**Program Objective**

1.Write a program to read n elements from keyword and display them.

#include <stdio.h>

int main() {

int n, i;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

printf("The elements are:\n");

for(i = 0; i < n; i++) {

printf("%d ", arr[i]);

}

return 0;

}

**Output:**

Enter the number of elements: 5

Enter 5 elements:

10 20 30 40 50

The elements are:

10 20 30 40 50

**Program Objective**

2. write a c program to sum n elements of 1D array.

#include <stdio.h>

int main() {

int n, i, sum = 0;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

for(i = 0; i < n; i++) {

sum += arr[i];

}

printf("Sum of array elements = %d\n", sum);

return 0;

}

**Output:**

Enter the number of elements: 5

Enter 5 elements:

10 20 30 40 50

Sum of array elements = 150

**Program Objective:**

3.Find the largest element from the array.

#include <stdio.h>

int main() {

int n, i, largest;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

largest = arr[0];

for(i = 1; i < n; i++) {

if(arr[i] > largest) {

largest = arr[i];

}

}

printf("The largest element in the array = %d\n", largest);

return 0;

}

**Output:**

Enter the number of elements: 6

Enter 6 elements:

12 45 23 67 34 89

The largest element in the array = 89

**Program Objective:**

4. Write a c program to add two 2D arrays.

#include <stdio.h>

int main() {

int m, n, i, j;

printf("Enter number of rows: ");

scanf("%d", &m);

printf("Enter number of columns: ");

scanf("%d", &n);

int A[m][n], B[m][n], C[m][n];

printf("Enter elements of first matrix:\n");

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

scanf("%d", &A[i][j]);

}

}

printf("Enter elements of second matrix:\n");

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

scanf("%d", &B[i][j]);

}

}

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

C[i][j] = A[i][j] + B[i][j];

}

}

printf("Resultant Matrix (Sum):\n");

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

printf("%d ", C[i][j]);

}

printf("\n");

}

return 0;

}

**Output:**

Enter number of rows: 2

Enter number of columns: 3

Enter elements of first matrix:

1 2 3

4 5 6

Enter elements of second matrix:

6 5 4

3 2 1

Resultant Matrix (Sum):

7 7 7

7 7 7

**Program Objective:**

5. write a program in c to copy one 2D array into other 2D array.

#include <stdio.h>

int main() {

int m, n, i, j;

printf("Enter number of rows: ");

scanf("%d", &m);

printf("Enter number of columns: ");

scanf("%d", &n);

int A[m][n], B[m][n];

printf("Enter elements of the first 2D array:\n");

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

scanf("%d", &A[i][j]);

}

}

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

B[i][j] = A[i][j];

}

}

printf("The copied array is:\n");

for(i = 0; i < m; i++) {

for(j = 0; j < n; j++) {

printf("%d ", B[i][j]);

}

printf("\n");

}

return 0;

}

**Output:**

Enter number of rows: 2

Enter number of columns: 3

Enter elements of the first 2D array:

1 2 3

4 5 6

The copied array is:

1 2 3

4 5 6

**Program Objective:**

6.Write a program to find out maximum and minimum in an array.

#include <stdio.h>

int main() {

int n, i, max, min;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

max = arr[0];

min = arr[0];

for(i = 1; i < n; i++) {

if(arr[i] > max) {

max = arr[i];

}

if(arr[i] < min) {

min = arr[i];

}

}

printf("Maximum element = %d\n", max);

printf("Minimum element = %d\n", min);

return 0;

}

**Output:**

Enter the number of elements: 6

Enter 6 elements:

12 45 23 67 34 89

Maximum element = 89

Minimum element = 12

**Program Objective:**

7.Write a program to reverse the 1D array.

#include <stdio.h>

int main() {

int n, i;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

printf("Reversed array:\n");

for(i = n - 1; i >= 0; i--) {

printf("%d ", arr[i]);

}

printf("\n");

return 0;

}

**Output:**

Enter the number of elements: 5

Enter 5 elements:

10 20 30 40 50

Reversed array:

50 40 30 20 10

**Program Objective:**

8. Write a program to search an element in an 1D array.

#include <stdio.h>

int main() {

int n, i, key, found = 0;

printf("Enter the number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

printf("Enter element to search: ");

scanf("%d", &key);

for(i = 0; i < n; i++) {

if(arr[i] == key) {

printf("Element %d found at position %d (index %d).\n", key, i + 1, i);

found = 1;

break;

}

}

if(!found) {

printf("Element %d not found in the array.\n", key);

}

return 0;

}

**Output:**

Enter the number of elements: 6

Enter 6 elements:

10 20 30 40 50 60

Enter element to search: 40

Element 40 found at position 4 (index 3).

**Program Objective:**

9. Write a program to insert an element to the given position by user.

#include <stdio.h>

int main() {

int n, i, pos, element;

printf("Enter number of elements: ");

scanf("%d", &n);

int arr[100];

printf("Enter %d elements:\n", n);

for(i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

printf("Enter element to insert: ");

scanf("%d", &element);

printf("Enter position (1 to %d): ", n + 1);

scanf("%d", &pos);

if(pos < 1 || pos > n + 1) {

printf("Invalid position!\n");

return 0;

}

for(i = n; i >= pos; i--) {

arr[i] = arr[i - 1];

}

arr[pos - 1] = element;

n++;

printf("Array after insertion:\n");

for(i = 0; i < n; i++) {

printf("%d ", arr[i]);

}

printf("\n");

return 0;

}

**Output:**

Enter number of elements: 5

Enter 5 elements:

10 20 30 40 50

Enter element to insert: 99

Enter position (1 to 6): 3

Array after insertion:

10 20 99 30 40 50

**Program Objective:**

10. Write a c program of multiplication of 2D array.

#include <stdio.h>

int main() {

int a[2][2], b[2][2], result[2][2];

int i, j, k;

printf("Enter elements of first 2x2 matrix:\n");

for(i = 0; i < 2; i++) {

for(j = 0; j < 2; j++) {

scanf("%d", &a[i][j]);

}

}

printf("Enter elements of second 2x2 matrix:\n");

for(i = 0; i < 2; i++) {

for(j = 0; j < 2; j++) {

scanf("%d", &b[i][j]);

}

}

for(i = 0; i < 2; i++) {

for(j = 0; j < 2; j++) {

result[i][j] = 0;

for(k = 0; k < 2; k++) {

result[i][j] += a[i][k] \* b[k][j];

}

}

}

printf("Resultant matrix after multiplication:\n");

for(i = 0; i < 2; i++) {

for(j = 0; j < 2; j++) {

printf("%d ", result[i][j]);

}

printf("\n");

}

return 0;

}

**Output:**

Enter elements of first 2x2 matrix:

1 2

3 4

Enter elements of second 2x2 matrix:

5 6

7 8

Resultant matrix after multiplication:

19 22

43 50

**Program Objective:**

11. Write a c program to transpose a 2D array.

#include <stdio.h>

int main() {

int a[3][4], b[4][3];

int i, j;

printf("Enter elements of 3x4 matrix (a):\n");

for(i = 0; i < 3; i++) {

for(j = 0; j < 4; j++) {

scanf("%d", &a[i][j]);

}

}

for(i = 0; i < 3; i++) {

for(j = 0; j < 4; j++) {

b[j][i] = a[i][j];

}

}

printf("Transpose matrix (b):\n");

for(i = 0; i < 4; i++) {

for(j = 0; j < 3; j++) {

printf("%d ", b[i][j]);

}

printf("\n");

}

return 0;

}

**Output:**

Enter elements of 3x4 matrix (a):

1 2 3 4

5 6 7 8

9 10 11 12

Transpose matrix (b):

1 5 9

2 6 10

3 7 11

4 8 12