**Reg. No: 21BCE1297 Name: Vidhi Shah Date: 10/03/22**

**PPS6**

**Q1**

**Aim:**

Write a ‘C’ program to sort the array of n elements using Selection sort. Get the user input for ‘n’.

**Procedure:**

**Input:**

Number of elements, n

Next n lines contain n numbers

**Output:**

Sorted Array

**Algorithm:**

Step 1: Read n

Step 2: Initialise array of size n

Step 3: Use for loop to read elements in the array

Step 4: Selection Sort Algorithm:

Step A: Iterate through n-1 elements using counter i

Step B: For each iteration set min to ith element of the array

Step C: Check if current element is greater than subsequent elements

If yes, set min to the subsequent element and store the index of that element

Step D: If min is less than initial element, swap the elements

Step 5: Display sorted Array

**Code:**

**Q2**

**Aim:**

Write a ‘C’ program to eliminate the duplicate elements from an array of n elements. Get the user input for ‘n’.

**Procedure:**

**Input:**

Number of elements, n

Next n lines contain n numbers

**Output:**

Array with no duplicate elements

**Algorithm:**

Step 1: Read n

Step 2: Initialise original array (arr) and new array (arr1) of size n

Step 3: Use for loop to read elements in the arr

Step 4: Elimination of duplicate elements algorithm:

Step A: Assign first element of arr as first element of arr1, set k to 1

Step B: Iterate through n elements of arr

Step C: For each iteration set add to 1

Step D: Check if current element of arr is equal to any element of arr1

If yes, set add to 0

Step E: If add is 1, add the current element of arr to arr 1 at kth position, k = k + 1

Step 5: Display new array with no duplicate elements

**Code:**

**Q3**

**Aim:**

Write a ‘C’ program perform matrix addition for n x n matrix. Get the user input for ‘n’.

**Procedure:**

**Input:**

Number of rows and columns, n

Matrix A and Matrix B with n\*n elements

**Output:**

Matrix which is addition of Matrix A and Matrix B

**Algorithm:**

Step 1: Read n

Step 2: Initialise matrix A and matrix B of size n\*n

Step 3: Use nested for loop to read elements in the matrix A and matrix B

Step 4: Use nested for loop to print elements of matrix A and matrix B

Step 5: Initialise addition matrix, MA of size n\*n

Step 5: Use nested for loops with counter i and j

MA[i][j] = A[i][j] + B[i][j]

Step 6: Display addition matrix using nested for loops

**Code:**

**Q4**

**Aim:**

Write a ‘C’ program perform matrix addition for n x n matrix. Get the user input for ‘n’.

**Procedure:**

**Input:**

Number of rows and columns, n

Matrix A and Matrix B with n\*n elements

**Output:**

Matrix which is addition of Matrix A and Matrix B

**Algorithm:**

Step 1: Read n

Step 2: Initialise matrix A and matrix B of size n\*n

Step 3: Use nested for loop to read elements in the matrix A and matrix B

Step 4: Use nested for loop to print elements of matrix A and matrix B

Step 5: Initialise addition matrix, MA of size n\*n

Step 5: Use nested for loops with counter i and j

MA[i][j] = A[i][j] + B[i][j]

Step 6: Display addition matrix using nested for loops

**Code:**