Advanced JAVA

Assignment - 1

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Assignment – 1

Write a Java program to print 'Hello' on screen and then print your name on a separate line.

```
import java.lang.*;

class HelloWorld
{
	public static void main(String args())
	{
		System.out.println("Hello World !");
		System.out.println();
		System.out.println("Ashirbad Sarangi");
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat HelloWorld.java
import java.lang.*;

class HelloWorld
{
        public static void main(String args[])
        {
                System.out.println("Hello World !");
                System.out.println();
                System.out.println("Ashirbad Sarangi");
        }
}

ashirbad@ashirbad-Notebook:~/JAVA$ java HelloWorld.java
Hello World !

Ashirbad Sarangi
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to print the sum of two numbers.

```
import java.io.*;

class Sum
{
	public static void main (String () args)
	{
		int a=3, b=4;
		System.out.println("a = "+a);
		System.out.println("b = "+b);
		System.out.println("The sum is " + (a+b));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Sum.java
import java.io.*;

class Sum
{
        public static void main (String [] args)
        {
                int a=3, b=4;
                System.out.println("a = "+a);
                System.out.println("b = "+b);
                System.out.println("The sum is " + (a+b));
        }
}
ashirbad@ashirbad-Notebook:~/JAVA$ java Sum.java
a = 3
b = 4
The sum is 7
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to divide two numbers and print on the screen.

```
import java.io.*;

class Sum
{
	public static void main (String () args)
	{
		int a=3, b=4;
		System.out.println("a = "+a);
		System.out.println("b = "+b);
		System.out.println("The sum is " + (a+b));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Division.java
import java.io.*;

class Divide
{
	public static void main(String [] args)
	{
		int a=6,b=4;
		System.out.println("a = "+a);
		System.out.println("b = "+b);
		System.out.println("The quotient = "+(a/b));
		System.out.println("The remainder = "+(a%b));
	}
}
ashirbad@ashirbad-Notebook:~/JAVA$ java Division.java
a = 6
b = 4
The quotient = 1
The remainder = 2
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to print the result of the following operations..
Test Data:
a. -5 + 8 * 6
b. (55+9) % 9
c. 20 + -3*5 / 8
d. 5 + 15 / 3 * 2 - 8 % 3

```
import java.io.*;

class Math_Works
{
	public static void main(String () args)
	{
		System.out.println("The Mathematical Formulae :");
		System.out.println("a. -5 + 8 * 6 = "+ (-5 + 8 * 6));
		System.out.println("b. (55+9) % 9 = "+((55+9) % 9));
		System.out.println("c. 20 + -3*5 / 8 = "+(20 + -3*5 / 8));
		System.out.println("d. 5 + 15 / 3 * 2 - 8 % 3 = "+(5 + 15 / 3 * 2 - 8 % 3));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Math_Formulae.java
import java.io.*;

class Math_Works
{
        public static void main(String [] args)
        {
                System.out.println("The Mathematical Formulae :");
                System.out.println("a. -5 + 8 * 6 = "+ (-5 + 8 * 6));
                System.out.println("b. (55+9) % 9 = "+((55+9) % 9));
                System.out.println("c. 20 + -3*5 / 8 = "+(20 + -3*5 / 8));
                System.out.println("d. 5 + 15 / 3 * 2 - 8 % 3 = "+(5 + 15 / 3 * 2 - 8 % 3));
        }
}

ashirbad@ashirbad-Notebook:~/JAVA$ java Math_Formulae.java
The Mathematical Formulae :
a. -5 + 8 * 6 = 43
b. (55+9) % 9 = 1
c. 20 + -3*5 / 8 = 19
d. 5 + 15 / 3 * 2 - 8 % 3 = 13
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to divide two numbers and print on the screen.

```
import java.io.*;

class Sum
{
	public static void main (String () args)
	{
		int a=3, b=4;
		System.out.println("a = "+a);
		System.out.println("b = "+b);
		System.out.println("The sum is " + (a+b));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Mul.java
import java.io.*;

class Input
{
	public static void main(String [] args)throws Exception
	{
		int a,b=0;
		//Scanner read=new Scanner(System.in);
		BufferedReader read=new BufferedReader(new InputStreamReader(System.in));
		System.out.print("a = ");
		a=Integer.parseInt(read.readLine());
		System.out.print("b = ");
		b=Integer.parseInt(read.readLine());
		System.out.println(a+"*"+b+" = "+(a*b));
	}
}

ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 1
b = 2
1*2 = 2
ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 3
b = 4
3*4 = 12
ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 5
b = 6
5*6 = 30
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program that takes two numbers as input and display the product of two numbers.

```
import java.io.*;

class Input
{
	public static void main(String () args)throws Exception
	{
		int a,b=0;
		//Scanner read=new Scanner(System.in);
		BufferedReader read=new BufferedReader(new
InputStreamReader(System.in));
		System.out.print("a = ");
		a=Integer.parseInt(read.readLine());
		System.out.print("b = ");
		b=Integer.parseInt(read.readLine());
		System.out.println(a+"*"+b+" = "+(a*b));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Mul.java
import java.io.*;

class Input
{
        public static void main(String [] args)throws Exception
        {
                int a,b=0;
                //Scanner read=new Scanner(System.in);
                BufferedReader read=new BufferedReader(new InputStreamReader(System.in));
                System.out.print("a = ");
                a=Integer.parseInt(read.readLine());
                System.out.print("b = ");
                b=Integer.parseInt(read.readLine());
                System.out.println(a+"*"+b+" = "+(a*b));
        }
}

ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 1
b = 2
1*2 = 2
ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 3
b = 4
3*4 = 12
ashirbad@ashirbad-Notebook:~/JAVA$ java Mul.java
a = 5
b = 6
5*6 = 30
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program that takes a number as input and prints its multiplication table upto 10.

```
import java.util.*;

class Multiplication_Table
{
	public static void main(String ar())
	{
		int a;
		Scanner read=new Scanner(System.in);
	       System.out.print("a = ");
		a=read.nextInt();
		System.out.println();
		System.out.println("The Multiplication table of "+a+" is :");
		System.out.println();
		for(int i=1;i<=10;i++)
			System.out.println(a+" X "+i+" = "+(a*i));
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat Multiplication_Table.java
import java.util.*;

class Multiplication_Table
{
        public static void main(String ar[])
        {
                int a;
                Scanner read=new Scanner(System.in);
                System.out.print("a = ");
                a=read.nextInt();
                System.out.println();
                System.out.println("The Multiplication table of "+a+" is :");
                System.out.println();
                for(int i=1;i<=10;i++)
                        System.out.println(a+" X "+i+" = "+(a*i));
        }
}


ashirbad@ashirbad-Notebook:~/JAVA$ java Multiplication_Table.java
a = 8

The Multiplication table of 8 is :

8 X 1 = 8
8 X 2 = 16
8 X 3 = 24
8 X 4 = 32
8 X 5 = 40
8 X 6 = 48
8 X 7 = 56
8 X 8 = 64
8 X 9 = 72
8 X 10 = 80
ashirbad@ashirbad-Notebook:~/JAVA$
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ java Multiplication_Table.java
a = 3

The Multiplication table of 3 is :

3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15
3 X 6 = 18
3 X 7 = 21
3 X 8 = 24
3 X 9 = 27
3 X 10 = 30
ashirbad@ashirbad-Notebook:~/JAVA$ java Multiplication_Table.java
a = 4

The Multiplication table of 4 is :

4 X 1 = 4
4 X 2 = 8
4 X 3 = 12
4 X 4 = 16
4 X 5 = 20
4 X 6 = 24
4 X 7 = 28
4 X 8 = 32
4 X 9 = 36
4 X 10 = 40
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to print an American flag on the screen.

```
import java.lang.*;

class flag
{
	static int star(int k)
	{
		if(k>=1)
		{
			System.out.print("* ");
			return star(k-1);
		}
		return 0;
	}

	static int equal(int k)
	{
		if(k>1)
		{
			System.out.print("=");
			return equal(k-1);
		}
		return 0;
	}

	public static void main(String () ar)
	{

		for(int i=0;i<=14;i++)
		{
			if(i<=8)
			{
				if(i%2==0)
				{
					star(6);
					equal(43-12);
				}
				else
				{
					System.out.print(" ");
					star(5);
					System.out.print(" ");
					equal(43-12);
				}
			}
			else
				equal(43);

			System.out.println();
```

```
            }
        }
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ java American_Flag.java
* * * * * * ==============================
 * * * * * *  ==============================
* * * * * * ==============================
 * * * * * *  ==============================
* * * * * * ==============================
 * * * * * *  ==============================
* * * * * * ==============================
 * * * * * *  ==============================
* * * * * * ==============================
==========================================
==========================================
==========================================
==========================================
==========================================
==========================================
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to add two binary numbers.

```
import java.util.*;

class binsum
{
	static Scanner cin=new Scanner(System.in);
	static int deci(int n)
	{
		int c=0, i=0;
		while(n!=0)
		{
			c+=(n%10)*(Math.pow(2,i));
			n/=10;
			i++;
		}
		return c;
	}

	static void bin(int s)
	{
	   String r="";
	  do r+=(s%2);
	  while((s/=2)!=0);
	  s=r.length();
	  while(s!=0)
	        System.out.print(r.charAt(--s));
	  System.out.println();
	}


	public static void main(String x())
	{
		int a,b,s;
		System.out.print("Enter the first binary number -> ");
		a=cin.nextInt();
		System.out.print("Enter the second binary number -> ");
		b=cin.nextInt();
		a=deci(a);
		b=deci(b);
		bin(a+b);
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ java BinSum.java
Enter the first binary number -> 1011
Enter the second binary number -> 01
1100
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to convert a decimal number to binary number.

```
import java.util.*;

class decitobin
{
        static Scanner cin=new Scanner(System.in);

        public static void main(String x())
        {
                int s=cin.nextInt();
                String r="";
                do r+=(s%2);
              while((s/=2)!=0);
                s=r.length();
                while(s!=0)
                        System.out.print(r.charAt(--s));
                System.out.println();
        }
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ cat DecitoBin.java
import java.util.*;

class decitobin
{
        static Scanner cin=new Scanner(System.in);

        public static void main(String x[])
        {
                int s=cin.nextInt();
                String r="";
                do r+=(s%2);
                while((s/=2)!=0);
                s=r.length();
                while(s!=0)
                        System.out.print(r.charAt(--s));
                System.out.println();
        }
}

ashirbad@ashirbad-Notebook:~/JAVA$ java DecitoBin.java
127
1111111
ashirbad@ashirbad-Notebook:~/JAVA$ java DecitoBin.java
345
101011001
ashirbad@ashirbad-Notebook:~/JAVA$ java DecitoBin.java
7
111
ashirbad@ashirbad-Notebook:~/JAVA$ java DecitoBin.java
8
1000
ashirbad@ashirbad-Notebook:~/JAVA$ java DecitoBin.java
10
1010
ashirbad@ashirbad-Notebook:~/JAVA$
```

Write a Java program to create and display unique three-digit number using 1, 2, 3, 4. Also count how many three-digit numbers are there.

```
import java.util.*;

class Permutations
{

	static public void main(String x())
	{
		int t=0;
		for(int i=0;i<4;i++)
		{
			for(int k=0;k<4;k++)
			{
				if(((k%4)+1)!=((i%4)+1))
					for(int c=0;c<4;c++)
						if(((c%4)+1)!=((k%4)+1)&&((c%4)+1)!=((i%4)+1))
						{
							System.out.print((i%4)+1);
							System.out.print((k%4)+1);
							System.out.print((c%4)+1);
							t++;
							System.out.println();
						}
			}
		}
		System.out.println();
		System.out.println("The total number of three digit number : "+t);
	}
}
```

```
ashirbad@ashirbad-Notebook:~/JAVA$ java permutation.java
123
124
132
134
142
143
213
214
231
234
241
243
312
314
321
324
341
342
412
413
421
423
431
432

The total number of three digit number : 24
ashirbad@ashirbad-Notebook:~/JAVA$
```