Assignment 1 ADS

Write a Java program to check if a given number is an Armstrong number.

```
import java.util.*;
public class QueArmstrong{
    public static void main(String[] args){
        Scanner sc=new Scanner (System.in);
        System.out.print("Enter Number:");
        int num=sc.nextInt();
        int arm=0;
        int temp=num;
        while(num>0){
            int rem=num%10;
             arm=(rem*rem*rem)+arm;
             num=num/10;
        }
        if(temp==arm){
            System.out.print(temp+" is Armstrong Number");
        }else
        {
            System.out.print(temp+" is not Armstrong Number");
        }
        sc.close();
    }
}
```

Write a Java program to check if a given number is prime.

```
import java.util.*;
class prime{
```

```
    static boolean checkPrime(int num){
        if(num<=1){
            return false;
        }
        for(int i=2;i<=Math.sqrt(num);i++){

            if(num%i==0){
                return false;
            }
        }
        return true;
    }

}
public class QuePrime{
    public static void main(String[] args){
        //prime pn=new prime();
        Scanner sc=new Scanner (System.in);
        System.out.println("Enter Number:");
        int num=sc.nextInt();

        if(prime.checkPrime(num)){
            System.out.println(num+" is prime number");
        }
        else{
            System.out.println(num+ " is not prime number");
        }
        sc.close();
    }
}
```

Write a Java program to compute the factorial of a given number.

```
import java.util.Scanner;

class QueFact{
    static int findFact(int n){
        if(n==0)
            return 1;


        else
            return n*findFact(n-1);
    }


    public static void main(String[] args){

        Scanner sc=new Scanner (System.in);

        System.out.print("Enter Number:");
        int num=sc.nextInt();

        System.out.println("Fact of " + num + " is: " + findFact

        sc.close();

    }
}
```

Write a Java program to print the first n numbers in the Fibonacci series.

```
 class QueFibonacci{
      static int fib(int n){
          if(n<=1){
              return n;
          }
```

```
          return fib(n-1)+fib(n-2);
      }
      public static void main(String[] args){
          Scanner sc=new Scanner(System.in);
           System.out.print("Enter Number:" );
         int num=sc.nextInt();

         for(int i=0;i<=num-1;i++){
             System.out.print(fib(i)+ " ");
         }

      }
  }
```

Write a Java program to find the Greatest Common Divisor (GCD) of two numbers.

```
class gcdNum{
static int gcd(int a,int b){
if(b==0)
return a;
else
return gcd(b,a%b);
}
public static void main(String[] args){
Scanner sc=new Scanner(System.in);
System.out.print("Enter num1: ");
int a=sc.nextInt();
System.out.print("Enter num2: ");
int b=sc.nextInt();

System.out.println("GCD is: "+gcd(a,b));
}
}
```

Write a Java program to find the square root of a given number (using integer approximation).

```
import java.util.*;

class QueSqureRoot{

    public static void main(String[] args){
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter Number: ");
        int num=sc.nextInt();
        int sqrt=(int)Math.sqrt(num);
         System.out.println("SqureRoot is: "+sqrt);
         sc.close();


    }
}
```

Write a Java program to find all repeated characters in a string.

```
class DuplicateChar{
  static String dupChar(String str,int i){
      if(str.length()==0){
          System.out.println("String Emplty");
          return str;

      }
      if(str.charAt(i)==str.charAt(i+1));
       str.charAt(i);
      dupChar( str,i+1);
  }
  public static void main(String[] args){
```

```
     String str="Samruddhi";
      dupChar(str, 0);

  }
}
```

Write a Java program to find the first non-repeated character in a string

```
import java.util.*;
class QueNonRepeatingChar {


   static char findNonRepeating(String str, int i) {
      if(i>=str.length()){
          return '\0';
      }
      char firstChar=str.charAt(i);

      if(str.indexOf(firstChar)==str.lastIndexOf(firstChar)){
          return firstChar;
      }
      return findNonRepeating(str,i+1);
   }

   public static void main(String[] args) {
       Scanner sc=new Scanner(System.in);
       System.out.print("Enter String : ");
       String s = sc.nextLine();

       System.out.println("Non repeating Character : "+findNonR

   }
}
```

Write a Java program to check if a given integer is a palindrome.

```
import java.util.*;
class QuePalindrome{
  static boolean palindrome(int n){

      int rev=0;
      int orig=n;
      while(n!=0){
      int d=n%10;
      rev= rev*10+d;
      n=n/10;
      }
      return orig == rev;


  }

  public static void main(String[] args){
      Scanner sc=new Scanner(System.in);
      System.out.print("Enter Number: ");
      int num=sc.nextInt();
    //int num=12321;
    if(palindrome(num)){
    System.out.print(num+" is Palinedrome");
    }
    else{
    System.out.print(num+" is Not Palindrome");
    }


  }
}
```

Write a Java program to check if a given year is a leap year.

```
import java.util.Scanner;
class QueLeapYear{

  static boolean leapYear(int year){

     if(((year%4==0)&&(year%100!=0))||(year%400==0)){
       return true;
     }
     return false;
  }
  public static void main(String[] args){
      Scanner sc=new Scanner(System.in);
      System.out.print("Enter year : ");
      int y=sc.nextInt();
      //int y=2020;
      System.out.print(leapYear(y));
  }

}
```