Lab Assignment-I

1) Develop a Menu driven program to demonstrate the following operations of Arrays

——MENU——-
1.CREATE
2.DISPLAY
3.INSERT
4.DELETE
5.SEARCH
6.EXIT

2) Design the logic to remove the duplicate elements from an Array and after the deletion the array should contain the unique elements.

3) Predict the Output of the following program

```
 int main()
{
  int i;
  int arr[5] = {1};
  for (i = 0; i < 5; i++)
     printf("%d ", arr[i]);
  return 0;
}
```

4) Implement the logic to

i Reverse the elements of an array
ii Find the matrix multiplication
iii Find the Transpose of a Matrix

5) Implement the Binary search algorithm regarded as a fast search algorithm with run-time complexity of O(log n) in comparison to the Linear Search.

6) Bubble Sort is the simplest sorting algorithm that works by repeatedly swapping the adjacent elements if they are in wrong order. Code the Bubble sort with the following elements:

64	34	25	12	22	11	90

7) Design the Logic to Find a Missing Number in a Sorted Array.

Assignment 1_A

1. Space required to store any two-dimensional array is $number\ of\ rows \times number\ of\ columns$. Assuming array is used to store elements of the following matrices, implement an efficient way that reduces the space requirement.
   (a) Diagonal Matrix.
   (b) Tri-diagonal Matrix.
   (c) Lower triangular Matrix.
   (d) Upper triangular Matrix.
   (e) Symmetric Matrix
2. Write a program to implement the following operations on a Sparse Matrix, assuming the matrix is represented using a triplet.
   (a) Transpose of a matrix.
   (b) Addition of two matrices.
   (c) Multiplication of two matrices.
3. Write a program to find sum of every row and every column in a two-dimensional array.
4. Write a program to find a saddle point in a two-dimensional array. A saddle point in a numerical array is a number that is larger than or equal to every number in its column, and smaller than or equal to every number in its row.
5. https://www.interviewbit.com/problems/spiral-order-matrix-i/
6. https://www.interviewbit.com/problems/spiral-order-matrix-ii/