PSG COLLEGE OF TECHNOLOGY, COIMBATORE
DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES
15XT56 – JAVA PROGRAMMING LAB
PROBLEM SHEET I - ARRAYS

1. Write a Java program to perform linear search in the following array
```
     int a[] = {23, 45, 86, 77, 9, 54, 13, 36, 61, 98}
```
The element to be searched `int x = 54`

2. Write a Java program to perform binary search in the following array
```
     int a[] = {3, 15, 26, 37, 49, 55, 63, 76, 81, 93}
```
 The element to be searched `int x = 76.` Also display the number of comparisons needed to search this element.

3. Write a Java program to perform selection sort in the following array
```
     int a[] = {46, 89, 97, 4, 62, 13, 71, 58, 25, 30}
```

4. Write a Java program to perform merge sort in the following array
```
     int a[] = {96, 19, 27, 54, 82, 73, 61, 38, 45, 5}
```

5. Write a Java program to perform quick sort in the following array
```
     int a[] = {29, 81, 92, 45, 18, 37, 6, 53, 64, 70}
```

6. Write a Java program to perform linear search in the following two dimensional array
```
     int a[][] = {{33, 25, 16, 7},
                  {8, 64},
                  {53, 96, 81, 78},
                  {83, 15}}
```
The element to be searched `int x = 96`

7. Write a Java program to perform addition of two matrixes
```
     int a[][] = {{33, 25, 16, 7},
                  {8, 64, 23, 47},
                  {53, 96, 81, 78},
                  {83, 15, 100, 105}}
     int b[][] = {{3, 2, 1, 0},
                  {0, 6, 2, 4},
                  {5, 9, 8, 7},
                  {8, 1, 1, 1}}
```

8. Write a Java program to perform multiplication of two matrixes

```
int a[][] = {{3, 5, 6, 7},
             {8, 4, 3, 7},
             {3, 6, 1, 8},
             {3, 5, 0, 5}}
int b[][] = {{32, 23, 14, 50},
             {80, 76, 62, 54},
             {95, 89, 78, 67},
             {48, 31, 21, 11}}
```

9. Write a Java program to perform multiplication of two matrixes where first matrix has m rows, n columns and second matrix has n rows and p columns.