1. Write a program to find the number of composite numbers in an array of elements

Sample Input;:

Array of elements = {16, 18, 27, 16, 23, 21, 19}

Sample Output:

Number of Composite Numbers = 5

Test cases:

1. Array of elements = {26, 28, 37, 26, 33, 31, 29}

2. Array of elements = {1.6, 1.8, 2.7, 1.6, 2.3, 2.1, .19}

3. Array of elements = {0, 160, 180, 270, 160, 230, 210, 190, 0}

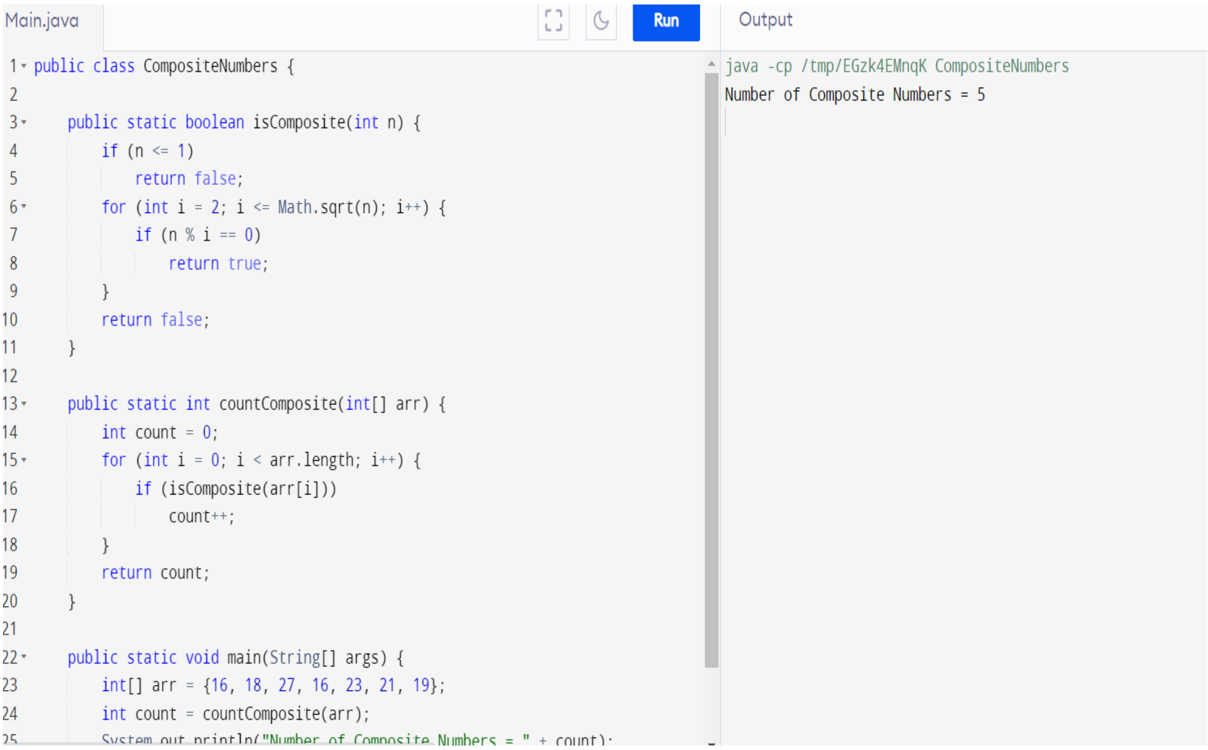
4. Array of elements = {200, 180, 180, 270, 270, 270, 190, 200}

5. Array of elements = {100, 100, 100, 100, 100, 100, 100, 100}

Program:

```
public class CompositeNumbers {

    public static boolean isComposite(int n) {
        if (n <= 1)
            return false;
        for (int i = 2; i <= Math.sqrt(n); i++) {
            if (n % i == 0)
                return true;
        }
        return false;
    }

    public static int countComposite(int[] arr) {
        int count = 0;
        for (int i = 0; i < arr.length; i++) {
            if (isComposite(arr[i]))
                count++;
        }
        return count;
    }

    public static void main(String[] args) {
        int[] arr = {16, 18, 27, 16, 23, 21, 19};
        int count = countComposite(arr);
        System.out.println("Number of Composite Numbers = " + count);
    }
}
```

Output:



```
public class CompositeNumbers {

    public static boolean isComposite(int n) {
        if (n <= 1)
            return false;
        for (int i = 2; i <= Math.sqrt(n); i++) {
            if (n % i == 0)
                return true;
        }
        return false;
    }

    public static int countComposite(int[] arr) {
        int count = 0;
        for (int i = 0; i < arr.length; i++) {
            if (isComposite(arr[i]))
                count++;
        }
        return count;
    }

    public static void main(String[] args) {
        int[] arr = {16, 18, 27, 16, 23, 21, 19};
        int count = countComposite(arr);
        System.out.println("Number of Composite Numbers = " + count);
```

```
java -cp /tmp/EGzk4EMnqK CompositeNumbers
Number of Composite Numbers = 5
```

2. Write a program for matrix addition?

Sample Input:

Mat1 = 1 2

5 3

Mat2 = 2 3

4 1

Sample Output:

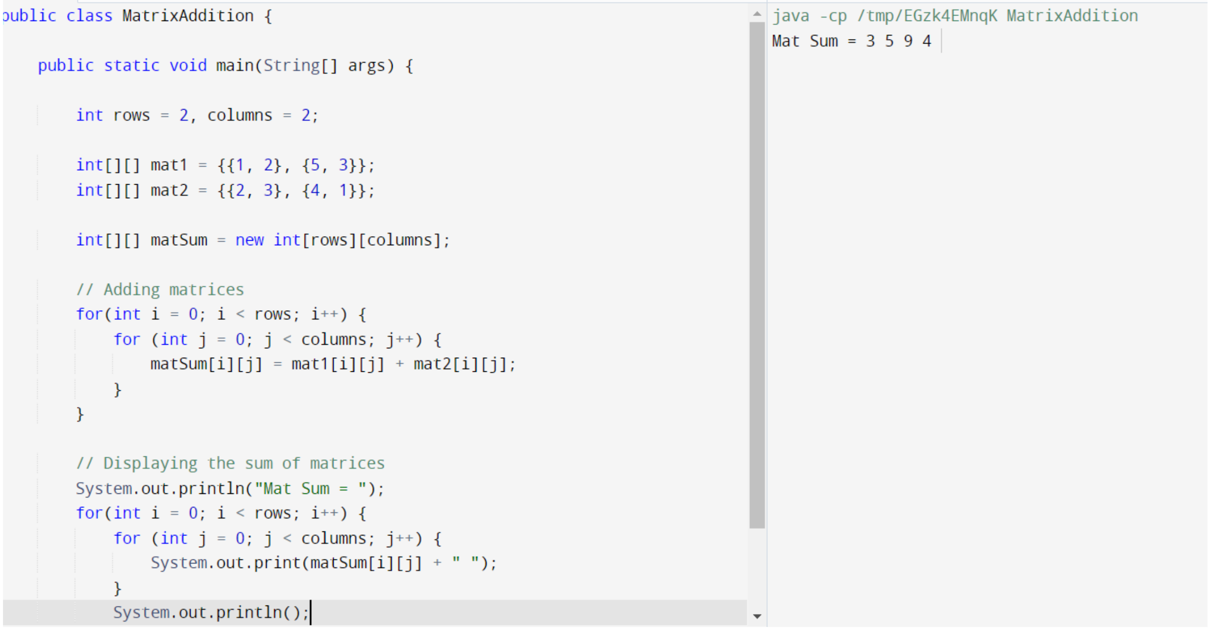
Mat Sum = 3 5

9 4

Program:

```
public class MatrixAddition {

    public static void main(String[] args) {

        int rows = 2, columns = 2;

        int[][] mat1 = {{1, 2}, {5, 3}};
        int[][] mat2 = {{2, 3}, {4, 1}};

        int[][] matSum = new int[rows][columns];

        // Adding matrices
        for(int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                matSum[i][j] = mat1[i][j] + mat2[i][j];
            }
        }
        System.out.println("Mat Sum = ");
        for(int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                System.out.print(matSum[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

Output:



```
public class MatrixAddition {

    public static void main(String[] args) {

        int rows = 2, columns = 2;

        int[][] mat1 = {{1, 2}, {5, 3}};
        int[][] mat2 = {{2, 3}, {4, 1}};

        int[][] matSum = new int[rows][columns];

        // Adding matrices
        for(int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                matSum[i][j] = mat1[i][j] + mat2[i][j];
            }
        }

        // Displaying the sum of matrices
        System.out.println("Mat Sum = ");
        for(int i = 0; i < rows; i++) {
            for (int j = 0; j < columns; j++) {
                System.out.print(matSum[i][j] + " ");
            }
            System.out.println();
```

```
java -cp /tmp/EGzk4EMnqK MatrixAddition
Mat Sum = 3 5 9 4
```

3. Given a non-negative integer x, return the square root of x rounded down to the nearest

integer. The returned integer should be non-negative as well.

You must not use any built-in exponent function or operator.

For example, do not use pow(x, 0.5) in c++ or x ** 0.5 in python.

Example 1:

Input: x = 4

Output: 2

Explanation: The square root of 4 is 2, so we return 2.

Example 2:

Input: x = 8

Output: 2

Explanation: The square root of 8 is 2.82842..., and since we round it down to the nearest

integer, 2 is returned.

class Solution {

int mySqrt(int x) {

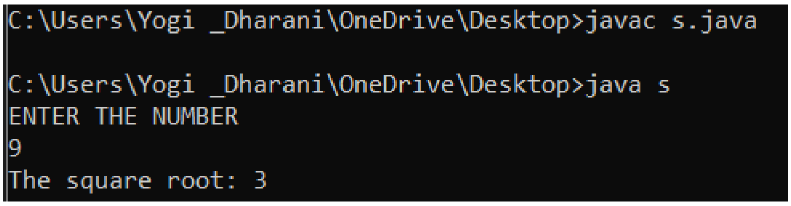
}

}

Program:

```
class Solution {
    int mySqrt(int x) {
        
    }
}
Solution:
import java.io.*;
import java.util.*;
class s
{
public static void main(String[] args)
{
try
{
int i,n,m;
Scanner sc=new Scanner(System.in);
System.out.println("ENTER THE NUMBER");
n=sc.nextInt();
for(i=1;i<=n;i++)
{
m=i*i;
if(m==n)
{
System.out.println("The square root: "+i);
}
}
}
catch(Exception e)
{
System.out.println("Invalid");
}
}
}
```

Output:



```
C:\Users\Yogi _Dharani\OneDrive\Desktop>javac s.java

C:\Users\Yogi _Dharani\OneDrive\Desktop>java s
ENTER THE NUMBER
9
The square root: 3
```

4. Given an integer x, return true if x is a

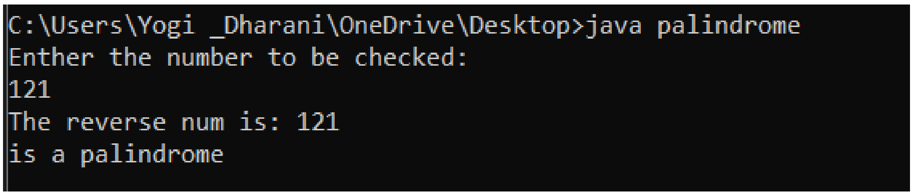
Palindrome , and false otherwise.

Program:

```
import java.io.*;
import java.util.*;
class palindrome
{
public static void main(String args[])
{
try
{
```

```
int a,m,n,rev=0;
Scanner sc=new Scanner(System.in);
System.out.println("Enther the number to be checked: ");
m=sc.nextInt();
a=m;
while(m>0)
{
n=m%10;
rev=rev*10+n;
m=m/10;
}System.out.println("The reverse num is: "+rev);
if(rev==a)
{System.out.println("is a palindrome");
}else{
System.out.println(" is not a palindrome");
}
}
catch(Exception e)
{
System.out.println("Invalid");
}
}
}
```

Output:



```
C:\Users\Yogi _Dharani\OneDrive\Desktop>java palindrome
Enther the number to be checked:
121
The reverse num is: 121
is a palindrome
```

5. Find the error and Debug the code

import java.util.*;

class age{

public static void main(string arcs[]){

Scanner scan=new scanner (System.in);

System.out.println("Enter the age of person");

int user_age=scan.next Int();

System.out.printn("The age of person is"+user_age);

```
if(user_age>18)
{
System.out.println("You are eligible to Vote");
}
else{
System.out.println("You are not eligible to vote and ..for you " + (18 - user_age) + " years
are left to be eligible");
}
}
}
```

Program:

```
import java.util.Scanner;

class Age {
  public static void main(String[] args) {
    Scanner scan = new Scanner(System.in);
    System.out.println("Enter the age of person");
    int user_age = scan.nextInt();
    System.out.println("The age of person is " + user_age);
    if (user_age > 18) {
      System.out.println("You are eligible to vote");
    } else {
      System.out.println("You are not eligible to vote and for you " + (18 - user_age) + "
years are left to be eligible");
    }
  }
}
```