1)

#include<stdio.h>

#include<conio.h>

void main() {

int n = 0, f = 1;

printf("Enter the number: ");

scanf("%d", &n);

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

f = f \* i;

}

printf("The factorial of %d is %d", n, f);

}

2)

#include <stdio.h>

int main() {

char str[50];

int i = 0, length = 0, count = 0;

printf("Enter a string: ");

scanf("%s", str);

while(str[i] != '\0') {

length++;

if(str[i]=='a' || str[i]=='e' ||str[i]=='i' || str[i]=='o' ||str[i]=='u') {

count++;

}

i++;

}

printf("Length of the string: %d\n", length);

printf("Number of vowels in the string: %d\n", count);

return 0;

}

3)

#include <stdio.h>

#include <conio.h>

struct student

{

char name[50];

int roll;

float marks;

} s[10];

int main()

{

int i;

printf("Enter details for 3 students:\n");

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

{

printf("\nEnter roll number: ");

scanf("%d", &s[i].roll);

printf("Enter name: ");

scanf("%s", s[i].name);

printf("Enter marks: ");

scanf("%f", &s[i].marks);

}

printf("\nDisplaying details for the students:\n\n");

// Displaying information

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

{

printf("Roll number: %d\n", s[i].roll);

printf("Name: %s\n", s[i].name);

printf("Marks: %.1f\n\n", s[i].marks);

}

return 0;

}

4)

#include <stdio.h>

#include <conio.h>

void main()

{

int a[10], i=0, ele=0, flag=1;

printf("Enter array elements: ");

for(i=0; i<10; i++)

{

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

}

printf("Enter the element to search: ");

scanf("%d", &ele);

for(i=0; i<10; i++)

{

if(a[i] == ele)

{

flag=0;

break;

}

}

if(flag==0)

printf("Element found at index %d", i);

else

printf("Element not found");

}

5)

#include <stdio.h>

int main() {

int rows, cols;

printf("Enter the number of rows in the matrix: ");

scanf("%d", &rows);

printf("Enter the number of columns in the matrix: ");

scanf("%d", &cols);

int matrix[rows][cols];

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

for (int i = 0; i < rows; i++) {

for (int j = 0; j < cols; j++) {

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

}

}

printf("Diagonal elements of the matrix are: ");

for (int i = 0; i < rows; i++) {

for (int j = 0; j < cols; j++) {

if (i == j) {

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

}

}

}

return 0;

}