1. Write a Java Program to find GCD of two given numbers.

```
package in.com;

import java.util.Scanner;

public class Ques_1 {

public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner(System.in);
int x = sc.nextInt(); //12
int y = sc.nextInt(); //8
int gcd = 1;
for(int i = 1 ; i<=x && i<=y ; i++) { // i<= 12 && 1<=8
if(x %i == 0 && y%i==0) // 12 % 1 ==0 && 8%1==0
gcd =i;
}
System.out.printf("GCD of %d and %d is: %d" , x, y, gcd);

}

}
```

2. Write a java program to LCM of TWO given number.

```
package in.com;

import java.util.Scanner;

public class Ques_2 {

public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner(System.in);
int x = sc.nextInt(); //12
int y = sc.nextInt(); //8
int gcd = 1;
for(int i = 1 ; i<=x && i<=y ; i++) { // i<= 12 && 1<=8
if(x %i == 0 && y%i==0) // 12 % 1 ==0 && 8%1==0
gcd =i;
}
int LCM = (x * y)/gcd ;
System.out.printf("LCM of %d and %d is: %d" , x, y, LCM);

}

}
```

3. Write a Java Program to print all the Prime Factorsof the Given Number.

```
package in.com;

import java.util.Scanner;

public class Ques_3 {
public static void primeFactors(int n, int divisor) {
if (n == 1)
return;

if (n % divisor == 0) {
System.out.print(divisor + " ");
primeFactors(n / divisor, divisor);
} else {
primeFactors(n, divisor + 1);
}
}
public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner(System.in);
int num = sc.nextInt();
System.out.println("Prime factors of " +num+"are: ");
primeFactors(num , 2);


}

}
```

4. Check whether the Given Numberis a Palindrome or NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_4 {

public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner(System.in);
int n = sc.nextInt();
int r , sum = 0 ,temp ;
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");
```

```
}

}
```

5. Write a Java Program to check whether the Given Number is Prime Number or NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_5 {

public static void main(String[] args) {
// TODO Auto-generated method stub
int i , m = 0 , flag = 0 ;
Scanner sc = new Scanner(System.in);
int n = sc.nextInt();
m = n/2 ;
if(n == 0 || n == 1) {
System.out.println(n+ " is not prime number.");
}else {
for(i=2 ; i<=m ; i++) {
if(n%i == 0) {
System.out.println(n+" is not prime number.");
flag = 1;
break ;
}
}
if(flag == 0) {
System.out.println(n+ " is prime number");
}
}

}
}
```

6. Write a Java Program to check whether the given number is Armstrong Numberor NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_6 {
static boolean isArmstrong(int num) {
int temp ,digits = 0 , last = 0 , sum =0 ;
temp =num ;
while(temp>0) {
temp = temp/10 ;
digits++ ;
}
temp = num ;
while(temp>0) {
```

```
last = temp % 10 ;
sum+=(Math.pow(last, digits));
temp = temp /10 ;
}
if(num==sum)
return true ;
else return false ;
}

public static void main(String[] args) {
// TODO Auto-generated method stub
int num ;
Scanner sc = new Scanner (System.in);
System.out.println("Enter the number :");
num = sc.nextInt();
if(isArmstrong(num)) {
System.out.println(num+" Armstrong");
}else {
System.out.println(num+" Not Armstrong");
}
}
}
```

7. Write a Java Program to check whether the given number is Perfect Numberor NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_7 {

public static void main(String[] args) {
// TODO Auto-generated method stub
long num , sum=0;
Scanner sc = new Scanner (System.in);
System.out.println("Enter the number :");
num = sc.nextLong();
int i = 1 ;
while(i<=num/2) {
if(num%i==0) {
sum = sum + i;
}
i++ ;
}
if(sum==num) {
System.out.println(num+ " is a prefect number");
}else {
System.out.println(num+ " is not a perfect number");

}
}
}
```

8. Write a Java Program to check whether the given numbers are Amicable Numbersor NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_8 {

public static void main(String[] args) {
// TODO Auto-generated method stub
int num1, num2 , sum1=0 ,sum2 =0;
Scanner sc = new Scanner (System.in);
System.out.println("Enter the number 1 :");
num1 = sc.nextInt();
System.out.println("Enter the number 2:");
num2 = sc.nextInt();
for(int i = 1 ; i<=num1 ; i++) {
if(num1%i == 0) {
sum1 =sum1 + i ;
}
}
for(int i = 1 ; i<=num2 ; i++) {
if(num2 % i == 0) {
sum2 = sum2 + i ;
}
}
if(sum1==sum2) {
System.out.println("The pair of number are amicable");
}else {
System.out.println("The pair of number are not amicable");
}
}
}
```

9. Write a Java Program to check whether the given number is Ramanujam's Numberor NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_9 {
public static int findSum(int num) {
int sum = 0 ;
while(num>0) {
sum = sum + num % 10 ;
num = num / 10 ;
}
return sum ;
}
public static int reverseSum(int num) {
int reverse = 0 ;
while(num>0) {
```

```
int digit = num % 10 ;
reverse = reverse * 10 + digit ;
num = num /10 ;
}
return reverse ;
}
public static void main(String[] args) {
// TODO Auto-generated method stub
int num ;
Scanner sc = new Scanner (System.in);
System.out.println("Enter the number :");
int orgNum = sc.nextInt();
int sum = findSum(orgNum);
int reverseSum = reverseSum(sum);
if((sum * reverseSum)== orgNum)
{
System.out.println(orgNum+ " is a Ramanujan Number.");
}else {
System.out.println(orgNum+"is not a Ramanujan Number.");
}
}
}
```

10. Write a Java Program check whether the given number is Automorphic Numberor NOT.

```
package in.com;

import java.util.Scanner;

public class Ques_10 {

public static void main(String[] args) {
// TODO Auto-generated method stub
Scanner sc = new Scanner(System.in);
System.out.println("Enter a number : ");
int num = sc.nextInt();
int count = 0 ;
int square = num*num ;
int temp = num ;
while(temp>0) {
count++;
temp =temp /10 ;
}
int lastDigit = (int)(square%(Math.pow(10,count)));
if(num == lastDigit) {
System.out.println(num+ " is an automorphic number");
}else {
System.out.println(num+ " is not automorphic number");
}
}}
```