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

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

```
int number = Scanner.nextInt();
```

```
int sum = 0;
```

```
int temp = number;
```

```
while (temp != 0) {
```

```
    sum += temp % 10;
```

```
    temp /= 10;
```

y

```
System.out.println ("The sum of the digit " + number + " is: " +  
                    sum);
```

y O/p: The sum of the digit : 15

j

⑨ num is divisible by 5 or 7

```
Public static void main (String [] args)
```

{

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

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

```
    int num = scanner.nextInt();
```

```
    if (num % 5 == 0)
```

```
        System.out.println (num + " is divisible by 5: ");
```

```
    else if (num % 7 == 0) {
```

```
        System.out.println (num + " is divisible by 7: ");
```

```
    }
```

y O/p: 35 is divisible by both 5 and 7

perfect number upto n.

Public class PerfectNumbers

```
public static void main (String [] args) {
    Scanner scanner = new Scanner (System.in);
    System.out.print ("Enter a number:");
    int n = scanner.nextInt();
    System.out.println ("perfect number up to " + n + " are:");
    for (int i = 1; i <= n; i++) {
        if (isPerfect (i))
            System.out.println (i);
    }
}
```

Public static boolean isPerfect (int number)

```
int sum = 0;
```

```
for (int i = 1; i <= number / 2; i++)
```

```
{ if (number % i == 0) {
```

```
    sum += i;
}
```

```
}
```

```
return sum == number;
```

O/P: 28 is a perfect number

```
System.out.println ("sum = " + sum);
```

```
if (sum == number) "is perfect"
```

11 Fibonacci Series:

```
Public static void main (String [ ] args )  
{  
    Scanner scanner = new Scanner (System.in);  
    System.out.print ("Enter the no. of terms : ");  
    int n = scanner.nextInt ();  
    System.out.println ("Fibonacci series up to " + n + " terms : ");  
    for (int i = 0; i < n; i++)  
    {  
        System.out.print (fibonacci (i) + " ");  
    }  
}  
  
Public static int fibonacci (int n)  
{  
    if (n <= 1)  
    {  
        return n;  
    }  
    return fibonacci (n - 1) + fibonacci (n - 2);  
}  
O/p: 0 1 1 2 3 5 8 13 21 34
```

12 GCD and LCM

```
Public static void main (String [ ] args )
```

{

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

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

```

int num1 = Scanner.nextInt();
System.out.print("Enter the second number: ");
int num2 = Scanner.nextInt();
int gcd = findGCD(num1, num2);
int lcm = findLcm(num1, num2, gcd);
System.out.println("GCD of " + num1 + " and " + num2 + " is " +
    gcd);

```

System.out.println("LCM of " + num1 + " and " + num2 + " is: " +
 lcm);

```

public static int findGCD(int a, int b) {
    while (b != 0) {
        int temp = b;
        b = a % b;
        a = temp;
    }
    return a;
}

public static int findLcm(int a, int b, int gcd) {
    return (a * b) / gcd;
}

```

O/P: GCD of 72 and 120 is: 24

LCM of 72 and 120 is: 360

3) Decimal to binary.

```
public class DecimalToBinary {

```

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

```

```

Scanner scanner = new Scanner (System.in);
System.out.print ("Enter decimal number : ");
int decimal = scanner.nextInt();
    
```

String binary = Integer.toBinaryString (decimal);

```

System.out.println ("Binary representation of " + decimal + " is : " +
                    binary);
    
```

o/p: Binary representation of 42 is : 101010

14) Binary to Decimal

```
public class BinaryToDecimal {
```

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

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

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

```
        String binaryString = scanner.nextLine();
```

```
        int decimal = Integer.parseInt (binaryString, 2);
```

```
        System.out.println (" " + decimal);
```

```
        scanner.close();
```

o/p: Decimal Representation of 101010 is : 42

15) Celsius to Fahrenheit.

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

```
System.out.print ("Enter temperature in Celsius : ");
```

```
double celsius = scanner.nextDouble();
```

$$\text{fahrenheit} = (\text{celsius} * 9/5) + 32;$$

```
System.out.println(+ fahrenheit);
```

```
Scanner.close();
```

Y
3

O/p: 55.4

- (16) Sum of odd num or even number.

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

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

```
int n = scanner.nextInt();
```

```
System.out.print("sum of odd or even")
```

```
String choice = scanner.next();
```

```
int sum = 0;
```

```
for (int i=0; i<=n; i++)
```

```
{ if ((choice.equalsIgnoreCase("odd")) && i%2!=0) ||
```

```
((choice.equalsIgnoreCase("even")) && i%2==0))
```

```
{ sum += i;
```

```
System.out.println("sum: " + sum);
```

```
scanner.close();
```

O/p: sum of even 8 = 72

sum of odd 8 = 64

3

Voting:

close if (charactor == '1')

```
System.out.print("Enter your age:");  
int age = scanner.nextInt();
```

if (age >= 18)

```
{ System.out.println("you are eligible"); }
```

}

else

```
{ System.out.println("not eligible"); }
```

}

Scanner.close();

}

O/p: 16

NOT eligible

⑯ sum of square root and cubic root of the number

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

```
double number = scanner.nextDouble();
```

```
double sqrt = Math.sqrt(num);
```

```
double cbrt = Math.cbrt(num);
```

```
double sum = sqrt + cbrt;
```

```
System.out.println("sum of square root and cubic root " +  
sum);
```

Scanner.close();

cubic root is

O/p: sum of square root (3) is 9 and $2\frac{1}{3}$

⑰ vowels and consonants

= = =

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

```
String input = scanner.nextLine().toLowerCase();
```

```
vowelsCount = 0;
```

```
@ int consonantCount = 0;
```

2

```
for (char ch : input.toCharArray()) {
```

```
    if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
```

```
        if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
```

```
= 'o') {
```

```
vowelsCount++;
```

}

```
else {
```

```
    consonantCount++;
```

}

y)

```
System.out.print("vowels :" + vowelsCount);
```

```
System.out.print("consonants :" + consonantCount);
```

```
Scanner.close();
```

O/P: i is vowel

y)

(20) uppercase and lowercase.

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

```
String input = Scanner.nextLine();
```

```
int upperCount = 0;
```

```
int lowerCaseCount = 0;
```

```
for (char ch : input.toCharArray()) {
```

```
    if (Character.isUpperCase(ch)) {
```

```
        upperCaseCount++;
```

y)

```
else if (character . islowercase (ch)) {
```

```
    lowercaseCount ++ ;
```

```
}
```

```
}
```

```
System.out.println (" + uppercaseCount );
```

```
System.out.println (" + lowercaseCount );
```

```
Scanner.close ();
```

```
}
```

```
I/p: "Hello world";
```

```
O/p: uppercase : HELLO WORLD
```

```
Lowercase : hello world
```