Assignment No:-18

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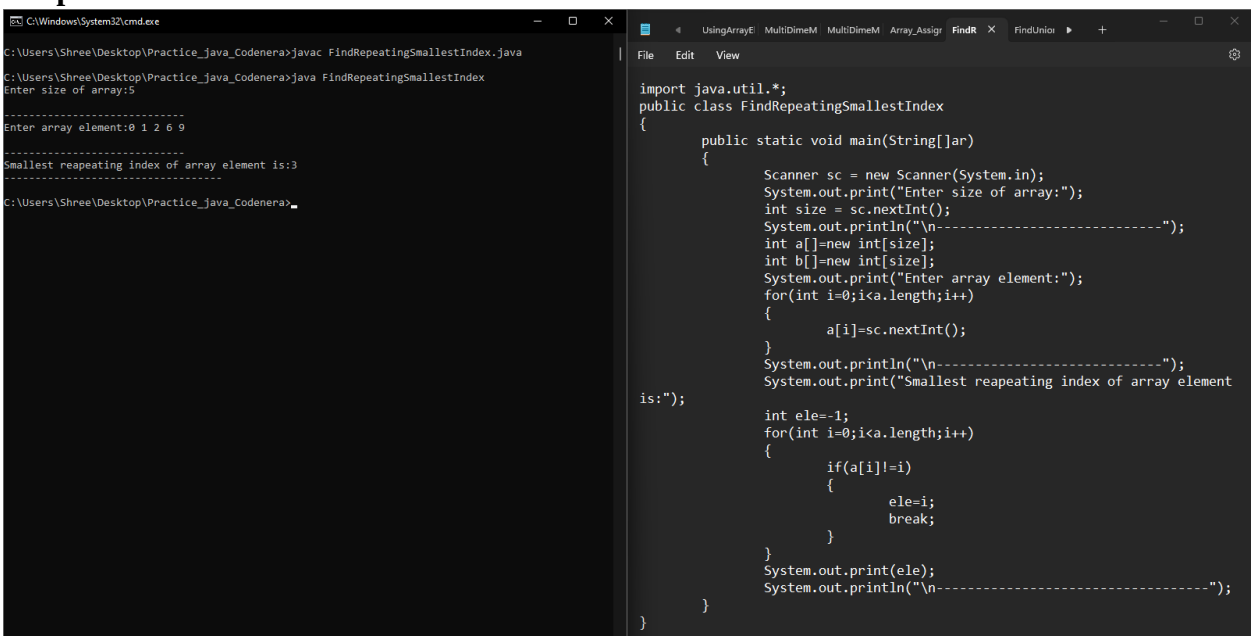
Batch: - Delta - DCA (Java) 2024 Date:-28/5/2024

12. Given a sorted array of n distinct integers where each integer is in the range from 0 to m-1 and m > n. Find the smallest number that is missing from the array.

Examples:

Input: {0, 1, 2, 6, 9}, n = 5, m = 10

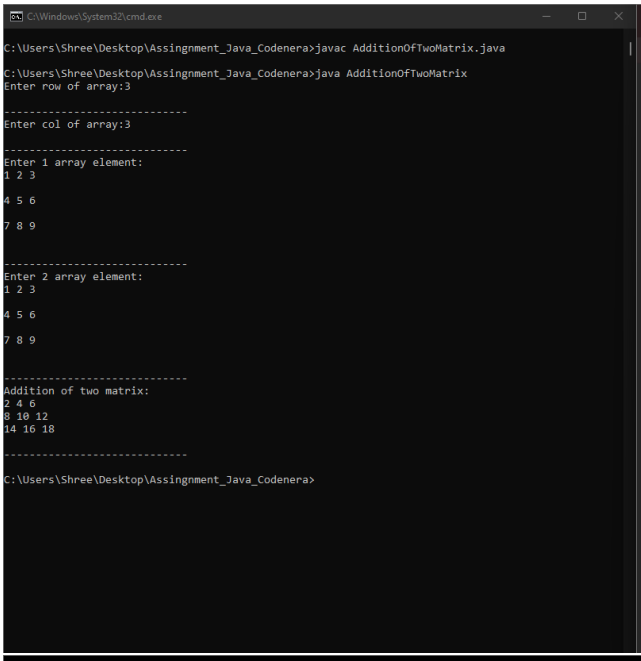
Output: 3



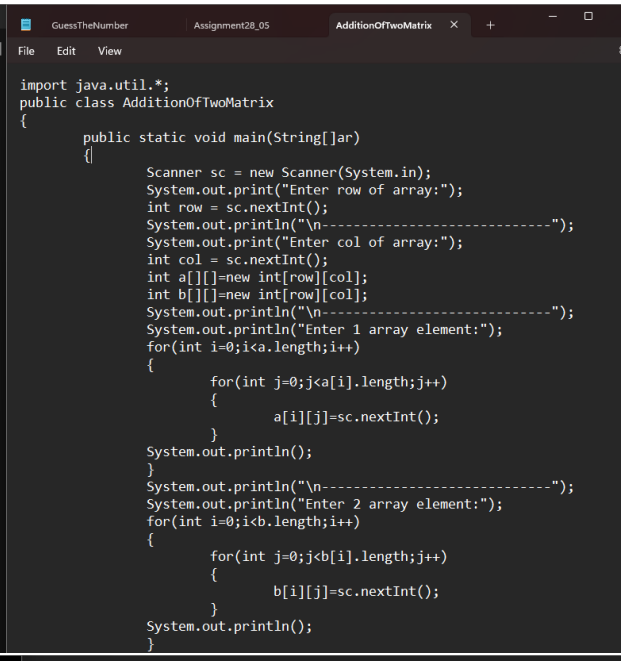
```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Practice_java_Codenera>javac FindRepeatingSmallestIndex.java

C:\Users\Shree\Desktop\Practice_java_Codenera>java FindRepeatingSmallestIndex
Enter size of array:5

----------------------------
Enter array element:0 1 2 6 9

----------------------------
Smallest reapeating index of array element is:3
----------------------------------

C:\Users\Shree\Desktop\Practice_java_Codenera>
```

```
File  Edit  View

import java.util.*;
public class FindRepeatingSmallestIndex
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter size of array:");
                int size = sc.nextInt();
                System.out.println("\n----------------------------");
                int a[]=new int[size];
                int b[]=new int[size];
                System.out.print("Enter array element:");
                for(int i=0;i<a.length;i++)
                {
                        a[i]=sc.nextInt();
                }
                System.out.println("\n----------------------------");
                System.out.print("Smallest reapeating index of array element
is:");
                int ele=-1;
                for(int i=0;i<a.length;i++)
                {
                        if(a[i]!=i)
                        {
                                ele=i;
                                break;
                        }
                }
                System.out.print(ele);
                System.out.println("\n----------------------------------");
        }
}
```

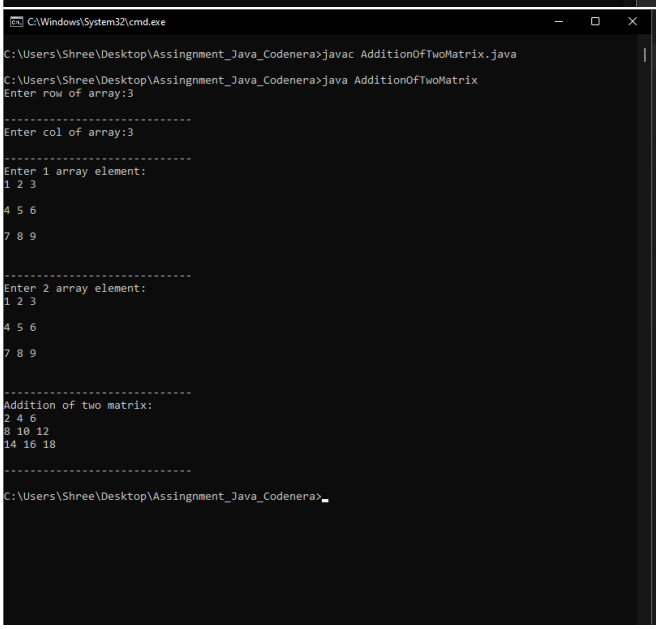
1. Write a Java program to add two matrices of the same size.



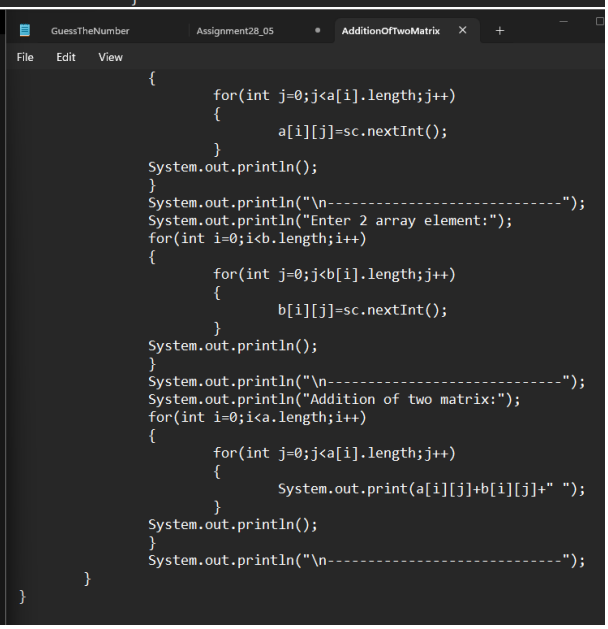
```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac AdditionOfTwoMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java AdditionOfTwoMatrix
Enter row of array:3

-----------------------------
Enter col of array:3

-----------------------------
Enter 1 array element:
1 2 3

4 5 6

7 8 9


-----------------------------
Enter 2 array element:
1 2 3

4 5 6

7 8 9


-----------------------------
Addition of two matrix:
2 4 6
8 10 12
14 16 18

-----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```



```
GuessTheNumber   Assignment28_05   AdditionOfTwoMatrix
File  Edit  View

import java.util.*;
public class AdditionOfTwoMatrix
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter row of array:");
                int row = sc.nextInt();
                System.out.println("\n-----------------------------");
                System.out.print("Enter col of array:");
                int col = sc.nextInt();
                int a[][]=new int[row][col];
                int b[][]=new int[row][col];
                System.out.println("\n-----------------------------");
                System.out.println("Enter 1 array element:");
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                a[i][j]=sc.nextInt();
                        }
                System.out.println();
                }
                System.out.println("\n-----------------------------");
                System.out.println("Enter 2 array element:");
                for(int i=0;i<b.length;i++)
                {
                        for(int j=0;j<b[i].length;j++)
                        {
                                b[i][j]=sc.nextInt();
                        }
                System.out.println();
                }
```

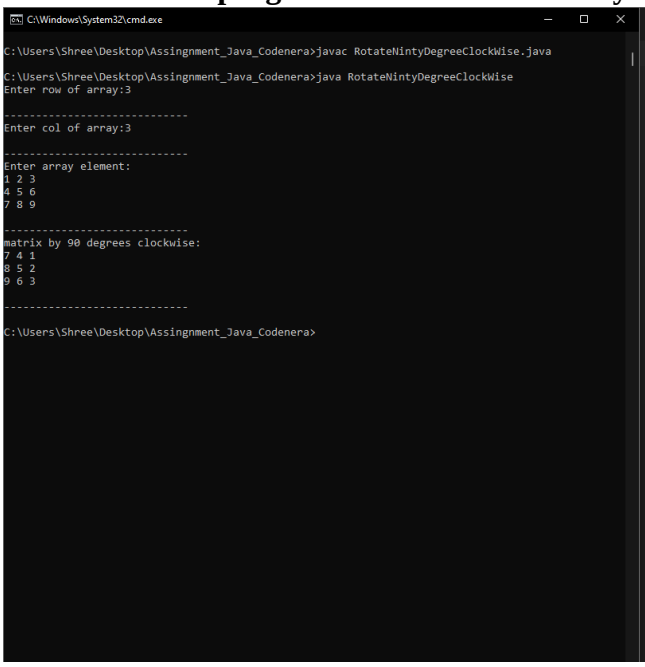


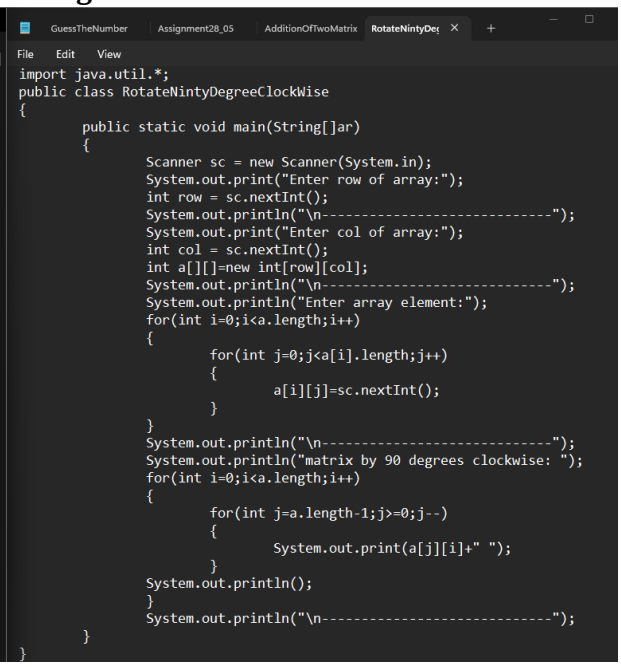
```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac AdditionOfTwoMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java AdditionOfTwoMatrix
Enter row of array:3

-----------------------------
Enter col of array:3

-----------------------------
Enter 1 array element:
1 2 3

4 5 6

7 8 9


-----------------------------
Enter 2 array element:
1 2 3

4 5 6

7 8 9


-----------------------------
Addition of two matrix:
2 4 6
8 10 12
14 16 18

-----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```



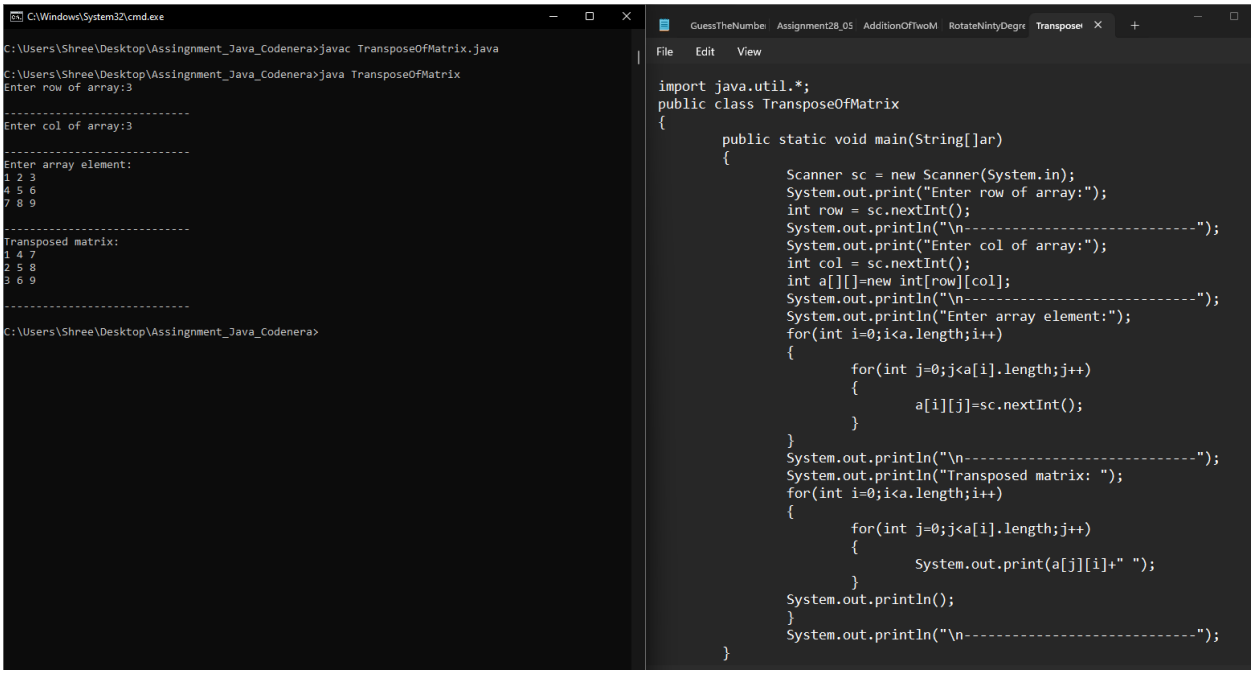
```
GuessTheNumber   Assignment28_05   AdditionOfTwoMatrix
File  Edit  View

                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                a[i][j]=sc.nextInt();
                        }
                System.out.println();
                }
                System.out.println("\n-----------------------------");
                System.out.println("Enter 2 array element:");
                for(int i=0;i<b.length;i++)
                {
                        for(int j=0;j<b[i].length;j++)
                        {
                                b[i][j]=sc.nextInt();
                        }
                System.out.println();
                }
                System.out.println("\n-----------------------------");
                System.out.println("Addition of two matrix:");
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                System.out.print(a[i][j]+b[i][j]+" ");
                        }
                System.out.println();
                }
                System.out.println("\n-----------------------------");
        }
}
```

2. Write a Java program to rotate a matrix by 90 degrees clockwise.





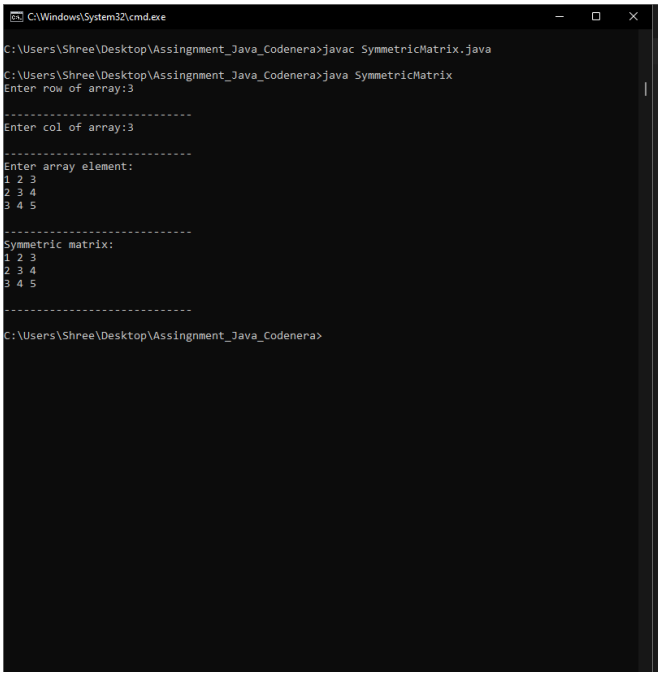
3. Write a Java program to find the transpose of a matrix

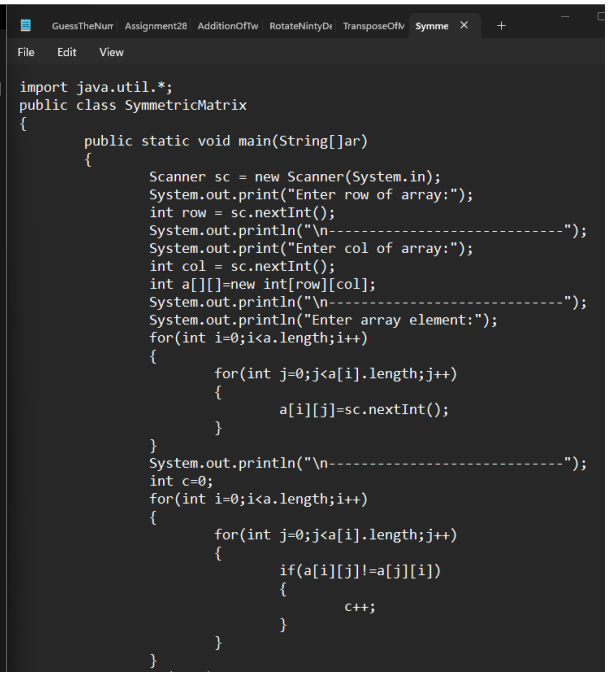


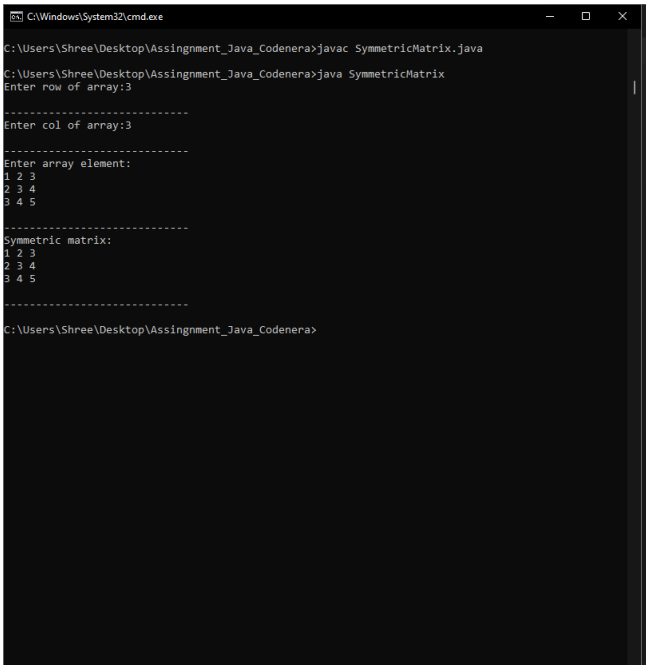
```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac TransposeOfMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java TransposeOfMatrix
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

----------------------------
Transposed matrix:
1 4 7
2 5 8
3 6 9

----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

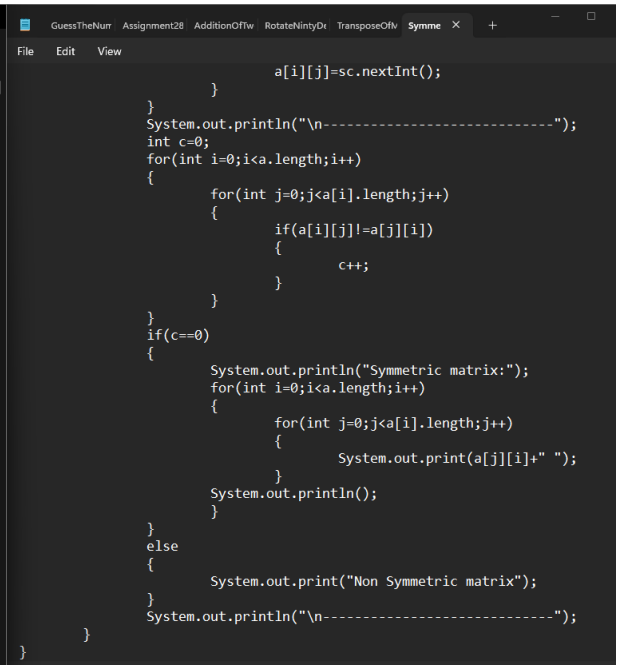
```
GuessTheNumber  Assignment28_05  AdditionOfTwoM  RotateNintyDegre  Transpose

File  Edit  View

import java.util.*;
public class TransposeOfMatrix
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter row of array:");
                int row = sc.nextInt();
                System.out.println("\n----------------------------");
                System.out.print("Enter col of array:");
                int col = sc.nextInt();
                int a[][]=new int[row][col];
                System.out.println("\n----------------------------");
                System.out.println("Enter array element:");
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                a[i][j]=sc.nextInt();
                        }
                }
                System.out.println("\n----------------------------");
                System.out.println("Transposed matrix: ");
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                System.out.print(a[j][i]+" ");
                        }
                System.out.println();
                }
                System.out.println("\n----------------------------");
        }
```

4. Write a Java program to check if a matrix is symmetric.

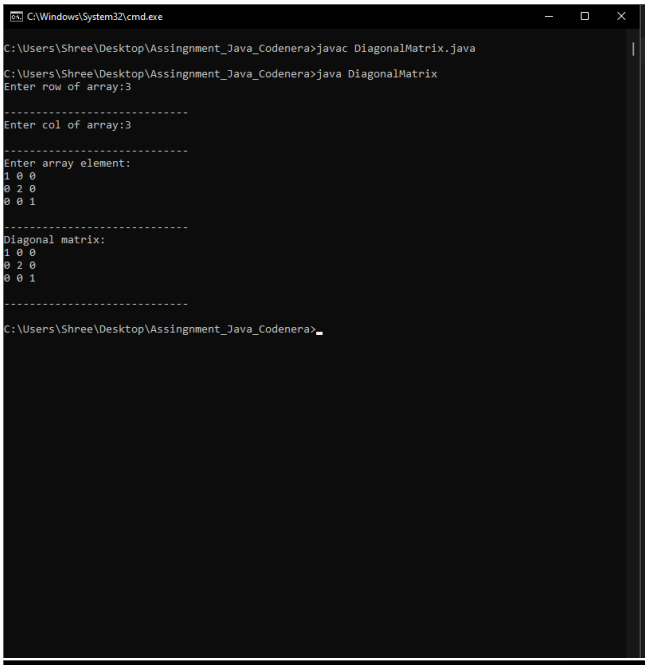


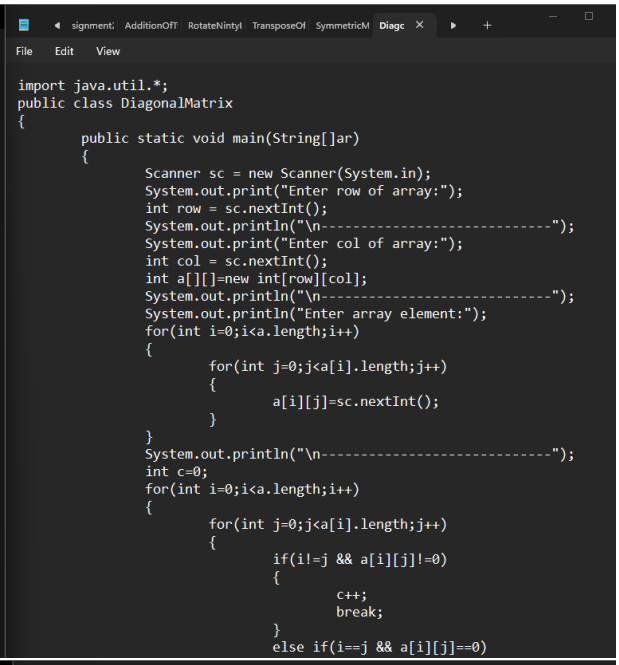


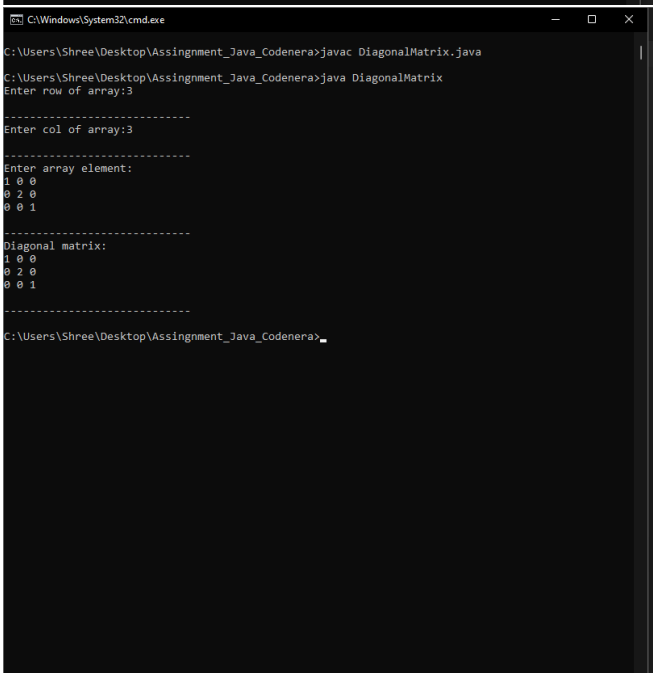


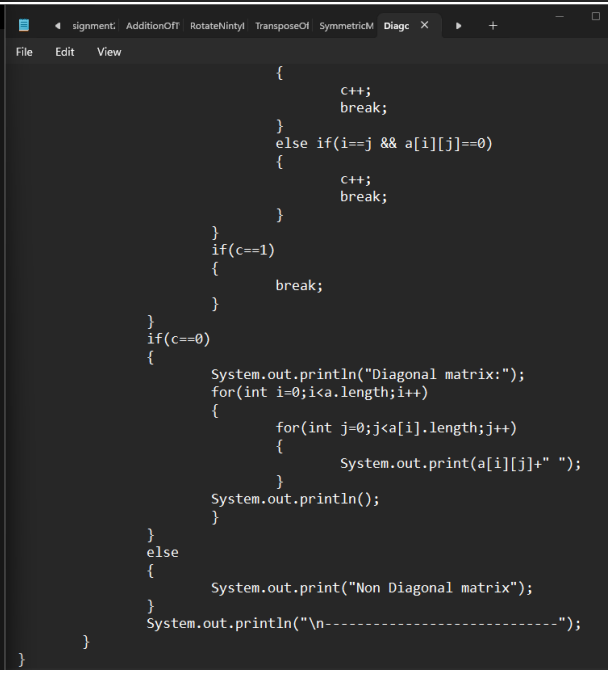


5. Write a Java program to check if a matrix is diagonal.

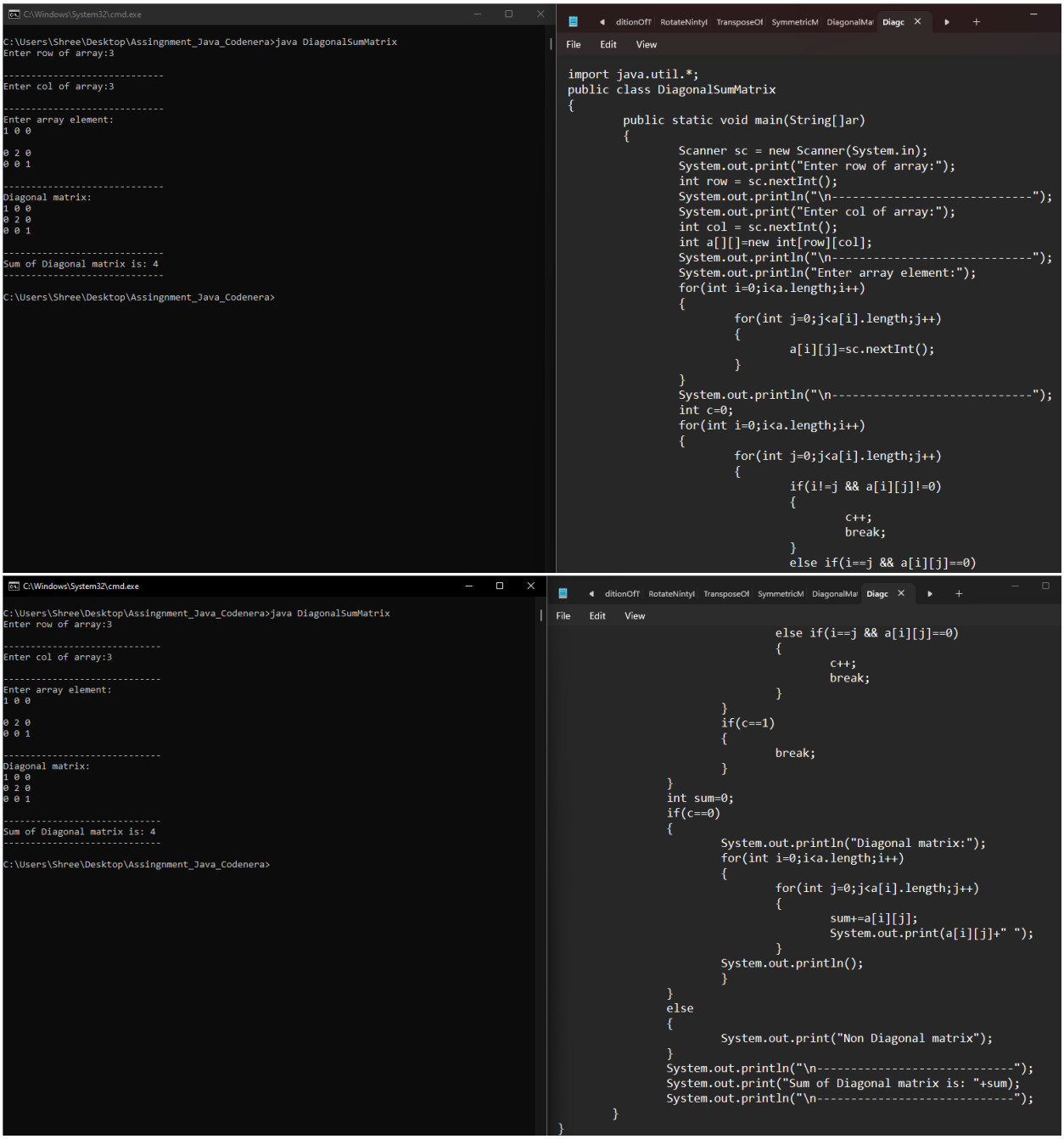








6. Write a Java program to find the sum of the diagonal elements of a matrix.



```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java DiagonalSumMatrix
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 0 0

0 2 0
0 0 1

----------------------------
Diagonal matrix:
1 0 0
0 2 0
0 0 1

----------------------------
Sum of Diagonal matrix is: 4
----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

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import java.util.*;
public class DiagonalSumMatrix
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter row of array:");
                int row = sc.nextInt();
                System.out.println("\n----------------------------");
                System.out.print("Enter col of array:");
                int col = sc.nextInt();
                int a[][]=new int[row][col];
                System.out.println("\n----------------------------");
                System.out.println("Enter array element:");
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                a[i][j]=sc.nextInt();
                        }
                }
                System.out.println("\n----------------------------");
                int c=0;
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a[i].length;j++)
                        {
                                if(i!=j && a[i][j]!=0)
                                {
                                        c++;
                                        break;
                                }
                                else if(i==j && a[i][j]==0)
```



```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java DiagonalSumMatrix
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 0 0

0 2 0
0 0 1

----------------------------
Diagonal matrix:
1 0 0
0 2 0
0 0 1

----------------------------
Sum of Diagonal matrix is: 4
----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

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                                else if(i==j && a[i][j]==0)
                                {
                                        c++;
                                        break;
                                }
                        }
                        if(c==1)
                        {
                                break;
                        }
                }
                int sum=0;
                if(c==0)
                {
                        System.out.println("Diagonal matrix:");
                        for(int i=0;i<a.length;i++)
                        {
                                for(int j=0;j<a[i].length;j++)
                                {
                                        sum+=a[i][j];
                                        System.out.print(a[i][j]+" ");
                                }
                        System.out.println();
                        }
                }
                else
                {
                        System.out.print("Non Diagonal matrix");
                }
                System.out.println("\n----------------------------");
                System.out.print("Sum of Diagonal matrix is: "+sum);
                System.out.println("\n----------------------------");
        }
}
```
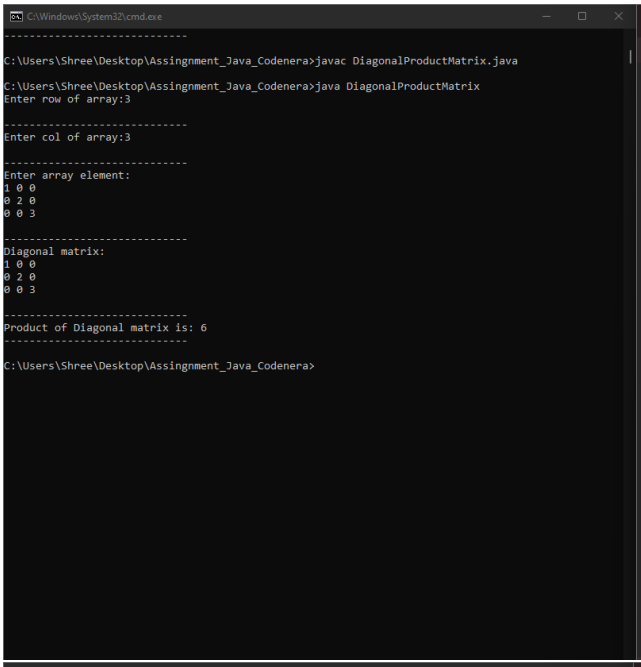

7. Write a Java program to find the product of diagonal elements of a matrix.



```
C:\Windows\System32\cmd.exe
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C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac DiagonalProductMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java DiagonalProductMatrix
Enter row of array:3

------------------------------
Enter col of array:3

------------------------------
Enter array element:
1 0 0
0 2 0
0 0 3

------------------------------
Diagonal matrix:
1 0 0
0 2 0
0 0 3

------------------------------
Product of Diagonal matrix is: 6
------------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

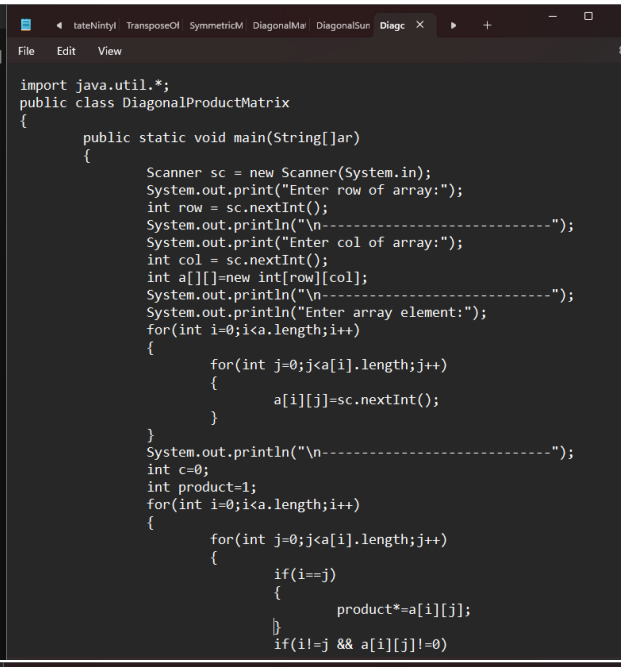

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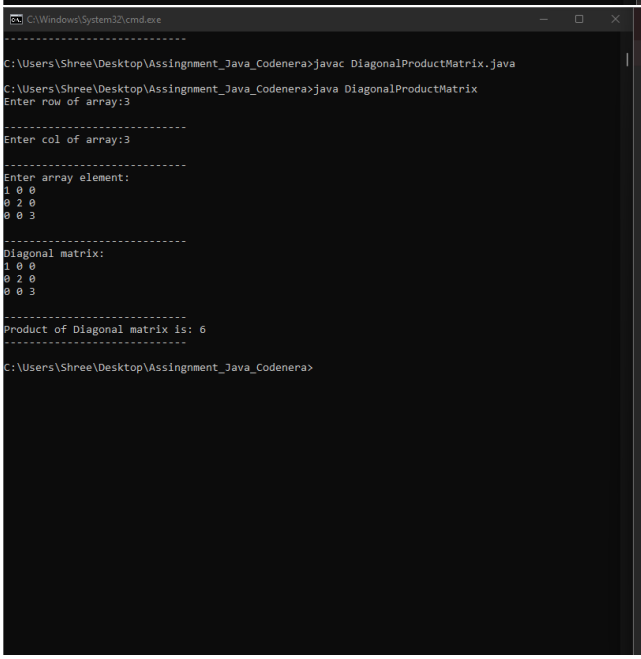
File  Edit  View

import java.util.*;
public class DiagonalProductMatrix
{
	public static void main(String[]ar)
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter row of array:");
		int row = sc.nextInt();
		System.out.println("\n------------------------------");
		System.out.print("Enter col of array:");
		int col = sc.nextInt();
		int a[][]=new int[row][col];
		System.out.println("\n------------------------------");
		System.out.println("Enter array element:");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n------------------------------");
		int c=0;
		int product=1;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				if(i==j)
				{
					product*=a[i][j];
				}
				if(i!=j && a[i][j]!=0)
```



```
C:\Windows\System32\cmd.exe
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C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac DiagonalProductMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java DiagonalProductMatrix
Enter row of array:3

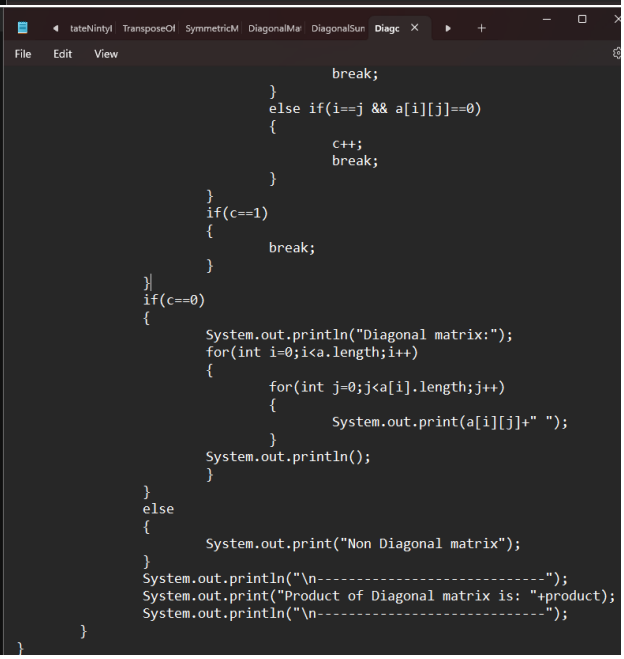
------------------------------
Enter col of array:3

------------------------------
Enter array element:
1 0 0
0 2 0
0 0 3

------------------------------
Diagonal matrix:
1 0 0
0 2 0
0 0 3

------------------------------
Product of Diagonal matrix is: 6
------------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```



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tateNintyI  TransposeOf  SymmetricM  DiagonalMa  DiagonalSun  Diagc
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					break;
				}
				else if(i==j && a[i][j]==0)
				{
					c++;
					break;
				}
			}
			if(c==1)
			{
				break;
			}
		}
		if(c==0)
		{
			System.out.println("Diagonal matrix:");
			for(int i=0;i<a.length;i++)
			{
				for(int j=0;j<a[i].length;j++)
				{
					System.out.print(a[i][j]+" ");
				}
			System.out.println();
			}
		}
		else
		{
			System.out.print("Non Diagonal matrix");
		}
		System.out.println("\n------------------------------");
		System.out.print("Product of Diagonal matrix is: "+product);
		System.out.println("\n------------------------------");
	}
}
```
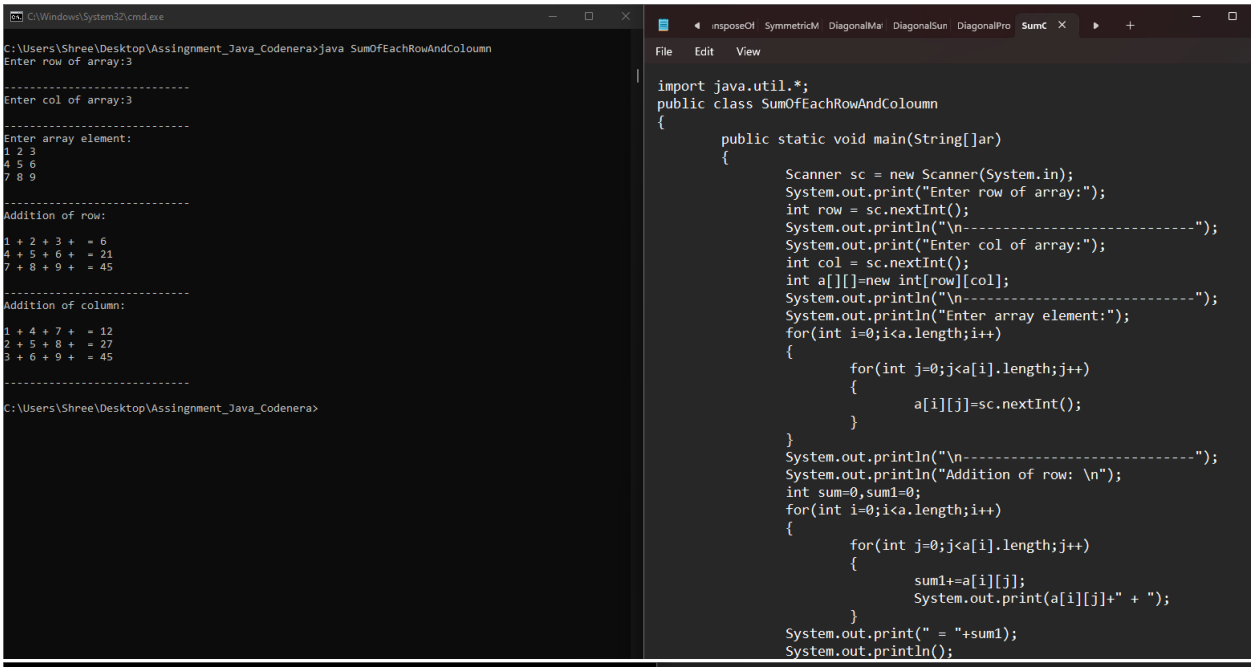
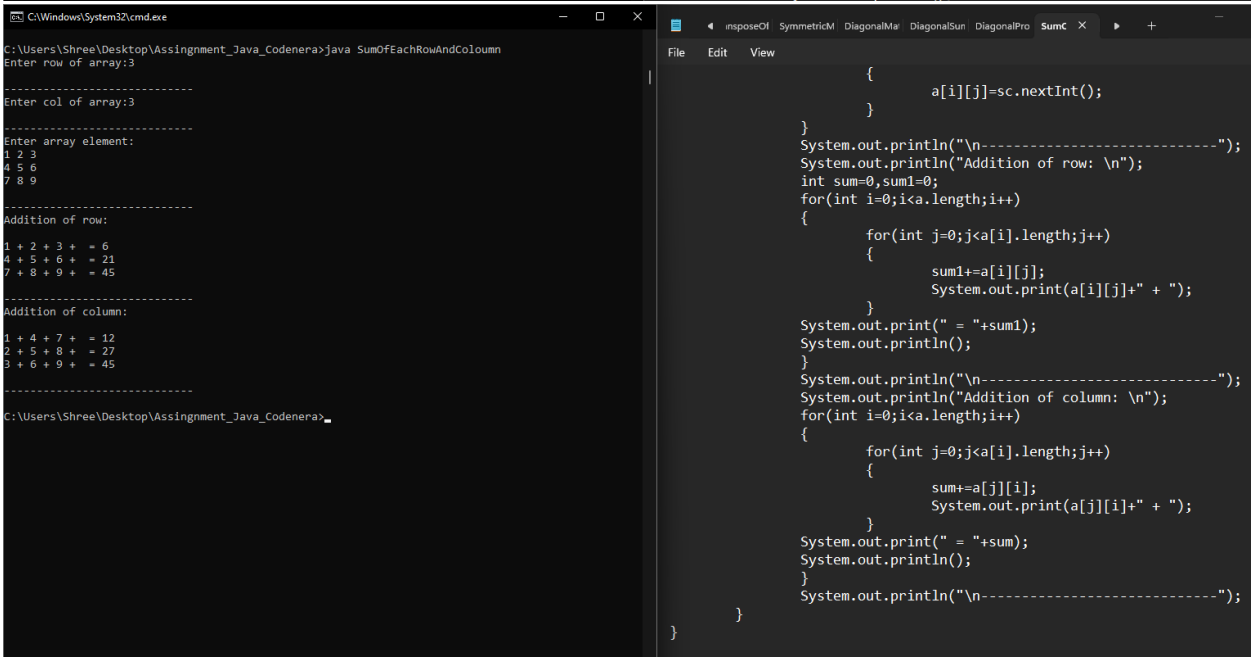

8. Write a Java program to find the sum of each row and column of a matrix.



```
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java SumOfEachRowAndColoumn
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

----------------------------
Addition of row:

1 + 2 + 3 +  = 6
4 + 5 + 6 +  = 21
7 + 8 + 9 +  = 45

----------------------------
Addition of column:

1 + 4 + 7 +  = 12
2 + 5 + 8 +  = 27
3 + 6 + 9 +  = 45

----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

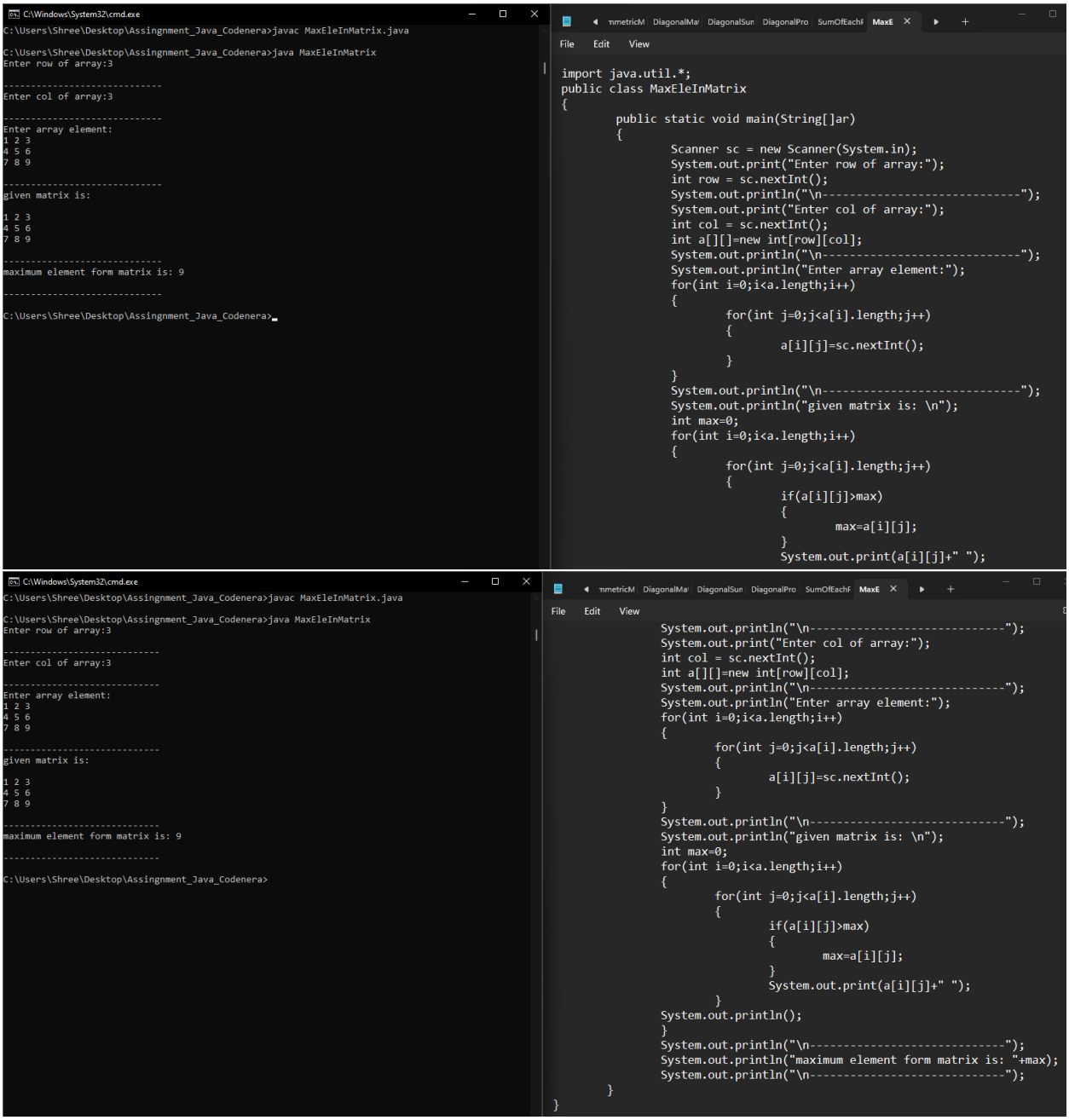
```
import java.util.*;
public class SumOfEachRowAndColoumn
{
	public static void main(String[]ar)
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter row of array:");
		int row = sc.nextInt();
		System.out.println("\n----------------------------");
		System.out.print("Enter col of array:");
		int col = sc.nextInt();
		int a[][]=new int[row][col];
		System.out.println("\n----------------------------");
		System.out.println("Enter array element:");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n----------------------------");
		System.out.println("Addition of row: \n");
		int sum=0,sum1=0;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				sum1+=a[i][j];
				System.out.print(a[i][j]+" + ");
			}
		System.out.print(" = "+sum1);
		System.out.println();
```



```
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java SumOfEachRowAndColoumn
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

----------------------------
Addition of row:

1 + 2 + 3 +  = 6
4 + 5 + 6 +  = 21
7 + 8 + 9 +  = 45

----------------------------
Addition of column:

1 + 4 + 7 +  = 12
2 + 5 + 8 +  = 27
3 + 6 + 9 +  = 45

----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

```
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n----------------------------");
		System.out.println("Addition of row: \n");
		int sum=0,sum1=0;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				sum1+=a[i][j];
				System.out.print(a[i][j]+" + ");
			}
		System.out.print(" = "+sum1);
		System.out.println();
		}
		System.out.println("\n----------------------------");
		System.out.println("Addition of column: \n");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				sum+=a[j][i];
				System.out.print(a[j][i]+" + ");
			}
		System.out.print(" = "+sum);
		System.out.println();
		}
		System.out.println("\n----------------------------");
	}
}
```

9. Write a Java program to find the maximum element in a matrix.



```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac MaxEleInMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java MaxEleInMatrix
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

----------------------------
given matrix is:

1 2 3
4 5 6
7 8 9

----------------------------
maximum element form matrix is: 9

----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

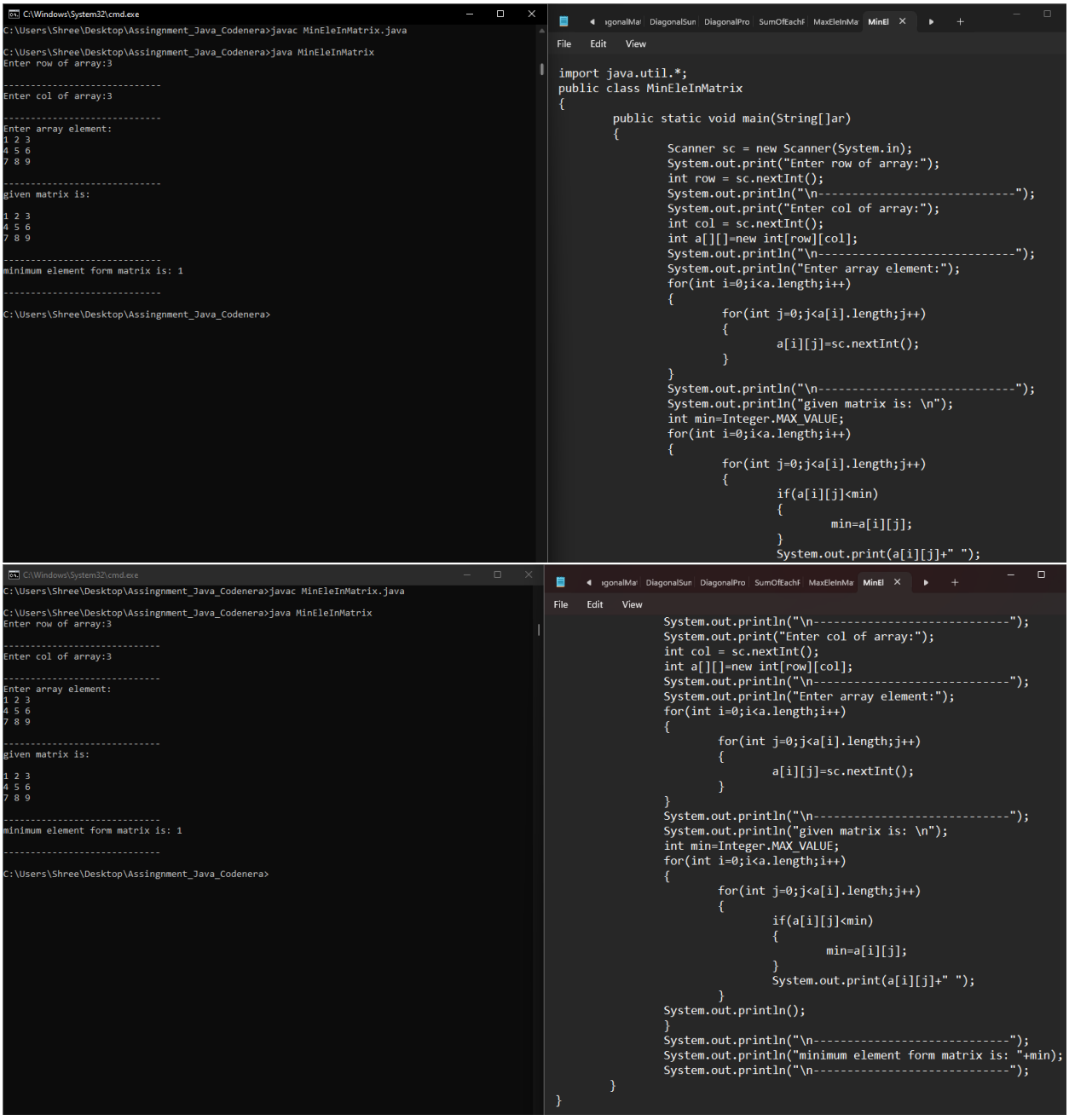
```
import java.util.*;
public class MaxEleInMatrix
{
	public static void main(String[]ar)
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter row of array:");
		int row = sc.nextInt();
		System.out.println("\n----------------------------");
		System.out.print("Enter col of array:");
		int col = sc.nextInt();
		int a[][]=new int[row][col];
		System.out.println("\n----------------------------");
		System.out.println("Enter array element:");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n----------------------------");
		System.out.println("given matrix is: \n");
		int max=0;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				if(a[i][j]>max)
				{
					max=a[i][j];
				}
				System.out.print(a[i][j]+" ");
```



```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac MaxEleInMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java MaxEleInMatrix
Enter row of array:3

----------------------------
Enter col of array:3

----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

----------------------------
given matrix is:

1 2 3
4 5 6
7 8 9

----------------------------
maximum element form matrix is: 9

----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

```
			System.out.println("\n----------------------------");
			System.out.print("Enter col of array:");
			int col = sc.nextInt();
			int a[][]=new int[row][col];
			System.out.println("\n----------------------------");
			System.out.println("Enter array element:");
			for(int i=0;i<a.length;i++)
			{
				for(int j=0;j<a[i].length;j++)
				{
					a[i][j]=sc.nextInt();
				}
			}
			System.out.println("\n----------------------------");
			System.out.println("given matrix is: \n");
			int max=0;
			for(int i=0;i<a.length;i++)
			{
				for(int j=0;j<a[i].length;j++)
				{
					if(a[i][j]>max)
					{
						max=a[i][j];
					}
					System.out.print(a[i][j]+" ");
				}
			System.out.println();
			}
			System.out.println("\n----------------------------");
			System.out.println("maximum element form matrix is: "+max);
			System.out.println("\n----------------------------");
		}
}
```

10. Write a Java program to find the minimum element in a matrix



```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac MinEleInMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java MinEleInMatrix
Enter row of array:3

-----------------------------
Enter col of array:3

-----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

-----------------------------
given matrix is:

1 2 3
4 5 6
7 8 9

-----------------------------
minimum element form matrix is: 1

-----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

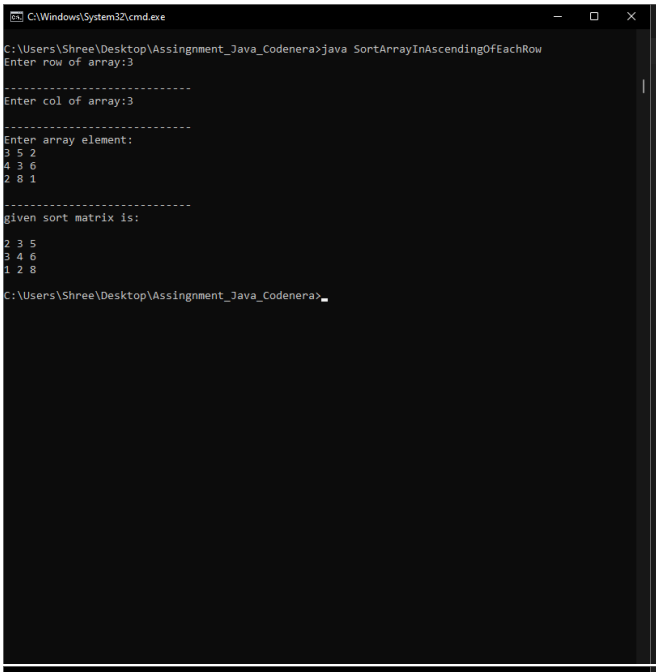
```
import java.util.*;
public class MinEleInMatrix
{
	public static void main(String[]ar)
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter row of array:");
		int row = sc.nextInt();
		System.out.println("\n-----------------------------");
		System.out.print("Enter col of array:");
		int col = sc.nextInt();
		int a[][]=new int[row][col];
		System.out.println("\n-----------------------------");
		System.out.println("Enter array element:");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n-----------------------------");
		System.out.println("given matrix is: \n");
		int min=Integer.MAX_VALUE;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				if(a[i][j]<min)
				{
					min=a[i][j];
				}
				System.out.print(a[i][j]+" ");
```

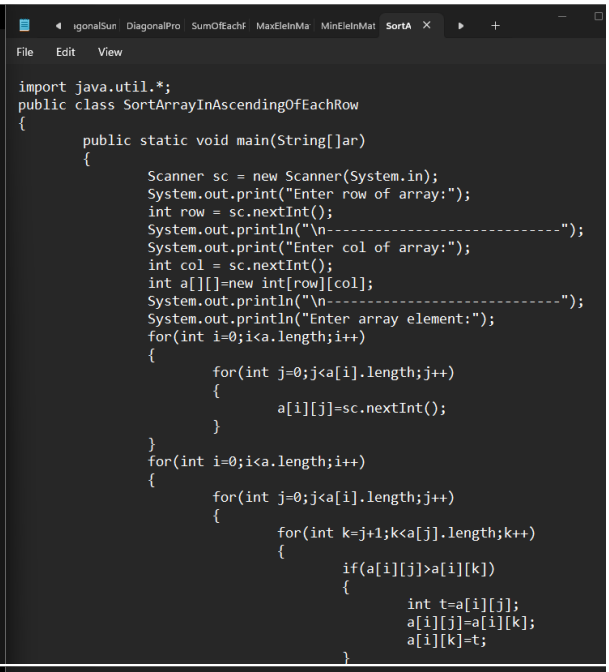

```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>javac MinEleInMatrix.java

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java MinEleInMatrix
Enter row of array:3

-----------------------------
Enter col of array:3

-----------------------------
Enter array element:
1 2 3
4 5 6
7 8 9

-----------------------------
given matrix is:

1 2 3
4 5 6
7 8 9

-----------------------------
minimum element form matrix is: 1

-----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

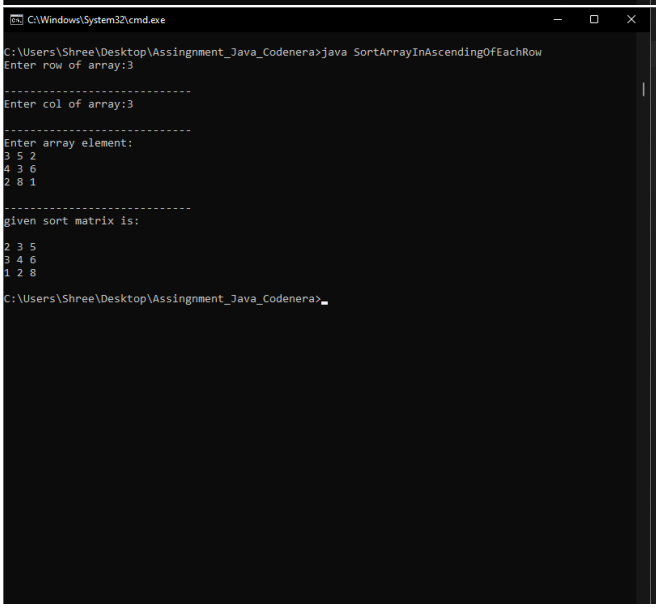


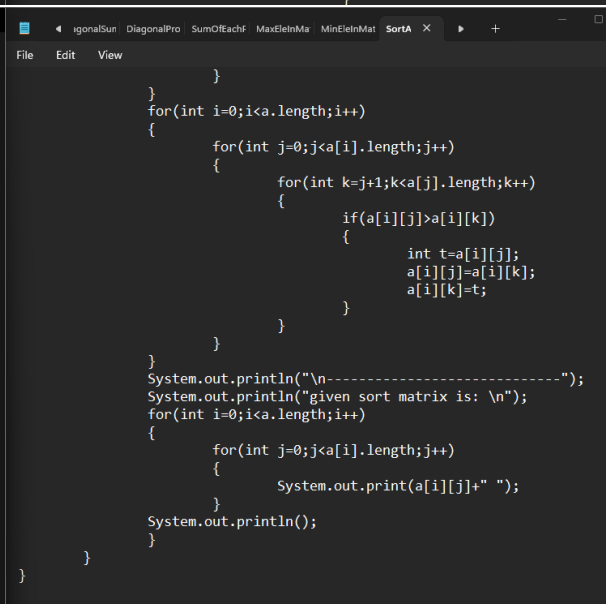
```
		System.out.println("\n-----------------------------");
		System.out.print("Enter col of array:");
		int col = sc.nextInt();
		int a[][]=new int[row][col];
		System.out.println("\n-----------------------------");
		System.out.println("Enter array element:");
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				a[i][j]=sc.nextInt();
			}
		}
		System.out.println("\n-----------------------------");
		System.out.println("given matrix is: \n");
		int min=Integer.MAX_VALUE;
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a[i].length;j++)
			{
				if(a[i][j]<min)
				{
					min=a[i][j];
				}
				System.out.print(a[i][j]+" ");
			}
		System.out.println();
		}
		System.out.println("\n-----------------------------");
		System.out.println("minimum element form matrix is: "+min);
		System.out.println("\n-----------------------------");
	}
}
```

11. Write a Java program to sort the elements of each row of a matrix.

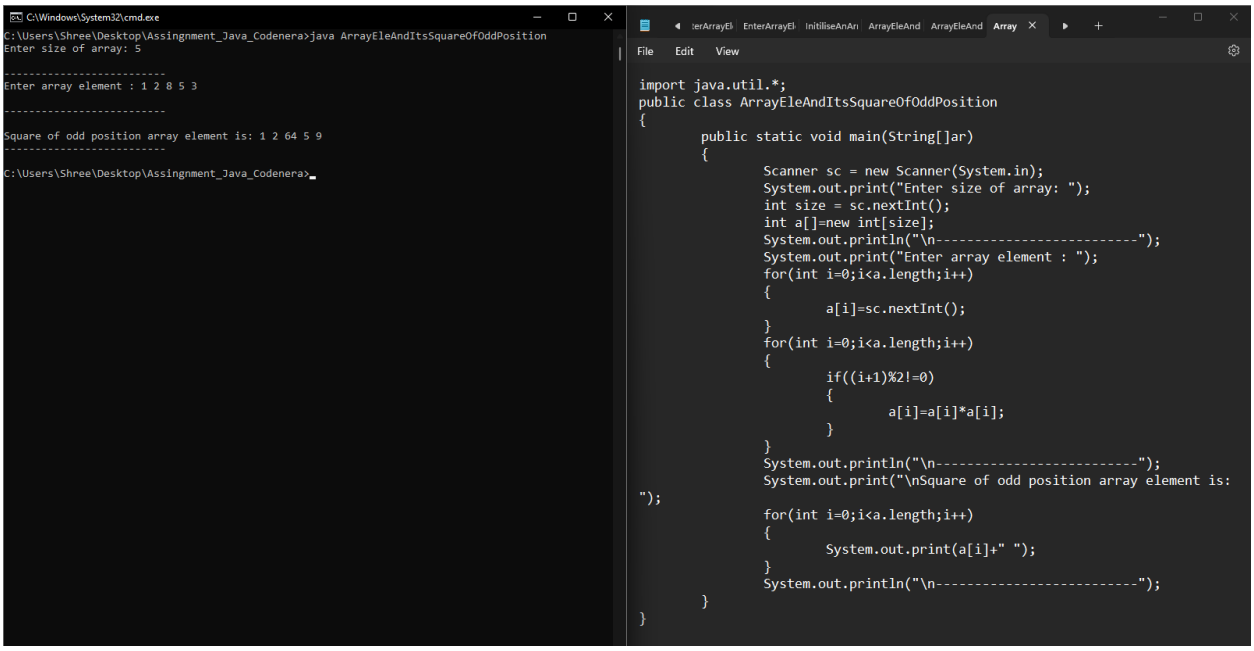








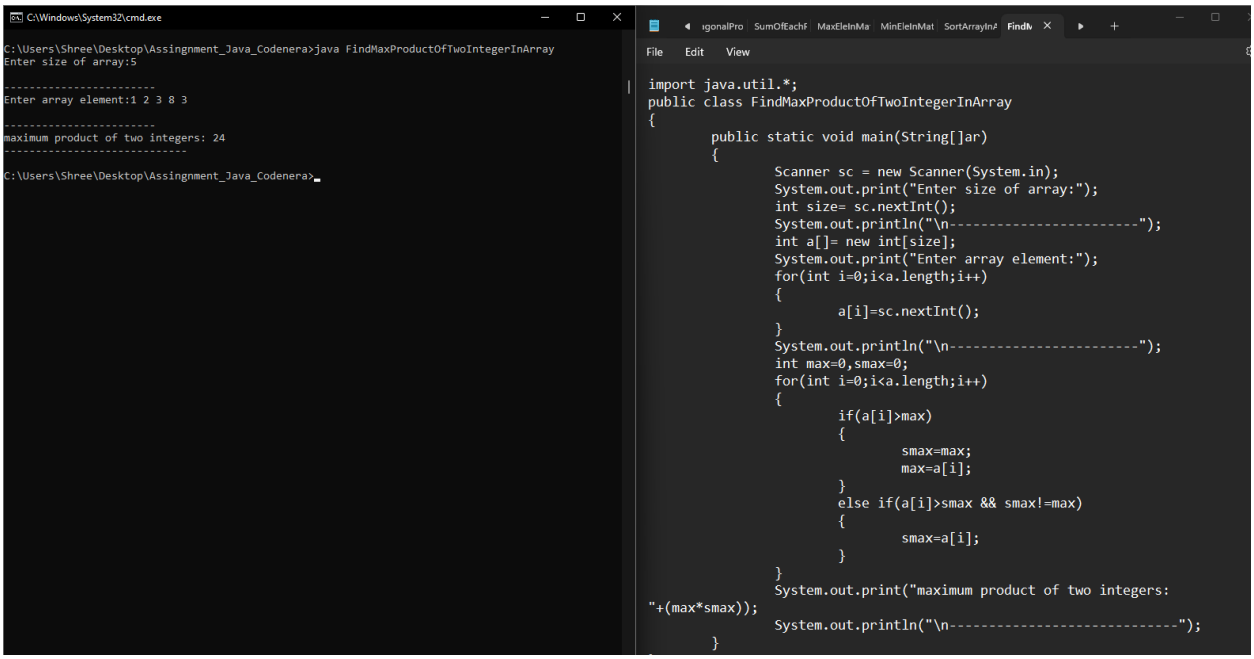
12. Write a program enter an array and print the square of the element which is present at odd position.



```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java ArrayEleAndItsSquareOfOddPosition
Enter size of array: 5

-------------------------
Enter array element : 1 2 8 5 3

-------------------------

Square of odd position array element is: 1 2 64 5 9
-------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

```
File  Edit  View

import java.util.*;
public class ArrayEleAndItsSquareOfOddPosition
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter size of array: ");
                int size = sc.nextInt();
                int a[]=new int[size];
                System.out.println("\n-------------------------");
                System.out.print("Enter array element : ");
                for(int i=0;i<a.length;i++)
                {
                        a[i]=sc.nextInt();
                }
                for(int i=0;i<a.length;i++)
                {
                        if((i+1)%2!=0)
                        {
                                a[i]=a[i]*a[i];
                        }
                }
                System.out.println("\n-------------------------");
                System.out.print("\nSquare of odd position array element is:
");
                for(int i=0;i<a.length;i++)
                {
                        System.out.print(a[i]+" ");
                }
                System.out.println("\n-------------------------");
        }
}
```

1. Write a Java program to find maximum product of two integers in a given array of integers.



```
C:\Windows\System32\cmd.exe

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>java FindMaxProductOfTwoIntegerInArray
Enter size of array:5

------------------------
Enter array element:1 2 3 8 3

------------------------
maximum product of two integers: 24
----------------------------

C:\Users\Shree\Desktop\Assingnment_Java_Codenera>
```

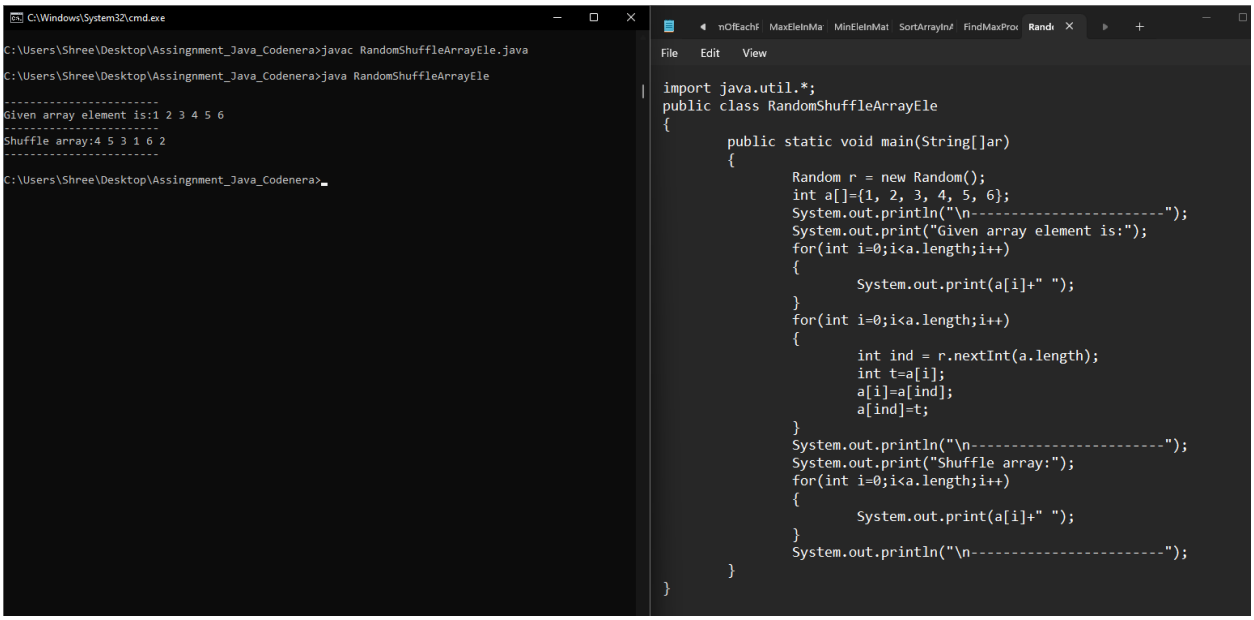
```
File  Edit  View

import java.util.*;
public class FindMaxProductOfTwoIntegerInArray
{
        public static void main(String[]ar)
        {
                Scanner sc = new Scanner(System.in);
                System.out.print("Enter size of array:");
                int size= sc.nextInt();
                System.out.println("\n------------------------");
                int a[]= new int[size];
                System.out.print("Enter array element:");
                for(int i=0;i<a.length;i++)
                {
                        a[i]=sc.nextInt();
                }
                System.out.println("\n------------------------");
                int max=0,smax=0;
                for(int i=0;i<a.length;i++)
                {
                        if(a[i]>max)
                        {
                                smax=max;
                                max=a[i];
                        }
                        else if(a[i]>smax && smax!=max)
                        {
                                smax=a[i];
                        }
                }
                System.out.print("maximum product of two integers:
"+(max*smax));
                System.out.println("\n----------------------------");
        }
```

2. Write a Java program to shuffle a given array of integers.

Example:

Input: nums = {1, 2, 3, 4, 5, 6}

Output: Shuffle Array: [4, 2, 6, 5, 1, 3]



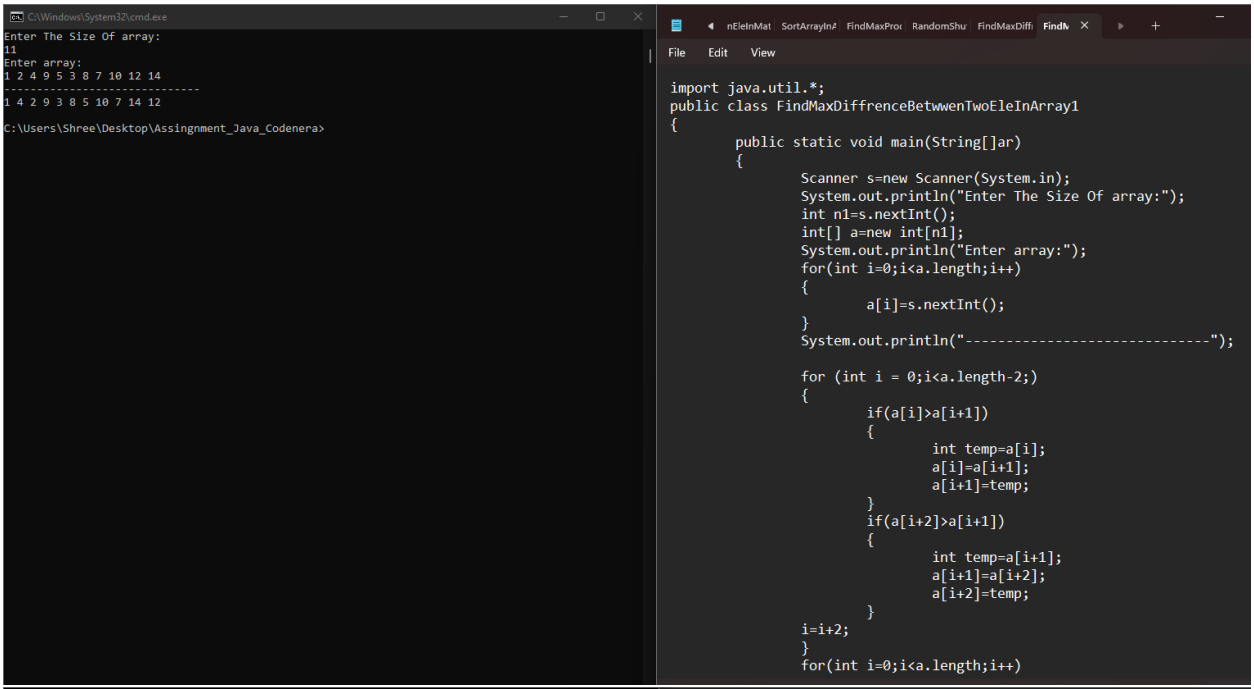
3. Write a Java program to rearrange a given array of unique elements such that every second element of the array is greater than its left and right elements.

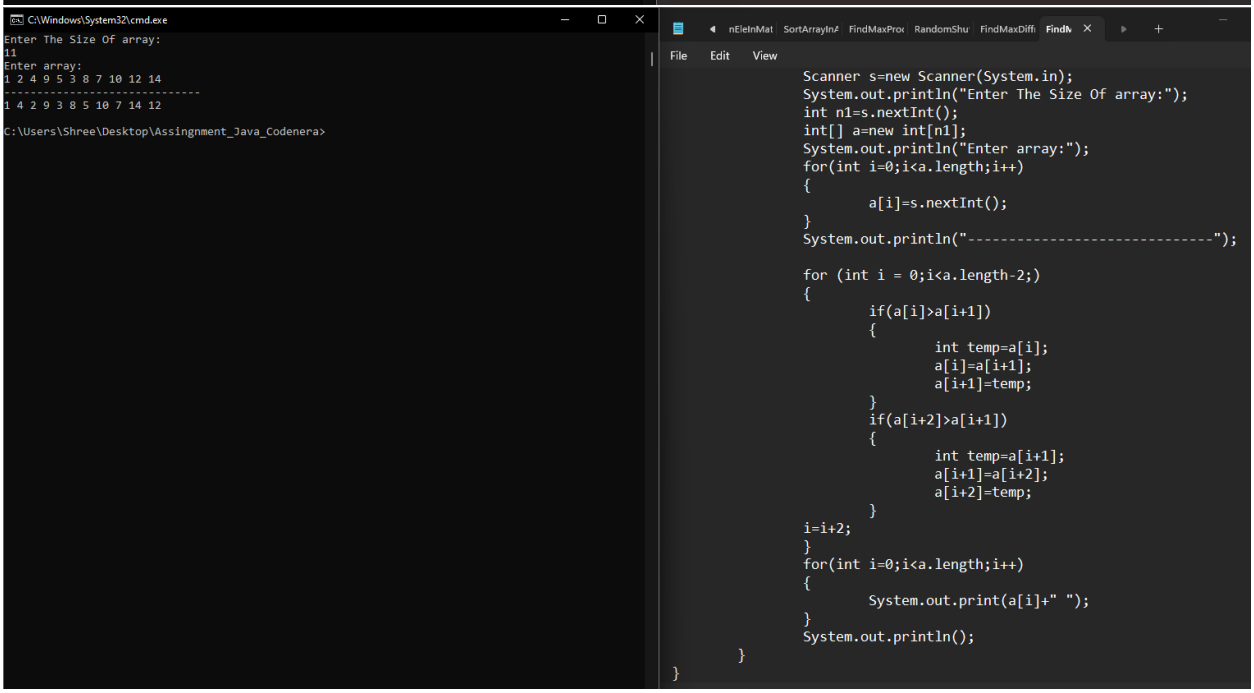
Example:

Input: nums= { 1, 2, 4, 9, 5, 3, 8, 7, 10, 12, 14 }

Output:Array with every second element is greater than its left and right elements:

[1, 4, 2, 9, 3, 8, 5, 10, 7, 14, 12]



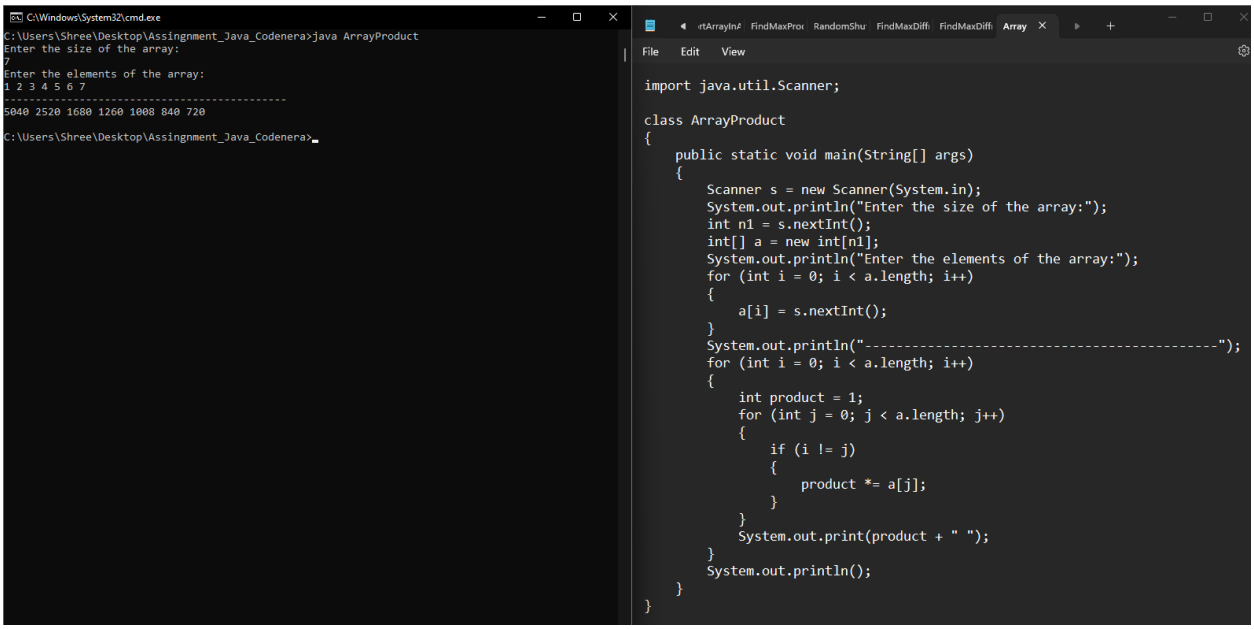


4. Write a Java program to replace each element of the array with product of every other element in a given array of integers.

Example:

Input :nums1 = { 1, 2, 3, 4, 5, 6, 7}

Output: Array with product of every other element:[5040, 2520, 1680, 1260, 1008, 840, 720]



```
C:\Windows\System32\cmd.exe
C:\Users\Shree\Desktop\Assignment_Java_Codenera>java ArrayProduct
Enter the size of the array:
7
Enter the elements of the array:
1 2 3 4 5 6 7
--------------------------------------------
5040 2520 1680 1260 1008 840 720

C:\Users\Shree\Desktop\Assignment_Java_Codenera>
```

```
File  Edit  View

import java.util.Scanner;

class ArrayProduct
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the size of the array:");
        int n1 = s.nextInt();
        int[] a = new int[n1];
        System.out.println("Enter the elements of the array:");
        for (int i = 0; i < a.length; i++)
        {
            a[i] = s.nextInt();
        }
        System.out.println("--------------------------------------------");
        for (int i = 0; i < a.length; i++)
        {
            int product = 1;
            for (int j = 0; j < a.length; j++)
            {
                if (i != j)
                {
                    product *= a[j];
                }
            }
            System.out.print(product + " ");
        }
        System.out.println();
    }
}
```

5. Write a Java program to find maximum difference between two elements in a given array of integers such that smaller element appears before larger element.

Example:

Input :

nums = { 2, 3, 1, 7, 9, 5, 11, 3, 5 }

Output:

The maximum difference between two elements of the said array elements

10