INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad – 500 043

LABORATORY WORK SHEET

Date: 19/07/2022

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Exp No: 04 Experiment Name: ARRAYS

DAY TO DAY EVALUATION:

	Preparation	Algorithm / Performance in the Lab	Source Code / Calculations and Graphs	Program Execution / Results and Error Analysis	Viva	Total
Max. Marks	4	4	4	4	4	20
Obtained	4	4	4	4	4	20

Signature of Lab I/C

START WRITING FROM HERE:

a) AIM : Develop, implement and execute a C program to read a list of integers & store it in a single dimensional array. Write a C program to print the second largest integer in a list of integers.

PROGRAM:

```
#include<stdio.h>
main(){
int a[10],i,j,max1,max2;
printf("Enter 10 nos:\n");
for(i=0;i<10;i++){
scanf("%d",&a[i]);
}
max1=a[0];
max2=a[1];
for(i=0;i<10;i++){
if(a[i]>max1)
max1=a[i];
}
```

```
printf("Largest element = %d", max1);
for (i=0; i<10; i++) {
if (a[i] > max2 && a[i] < max1)
max2 = a[i];
}
printf("Second largest element = %d", max2);
```

INPUT: Enter 10 nos : 12 50 1 2 3 4 5 6 7 8

OUTPUT: Second largest element = 12.

b) AIM: Develop, implement and execute a c program to read a list of integers & store it in a single dimensional array. Write a c program to count & display positive, negative, odd & even numbers in an array.

PROGRAM:

```
#include<stdio.h>
main() {
int a[10], i, p=0, n=0, o=0, e=0;
printf("Enter 10 nos:");
for (i=0; i<10; i++) {
scanf("%d", &a[i]);
}
for (i=0; i<10; i++) {
if (a[i]%2 ==0) {
e++;
}
else {
o++;
}
if (a[i]>=0) {
p++;
}
```

```
else {
n++;
}
}
printf("Even no.'s = %d\n", e);
printf("Odd no.'s = %d\n", o);
printf("Positive no.'s = %d\n", p);
printf("Negative no.'s = %d", n);
}
```

INPUT: Enter 10 nos: 1 2 3 -1 -2 4 7 9 11 15

OUTPUT: Even no.'s = 3
Odd no.'s = 7
Positive no.'s = 8
Negative no.'s = 2

c) AIM: Develop, implement and execute a C program to read a list of integers & store it in a single dimensional array. Write a C program to find the frequency of a particular number in a list of integers.

PROGRAM:

```
#include<stdio.h>
#define MAX 100
int main() {
int arr[MAX], n, i;
int num, count;
printf("Enter total number of elements: ");
scanf("%d", &n);
printf("Enter array elements:");
```

```
for (i=0; i<n ; i++) {
printf ("Enter element %d:", i+1);
scanf ("%d", &arr[i]);
}
printf ("Enter number to find occurence:");
scanf ("%d", &num);
count = 0;
for (i=0; i<n ; i++){
if (arr[i] == num)
count++;
}
printf("Occurence of %d is : %d", num, count);
return 0;
}
```

INPUT: Enter total number of elements: 5
Enter array elements;
Enter element 1: 10
Enter element 2: 10
Enter element 3: 20
Enter element 4: 30
Enter element 5: 10
Enter number to find occurence: 10

OUTPUT:
Occurence of 10 is : 3

d) AIM: Develop, implement & execute a C progsam that reads two matrices A(mxn) & B(pxq) & compute the product A & B. Read matrix A & matrix B in row major order respectively. Print both the input & resultant matrices with suitable headings & output should be in matrix format only.

PROGRAM:

```
#include<stdio.h>
void main(){
int a[10][10],b[10][10],c[10][10],i,j,k,m,n,p,q;
printf("Enter row & colm of mat1");
scanf("%d%d",&m,&m);
printf("Enter row & colm of mat2");
scanf("%d%d",&p,&q);
if(n==p){
printf("Enter mat1");
for(i=0;i<m;i++){
for(j=0;j<n;j++){
scanf("%d",&a[i][j]);
}
}
printf("Enter mat2");
for(i=0;i<p;i++){
for(j=0;j<q;j++){
scanf("%d",&b[i][j]);
}
}
printf("multiplied mat");
for(i=0;i<m;i++){
for(j=0;j<q;j++){
c[i][j]=0;
for(k=0;k<n;k++){
c[i][j]=c[i][j]+a[i][k]*b[k][j];
}
}
printf("%d",c[i][j]);
}
printf("\n");
}
}
else printf("multip is not possible");
}
```

INPUT:

```
Enter row & colm of mat 1
2
2
Enter row & colm of mat 2
2
2
Enter mat 1
1
1
1
1
Enter mat2
2
2
2
2
```

OUTPUT:

Multiplied matrix:

4 4

4 4