Assignment – 5

Practice Questions : 1

Q1) WAP to take first name and last name of the user and return full name with "Mr. "/ "Ms."

CODE :

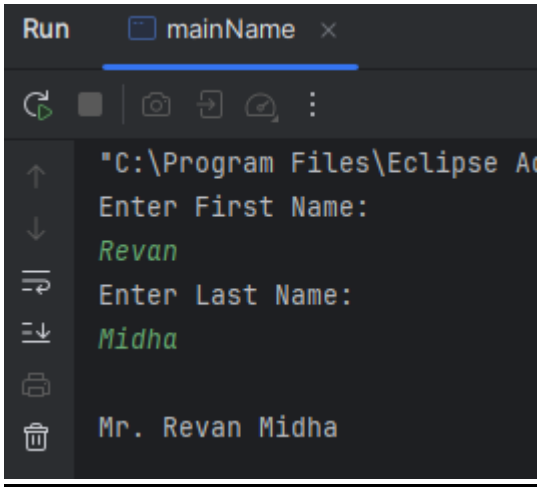
FullName.java × mainName.java

```java
package Practice3;

public class FullName {  2 usages  RevanMidha005
    void Name(String fn, String ln) {  1 usage  RevanMidha005
        System.out.println("Mr. " + fn + " " + ln);
    }
}
```

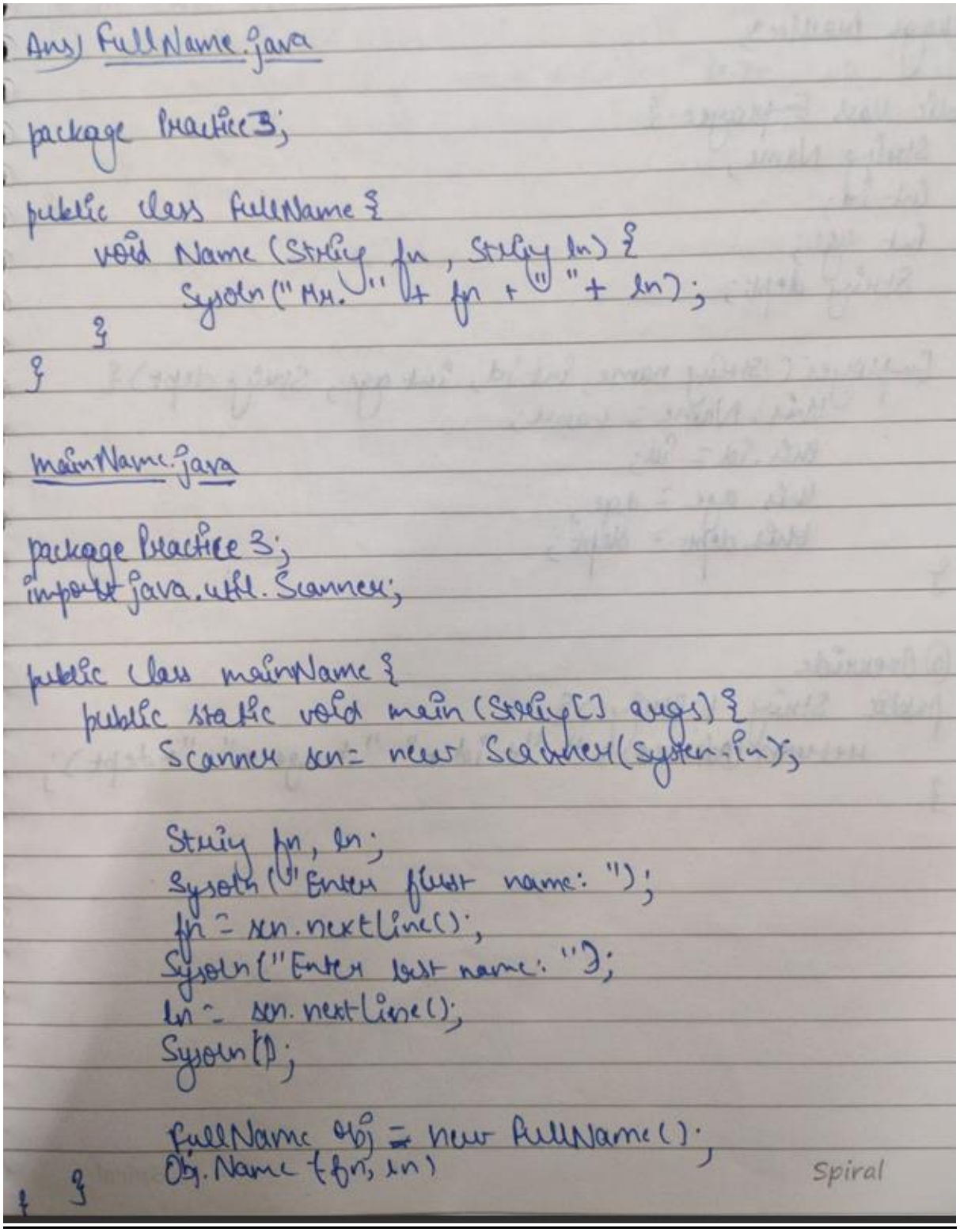
FullName.java mainName.java ×

```java
package Practice3;
import java.util.Scanner;

public class mainName {  RevanMidha005
    public static void main(String[] args) {  RevanMidha005
        Scanner scn = new Scanner(System.in);

        String fn, ln;
        System.out.println("Enter First Name: ");
        fn = scn.next();
        System.out.println("Enter Last Name: ");
        ln = scn.next();
        System.out.println();

        FullName obj = new FullName();
        obj.Name(fn, ln);
    }
}
```

OUTPUT :


Run
mainName
"C:\Program Files\Eclipse A
Enter First Name:
Revan
Enter Last Name:
Midha
Mr. Revan Midha

HANDWRITTEN :



Ans) FullName.java

```
package Practice3;

public class FullName {
    void Name (String fn, String ln) {
        System.out.println("Hi. " + fn + " " + ln);
    }
}
```

mainName.java

```
package Practice3;
import java.util.Scanner;

public class mainName {
    public static void main(String[] args) {
        Scanner sn = new Scanner(System.in);

        String fn, ln;
        System.out.println("Enter first name: ");
        fn = sn.nextLine();
        System.out.println("Enter last name: ");
        ln = sn.nextLine();
        System.out.println();

        FullName obj = new FullName();
        obj.Name(fn, ln)
    }
}
```

Spiral

Q2) Create an Employee class and in the main the main method make two objects of Employee class and display them.

CODE :

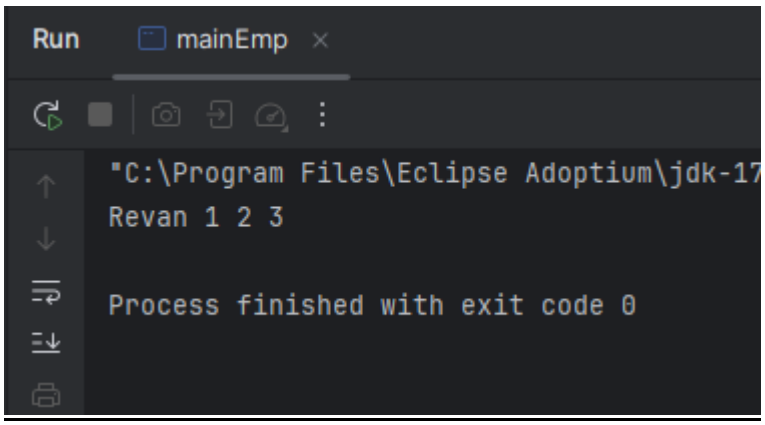
Employee.java × mainEmp.java

```java
package Practice3;

public class Employee {  new *
    String name;
    int id;
    int age;
    String dept;

    Employee(String name, int id, int age, String dept) {  new *
        this.name = name;
        this.id = id;
        this.age = age;
        this.dept = dept;
    }
    @Override  new *
    public String toString() {
        return (name + " " + id + " " + age + " " + dept);
    }
}

```

Employee.java mainEmp.java ×

```java
package Practice3;

public class mainEmp {  new *
    public static void main(String[] args) {  new *
        Employee obj = new Employee( name: "Revan",  id: 1,  age: 2,  dept: "3");
        System.out.println(obj);


    }
}

```

OUTPUT :


Run
mainEmp
"C:\Program Files\Eclipse Adoptium\jdk-17
Revan 1 2 3
Process finished with exit code 0

HANDWRITTEN :

Ans) Employee.java

```
package Practice3;

public class Employee {
    String Name;
    int id;
    int age;
    String dept;

    Employee(String name, int id, int age, String dept) {
        this.Name = name;
        this.id = id;
        this.age = age;
        this.dept = dept;
    }

    @Override
    public String toString() {
        return (Name + " " + id + " " + age + " " + dept);
    }
}
```

mainEmp.java

```
package Practice3;

public class mainEmp {
    public static void main(String[] args) {
        mainEmp emp = new mainEmp("Revan", 1, 2, "3");
        System.out.println(emp);
    }
}
```

Q3) Write a method to sort an array.

CODE :

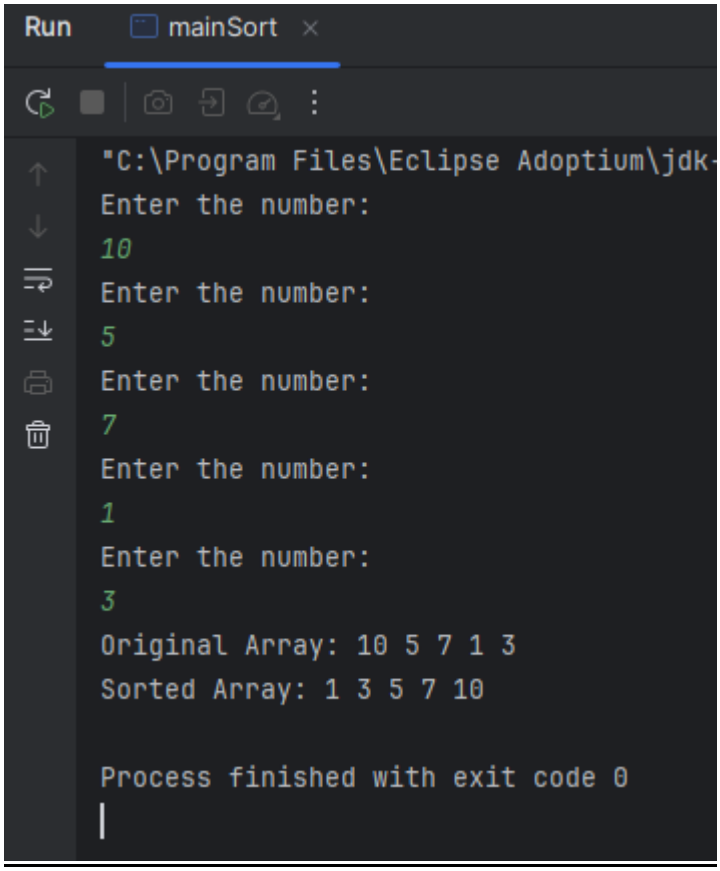
Sort.java

```java
package Practice3;

public class Sort {  2 usages  RevanMidha005
    int[] sortArr(int []arr){  1 usage  RevanMidha005
        boolean flag;

        for (int i = 0; i < arr.length; i++){
            flag = false;

            for (int j = 0; j < arr.length - i -1; j++){
                if (arr[j] > arr[j+1]){
                    int temp = arr[j];
                    arr[j] = arr[j+1];
                    arr[j+1] = temp;

                    flag = true;
                }
            }

            if (!flag){
                break;
            }
        }
        return arr;
    }
}
```

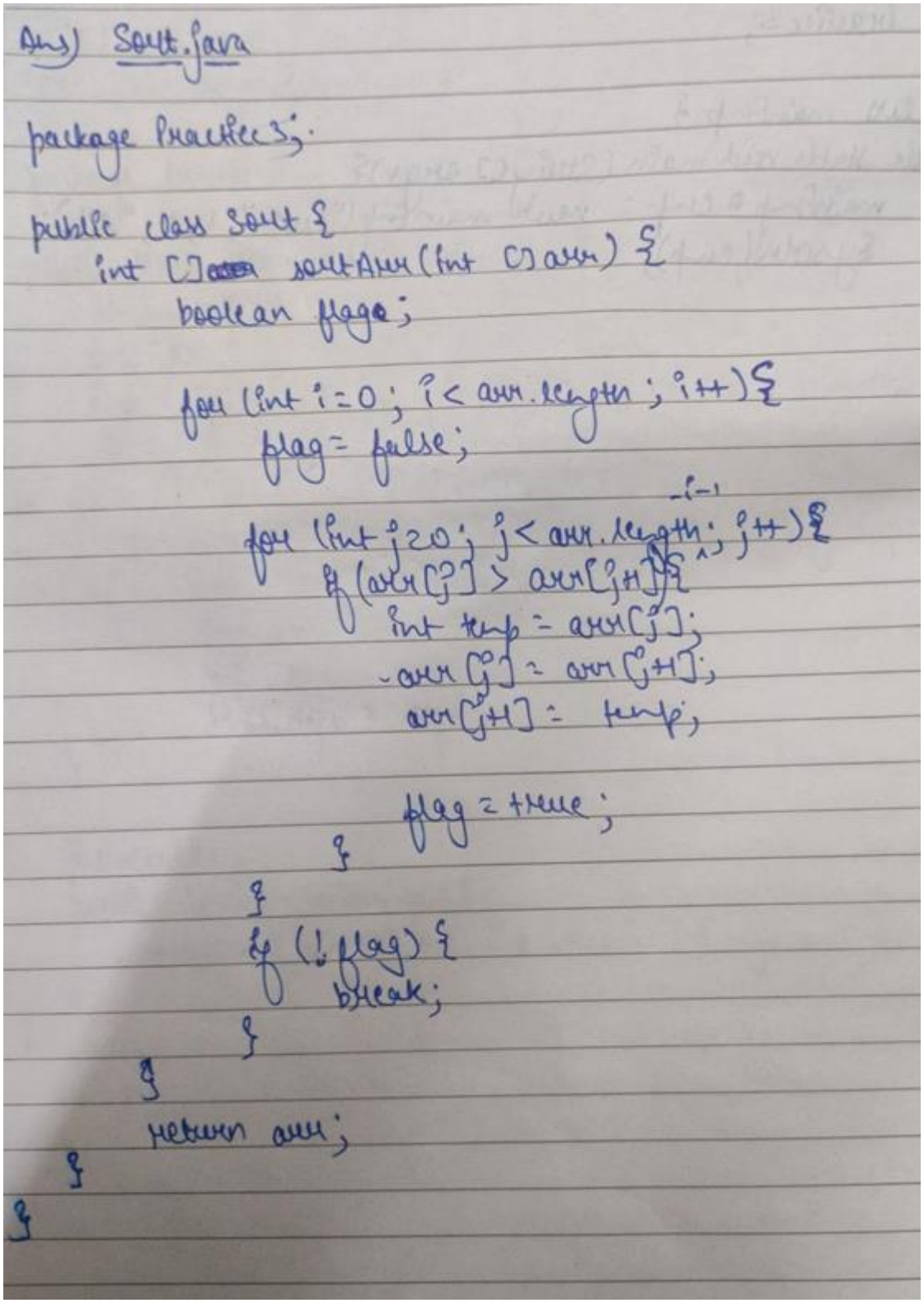
Sort.java mainSort.java

```java
public class mainSort {  RevanMidha005
    public static void main(String[] args) {  RevanMidha005
        Scanner scn = new Scanner(System.in);
        int[] arr = new int[5];

        for (int i = 0; i < 5; i++) {
            System.out.println("Enter the number: ");
            arr[i] = scn.nextInt();
        }

        System.out.print("Original Array: ");
        for (int i : arr) {
            System.out.print(i + " ");
        }
        System.out.println();

        Sort obj = new Sort();
        arr = obj.sortArr(arr);

        System.out.print("Sorted Array: ");
        for (int i:arr){
            System.out.print(i + " ");
        }
        System.out.println();
    }
}
```

OUTPUT :


Run
mainSort
"C:\Program Files\Eclipse Adoptium\jdk-
Enter the number:
10
Enter the number:
5
Enter the number:
7
Enter the number:
1
Enter the number:
3
Original Array: 10 5 7 1 3
Sorted Array: 1 3 5 7 10
Process finished with exit code 0

HANDWRITTEN :



Ans) Sort.java

```
package Practice3;

public class Sort {
    int [] sortArr(int [] arr) {
        boolean flag;

        for (int i=0; i< arr.length ; i++){
            flag= false;

            for (int j=0; j< arr.length-i-1; j++) {
                if (arr[j] > arr[j+1]){
                    int temp = arr[j];
                    arr[j] = arr[j+1];
                    arr[j+1] = temp;

                    flag = true;
                }
            }
            if (!flag) {
                break;
            }
        }
        return arr;
    }
}
```

mainSort.java

```
package Practice3;
import java.util.Scanner;

public class mainSort {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int [] arr = new int[5];

        for (int i=0; i<5; i++) {
            System.out.println("Enter number: ");
            arr[i] = scn.nextInt();
        }

        System.out.println("Original array: ");
        for (int i : arr) {
            System.out.print(i + " ");
        }
        System.out.println();

        Sort obj = new Sort();
        arr = obj.SortArr(arr);

        System.out.println("Sorted array: ");
        for (int i : arr) {
            System.out.print(i + " ");
        }
        System.out.println();
    }
}
```

Q4) Write a method to reverse an array.

CODE :

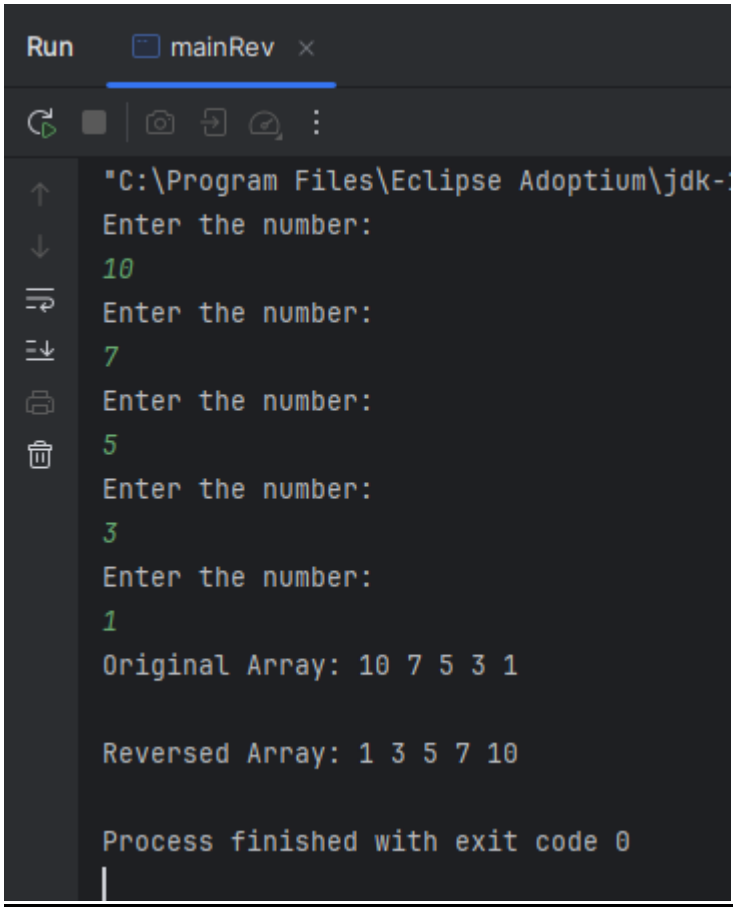
Reverse.java × mainRev.java

```
1   package Practice3;
2
3   public class Reverse {  2 usages  RevanMidha005
4       int[] RevArr(int []arr){  1 usage  RevanMidha005
5           System.out.println();
6           int x, temp;
7
8           for (int i = arr.length - 1; i >= arr.length/2; i--){
9               temp = arr[i];
10              x = arr.length - i - 1;
11              arr[i] = arr[x];
12              arr[x] = temp;
13          }
14          return arr;
15      }
16  }
```

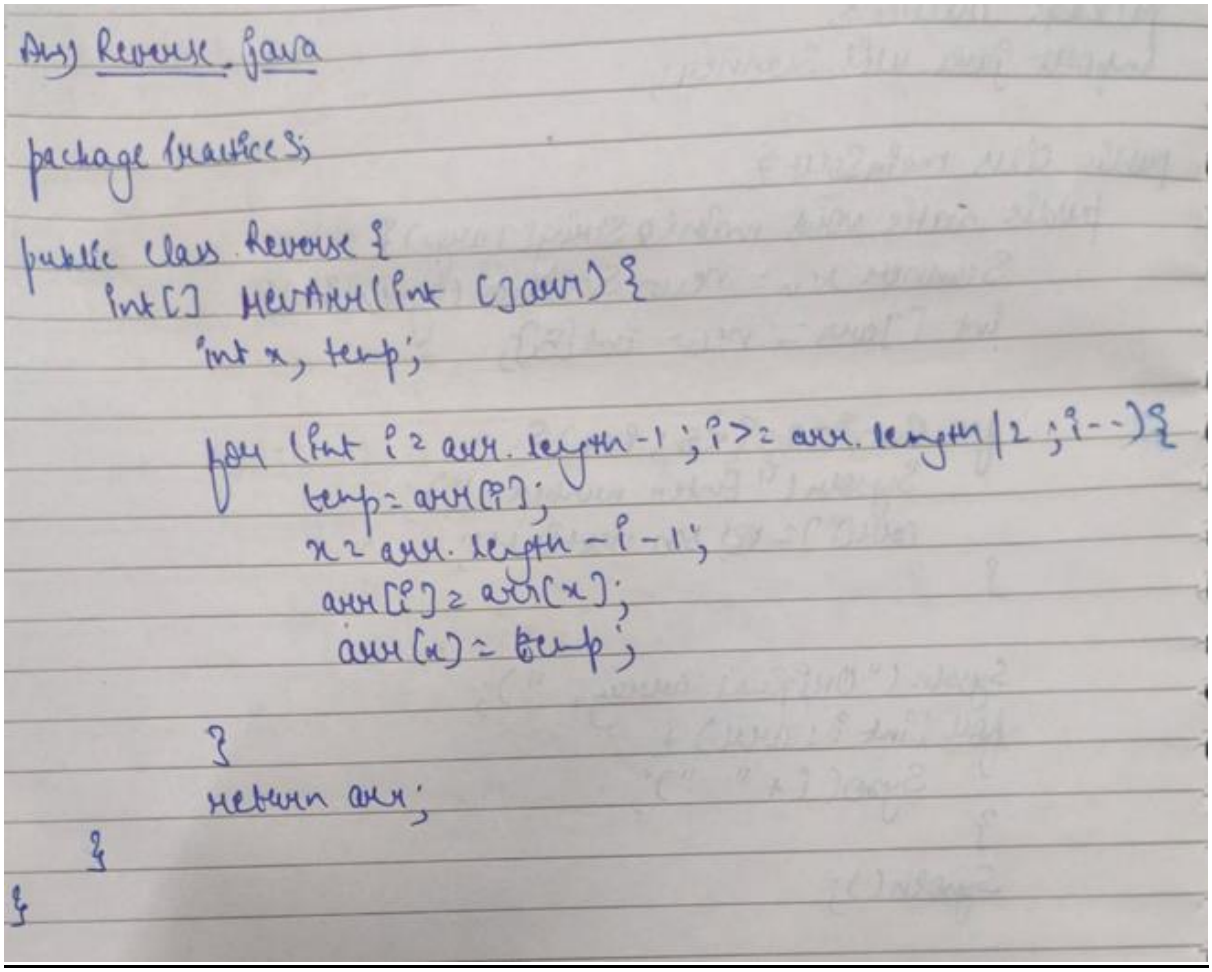
Reverse.java mainRev.java

```java
package Practice3;
import java.util.Scanner;

public class mainRev {  RevanMidha005
    public static void main(String[] args) {  RevanMidha005
        Scanner scn = new Scanner(System.in);
        int[] arr = new int[5];

        for (int i = 0; i < 5; i++) {
            System.out.println("Enter the number: ");
            arr[i] = scn.nextInt();
        }

        System.out.print("Original Array: ");
        for (int i : arr) {
            System.out.print(i + " ");
        }
        System.out.println();

        Reverse obj = new Reverse();
        arr = obj.RevArr(arr);

        System.out.print("Reversed Array: ");
        for (int i:arr){
            System.out.print(i + " ");
        }
        System.out.println();
    }
}
```

OUTPUT:


Run
mainRev
"C:\Program Files\Eclipse Adoptium\jdk-
Enter the number:
10
Enter the number:
7
Enter the number:
5
Enter the number:
3
Enter the number:
1
Original Array: 10 7 5 3 1
Reversed Array: 1 3 5 7 10
Process finished with exit code 0

HANDWRITTEN :



Ans) Reverse.java

```
package Practice3;

public class Reverse {
    int[] RevArr(int []arr) {
        int x, temp;

        for (int i = arr.length-1 ; i >= arr.length/2 ; i--){
            temp = arr[i];
            x = arr.length - i - 1;
            arr[i] = arr[x];
            arr[x] = temp;

        }
        return arr;
    }
}
```

main Rev java

```
package Practice3;
import java.util.Scanner;

public class mainRev {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int[] arr = new int[5];

        for(int i=0 ; i<5; i++){
            System.out("Enter number: ");
            arr[i] = sc.nextInt();
        }

        Sys0("Original Array: ");
        for(int i: arr) {
            Sys0(i+" ");
        }
        Sysoln();

        Reverse obj = new Reverse();
        arr = obj.revArr(arr);

        Sys0("Reversed Array: ");
        for(int i: arr){
            Sys0(i+" ");
        }
        Sysoln();
    }
}
```

Q5) Write a method to take input in two matrix from user and display the sum of matrix

CODE :

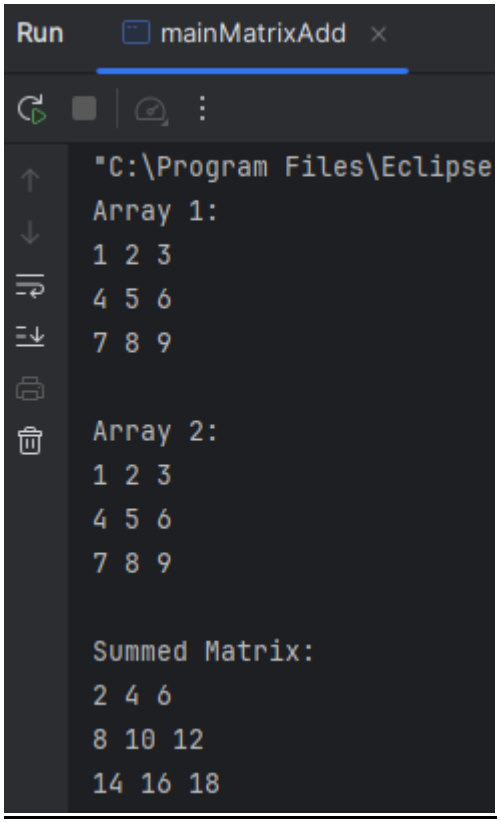
MatrixAdd.java × mainMatrixAdd.java

```java
package Practice3;

public class MatrixAdd {  2 usages  RevanMidha005
    int[][] MatAdd(int[][] arr1, int[][] arr2) {  1 usage  RevanMidha005
        int[][] sumarr = new int[3][3];

        for (int i = 0; i < 3; i++) {
            for (int j = 0; j < 3; j++) {
                sumarr[i][j] = arr1[i][j] + arr2[i][j];
            }
        }
        return sumarr;
    }
}
```

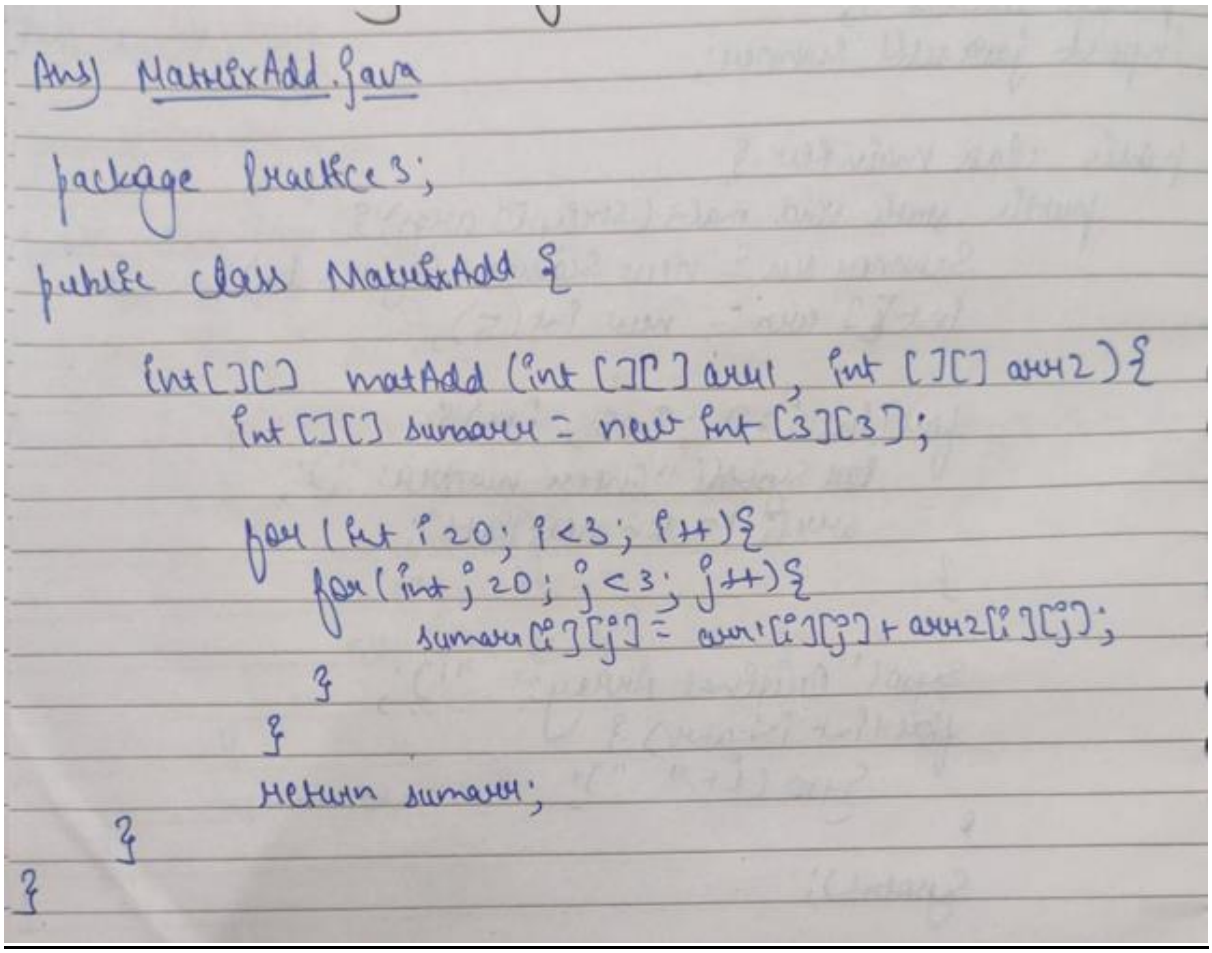
```java
package Practice3;

public class mainMatrixAdd {  RevanMidha005
    public static void main(String[] args) {  RevanMidha005

        /*
        int [][]arr1 = new int[3][3];
        int [][]arr2 = new int[3][3];
        int n;

        for (int i = 0; i < 3; i++){
            for (int j = 0; j < 3; j++){
                n = scn.nextInt();
                arr1[i][j] = n;
            }
        }

        for (int i = 0; i < 3; i++){
            for (int j = 0; j < 3; j++){
                n = scn.nextInt();
                arr2[i][j] = n;
            }
        }
        */

        int[][] arr1 = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
        int[][] arr2 = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};

        System.out.println("Array 1: ");
        for (int[] i : arr1) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        System.out.println();

        System.out.println("Array 2: ");
```

```
        for (int[] i : arr2) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        System.out.println();

        int sumarr[][] = new int[3][3];
        MatrixAdd obj = new MatrixAdd();
        sumarr = obj.MatAdd(arr1, arr2);

        System.out.println("Summed Matrix: ");
        for (int[] i : sumarr) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT :


Run
mainMatrixAdd
"C:\Program Files\Eclipse
Array 1:
1 2 3
4 5 6
7 8 9
Array 2:
1 2 3
4 5 6
7 8 9
Summed Matrix:
2 4 6
8 10 12
14 16 18

HANDWRITTEN :



Ans) MatrixAdd.java

```
package Practice3;

public class MatrixAdd {

    int[][] matAdd (int [][] arr1, int [][] arr2) {
        int [][] sumarr = new int [3][3];

        for (int i=0; i<3; i++){
            for (int j=0; j<3; j++){
                sumarr[i][j] = arr1[i][j] + arr2[i][j];
            }
        }
        return sumarr;
    }
}
```

mainMatrixMult

```
package Practice3;

public class mainMatrixAdd {
    public static void main (String[] args) {
        int [][]arr1 = new int [3][3];
        int [][]arr2 = new int [3][3];
        int n;
        System.out.println("Enter elements of arr 1: ");
        for (int i=0; i<3; i++){
            for (int j=0; j<3; j++) {
                arr[i][j] = sc.nextInt();
            }
        }
        System.out.println("Enter elements of arr 2: ");
        for (int i=0; i<3; i++){
            for (int j=0; j<3; j++){
                arr2[i][j] = sc.nextInt();
            }
        }
        System.out.println("Array 1: ");
        for (int[] i : arr1){
            for (int j: i) {
                System.out(j + " ");
            }
            System.out.println();
        }
        System.out.println();
```

```
        System.out.println("Array 2: ");
        for (int[] i: arr2){
            for (int j: i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        System.out.println();

        int [][] sumarr = new int[3][3];
        MatrixAdd obj = new MatrixAdd();

        sumarr = obj.matAdd(arr1, arr2);

        System.out.println("Summed Matrix: ");
        for (int[] i: sumarr){
            for (int j: i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
    }
}
```

Q6) Write a method to take input in two matrix from user and display the product of matrix

CODE :

MatrixMult.java × mainMatrixMult.java

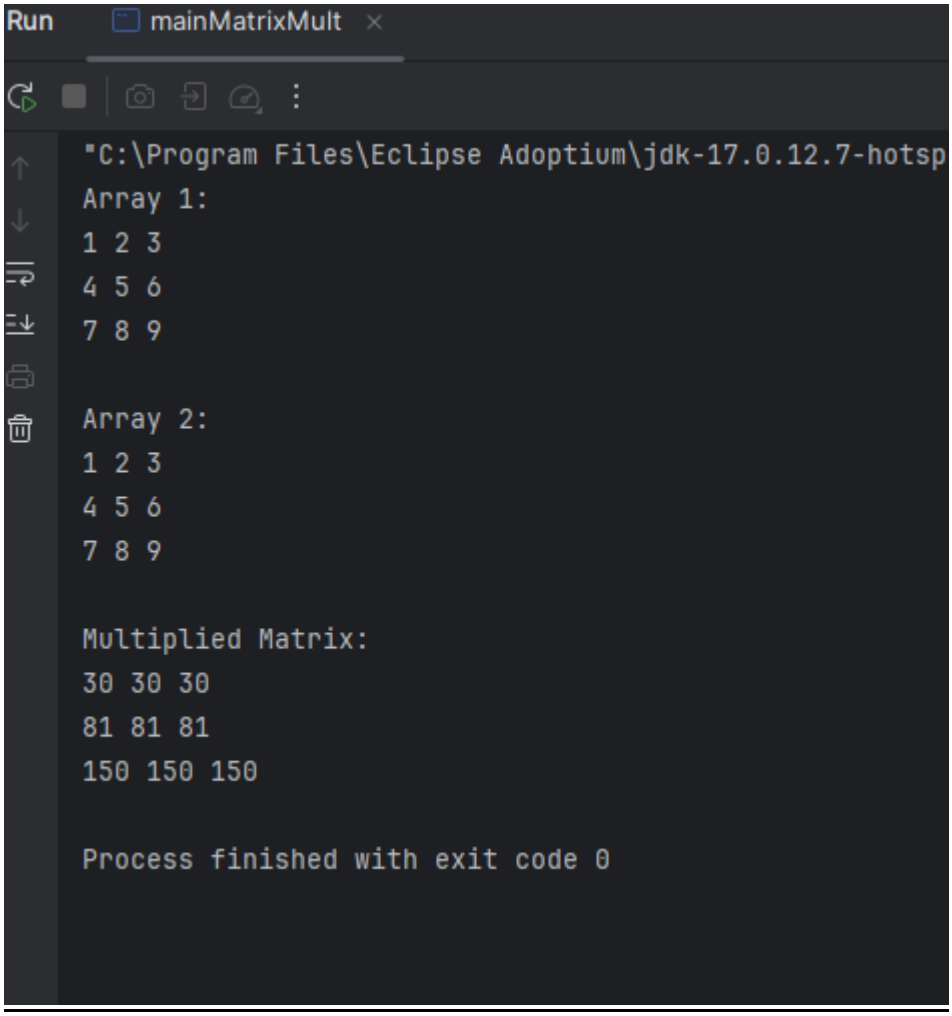
```java
package Practice3;

public class MatrixMult {
    int [][] MatMult(int [][]arr1, int [][]arr2){
        int [][]multarr = new int[3][3];

        for (int i = 0; i < 3; i++){
            for (int j = 0; j < 3; j++){
                for (int k = 0; k < 3; k++){
                    multarr[i][j] += arr1[i][k] * arr2[k][i];
                }
            }
        }
        return multarr;
    }
}
```

MatrixMult.java mainMatrixMult.java

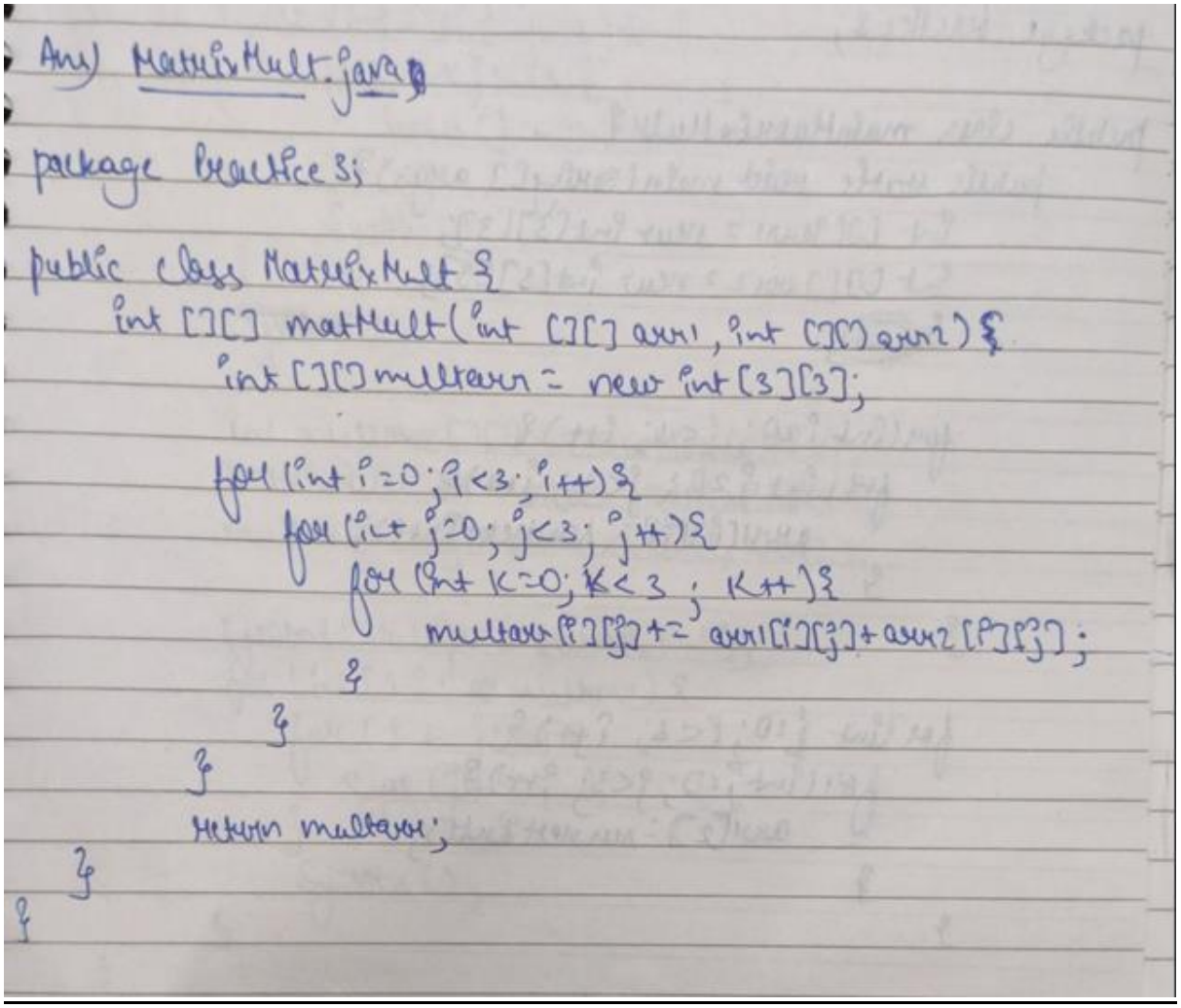
```java
package Practice3;

public class mainMatrixMult {  RevanMidha005
    public static void main(String[] args) {  RevanMidha005
        /*
        int [][]arr1 = new int[3][3];
        int [][]arr2 = new int[3][3];
        int n;

        for (int i = 0; i < 3; i++){
            for (int j = 0; j < 3; j++){
                n = scn.nextInt();
                arr1[i][j] = n;
            }
        }

        for (int i = 0; i < 3; i++){
            for (int j = 0; j < 3; j++){
                n = scn.nextInt();
                arr2[i][j] = n;
            }
        }
        */

        int[][] arr1 = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
        int[][] arr2 = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};

        System.out.println("Array 1: ");
        for (int[] i : arr1) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
```

```
        System.out.println("Array 1: ");
        for (int[] i : arr1) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        System.out.println();

        System.out.println("Array 2: ");
        for (int[] i : arr2) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
        System.out.println();

        int multarr[][] = new int[3][3];
        MatrixMult obj = new MatrixMult();
        multarr = obj.MatMult(arr1, arr2);

        System.out.println("Multiplied Matrix: ");
        for (int[] i : multarr) {
            for (int j : i) {
                System.out.print(j + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT :


Run
mainMatrixMult
"C:\Program Files\Eclipse Adoptium\jdk-17.0.12.7-hotsp
Array 1:
1 2 3
4 5 6
7 8 9
Array 2:
1 2 3
4 5 6
7 8 9
Multiplied Matrix:
30 30 30
81 81 81
150 150 150
Process finished with exit code 0

HANDWRITTEN :



Ans) MatrixMult.java

```
package Practice3;

public class MatrixMult {
    int [][] matMult(int [][] arr1, int [][] arr2) {
        int [][] multarr = new int [3][3];

        for (int i=0; i<3; i++) {
            for (int j=0; j<3; j++) {
                for (int k=0; k<3; k++) {
                    multarr[i][j] += arr1[i][j] + arr2[i][j];
                }
            }
        }
        return multarr;
    }
}
```

mainMatrixMult.java:

```
package practice3;

public class mainMatrixMult {
    public static void main(String[] args) {
        int [][]arr1 = new int[3][3];
        int [][]arr2 = new int[3][3];
        int i;

        for(int i=0; i<3; i++) {
            for(int j=0; j<3; j++) {
                arr1[i][j]= scn.nextInt();
            }
        }

        for(int i=0; i<3; i++) {
            for(int j=0; j<3; j++) {
                arr[2]= scn.nextInt();
            }
        }

        System.out("Array 1: ");
        for(int []i: arr1) {
            for(int j: i) {
                Sys0(j+" ");
            }
            Sys0ln();
        }
        Sys0ln();
```

```
System.out.println("Array 2: ");
for (int[] i : arr2) {
    for(int j : i) {
        System.out.print(j + " ");
    }
    System.out.println();
}
System.out.println();

int multarr[][] = new int[3][3];
MatrixMult obj = new MatrixMult();
multarr = obj.matMult(arr1, arr2);

System.out.println("Multiplied Matrix: ");
for (int[] i : multarr) {
    for (int j : i) {
        System.out.print(j + " ");
    }
    System.out.println();
}
}
```