Sheet (1)

1-

    a) float bus1;
    b) char ch='c';
    c) int llx11;
    d) double sue = 155.75;

2-

    a) correct
    b) int c=100;
    c) double x = 15.0;
    d) in ah1 = 155;
    e) float ffx112 = 100.0;

3-

    a) int
    b) it should be "xyz"
    c) char
    d) '$'
    e) Float
    f) Float
    g) Int
    h) Float
    i) Char
    j) Cout
    k) 'T'
    l) -5
    m) Float

4-

    a) valid if the two variables of the same type
    b) not valid (Balance= Balance-155.55)
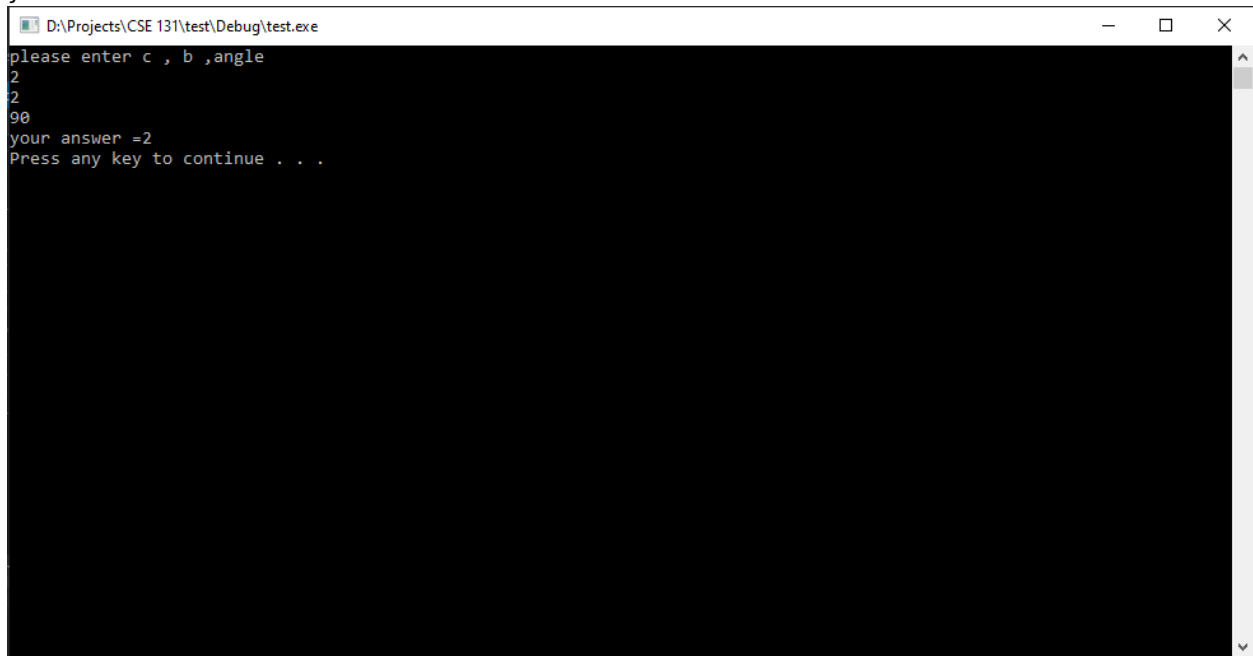   c) not valid can't increment an expression

5-

    a) true
    b) 8 == 8 = true
    c) 6
    d) 12+49 = 61

e) 5

f) 5.75

g) False

6-

```cpp
#include<math.h>
#include<iostream>
#include<cmath>
using namespace std;
int main()
{
    double c, b, x;
    double pi = 3.14159;
    cout << "please enter c , b ,angle" << endl;
    cin >> c >> b >> x;
    float xr = x*pi / 180.0;
    float eq = sqrt(b + c - (2 * b*c*cos(xr)));
    cout << "your answer =" << eq << endl;
    system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                              —   □   ×
please enter c , b ,angle
2
2
90
your answer =2
Press any key to continue . . .
```

7-

a) 2.5

b) 10

c) 11.2

d) 9.6

8-

```cpp
#include<iostream>
using namespace std;
void main()
{
        const double pi = 0.3048;
        double x;
        cout << "enter the distance in feet \n";
        cin >> x;
        double convert = x*pi;
        cout << convert << endl;
        system("pause");
}
```



```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×
enter the distance in feet
10
3.048
Press any key to continue . . . _
```

9-

    a) 5

    b) 10

    c) 5

    d) 38

    e) 25

10-

Z=7 , r=7 , r=7.5 , r=7.5

11-

a) True

b) True

c) False

d) True

12-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
    char c;
    cout << "please enter any char" << endl;
    cin >> c;
    int ascii = (int)c;
    cout << "the ascii code is: " << ascii << endl;
    cout << "the dec ascii = " << dec << ascii << endl;
    cout << "the hex ascii = " << hex << ascii << endl;
    system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
please enter any char
A
the ascii code is: 65
the dec ascii = 65
the hex ascii = 41
Press any key to continue . . .
```

13-

```cpp
#include<iostream>
#include <iomanip>
using namespace std;
void main()
{
        cout << 1990 << setw(5) << 135 << endl;
        cout << 1991 << setw(6) << 7290 << endl;
        cout << 1992 << setw(7) << 11300 << endl;
        cout << 1993 << setw(7) << 16200 << endl;
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×
1990  135
1991  7290
1992  11300
1993  16200
Press any key to continue . . .
```

Sheet (2)

1-

X=3 , x=13
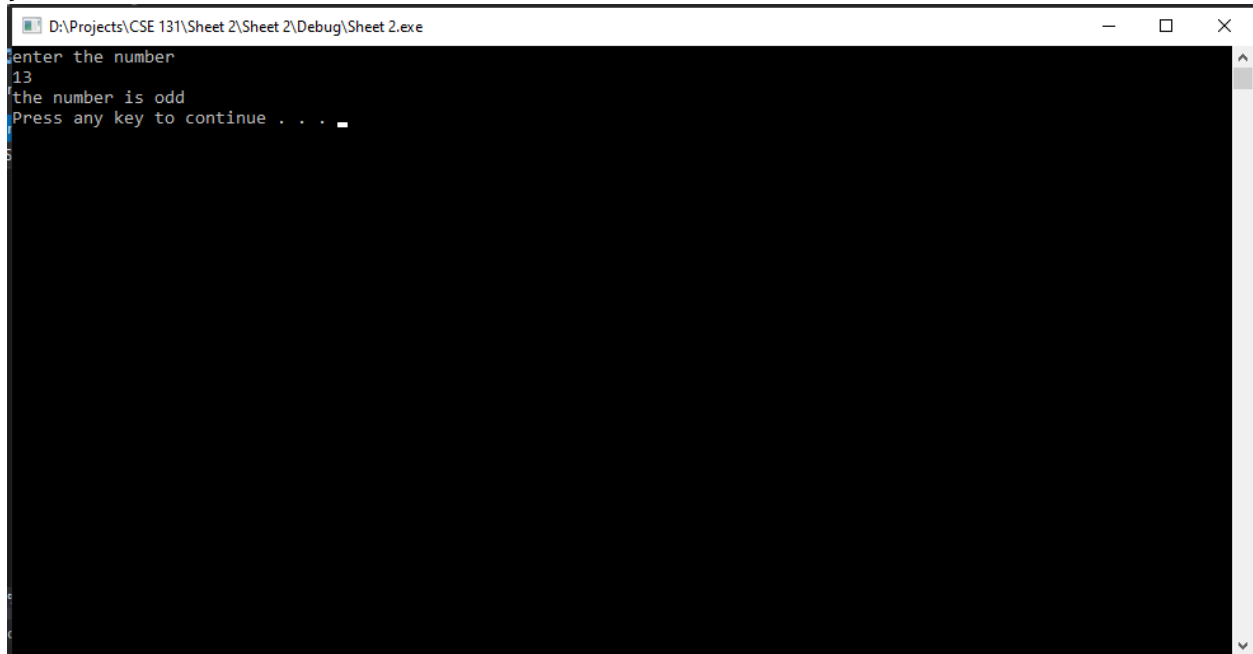
2-

Y=12 ---- x=15 , y=5 ----- x=15

Y= 12 ----x=36 , y=5 ----- x=25

3-

```cpp
#include<iostream>
using namespace std;
void main()
{
        int x;
        cout << "enter the number \n";
        cin >> x;
        if (x % 2 > 0)
        {
                cout << "the number is odd \n";
        }
        else
        {
                cout << "the number is even \n";
        }
        system("pause");
}
```
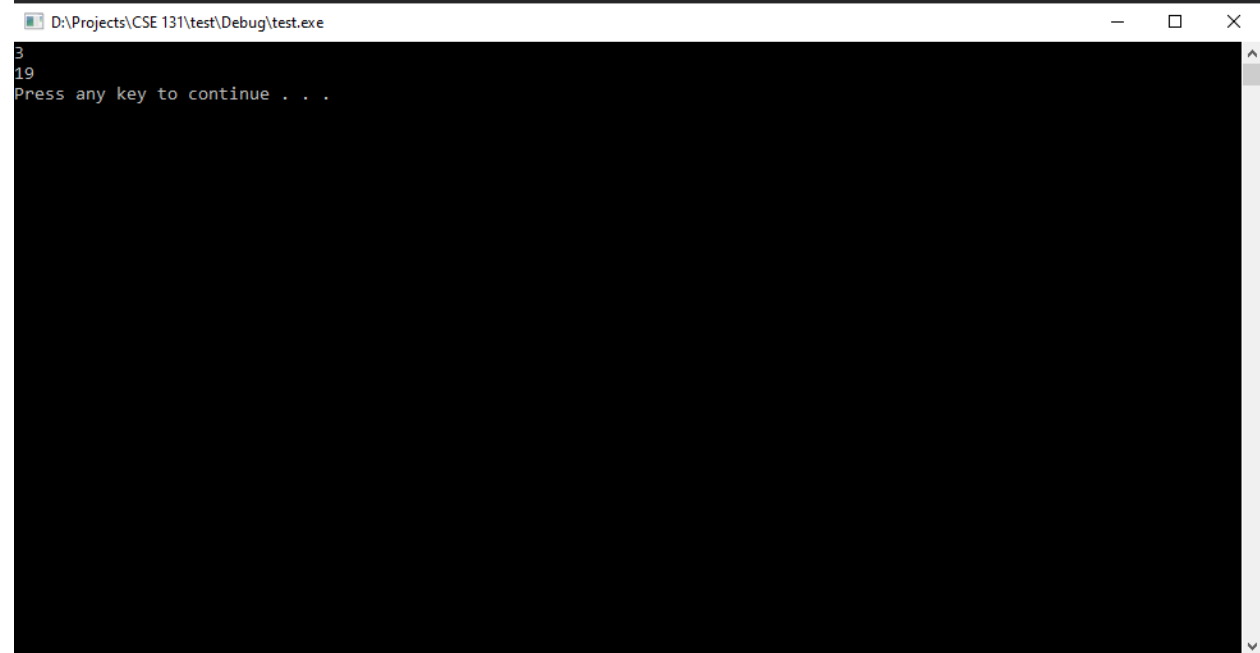
D:\Projects\CSE 131\Sheet 2\Sheet 2\Debug\Sheet 2.exe

```
enter the number
13
the number is odd
Press any key to continue . . .
```

4-

Y = 2

5-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int x, a;
        x = 3;
        cin >> a;
        switch (a)
        {
        case 1: { x += 5;
                break; }
        case 2: { x += 10;
                break; }
        case 3: { x += 16;
                break; }
        case 4: { x += 34;
                break; }
        default: x += 1;
        }
        cout << x << endl;
        system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
3
19
Press any key to continue . . .
```

6-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int num1, num2, num3, temp;
        cout << "please enter 3 digits \n";
        cin >> num1 >> num2 >> num3;
        if (num1 > num2)
        {
                temp = num1;
                num1 = num2;
                num2 = temp;
        }
        if (num1 > num3)
        {
                temp = num1;
                num1 = num3;
                num3 = temp;
        }
        if (num2 > num3)
        {
                temp = num2;
                num2 = num3;
                num3 = temp;
        }
        cout << "the sorted numbers: " << num1 <<" < "<< num2 <<" < " << num3<<endl;
        system("pause");
}
```
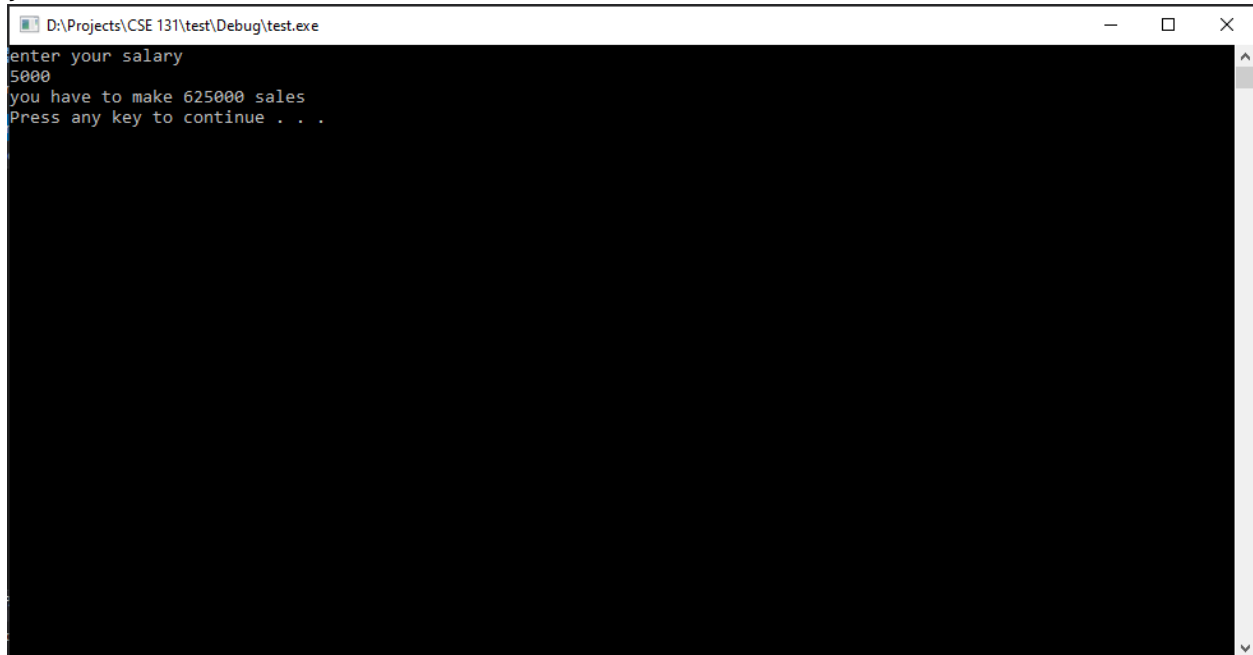
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×

please enter 3 digits
3
1
2
the sorted numbers: 1 < 2 < 3
Press any key to continue . . . _
```

7-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        float sal, x;
        float comm = 0.12;
        cout << "enter your salary " << endl;
        cin >> sal;
        if (sal = 5000)
        {
                x = (80000 - sal) / comm;
                cout << "you have to make " << x << " sales" << endl;
        }
        system("pause");
}
```



```
D:\Projects\CSE 131\test\Debug\test.exe

enter your salary
5000
you have to make 625000 sales
Press any key to continue . . .
```

8-

```cpp
#include <iostream>
using namespace std;
int main() {
    int x, y, ans;
    char c;
    cout << "Please enter value for x and y" << endl;
    cin >> x >> y;
    cout << "Please enter your choice (c)" << endl;
    cin >> c;
    switch (c) {
    case '+':
            ans = x + y;
            cout << ans << endl;
            break;
    case '-':
            ans = x - y;
            cout << ans << endl;
            break;
    case '*':
            ans = x*y;
            cout << ans << endl;
            break;
    case '/':
            ans = x / y;
            cout << ans << endl;
            break;
    case '&':
            ans = (x + y) / 2;
            cout << ans << endl;
            break;
    case '<':
            if (x < y)
            cout << x << endl;
                    else
                            cout << y << endl;
                break;
    case '>':
            if (x < y)
            cout << y << endl;
                    else
                    cout << x << endl;
            break;

    default:
            cout << "Your choice isn't available" << endl;

            break; }
    system("pause");
}
```

C:\Users\Ahmed sameh\Documents\Visual Studio 2015\Projects\Sheet 2 Q 8\Debug\Project1.exe

```
Please enter value for x and y
2
10
Please enter your choice (c)
+
12
Press any key to continue . . .
```

9-

```cpp
#include <iostream>
using namespace std;
int main() {
    int l, w, r, area, per, a, cir;
    cin >> a;
    switch (a) {
    case 1:
        cout << "please enter a value for l and w" << endl;
        cin >> l >> w;
        per = (2 * l) + (2 * w);
        area = l*w;
        cout << "area=" << area << endl << "per=" << per << endl;
        break;
    case 2:
        cout << "please enter a value of s" << endl;
        cin >> l;
        per = 4 * l;
        area = l*l;
            cout << "area=" << area << endl << "per=" << per << endl;
        break;
    case 3:
        cout << "please enter a value for the radius" << endl;
        cin >> r;
        cir = 2 * 3.14*r;
        area = r*r*3.14;
        cout << "cir=" << cir << endl << "area=" << area << endl;
        break;
    }
    system("pause");
}
```
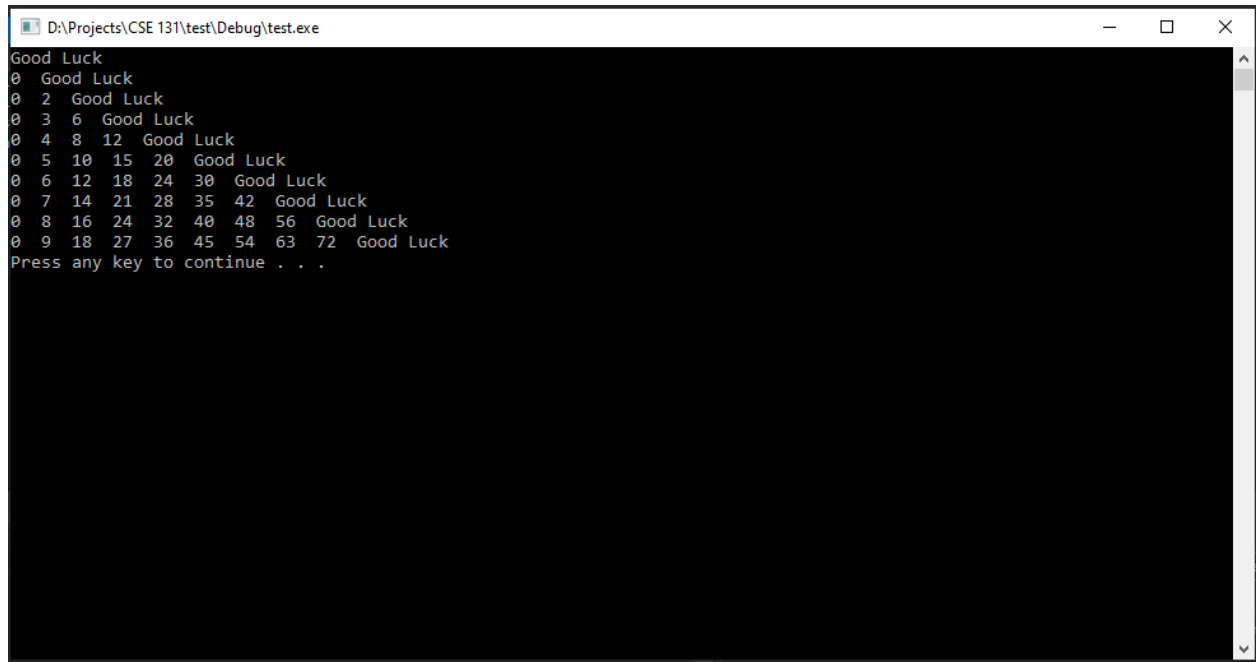
c:\users\ahmed sameh\documents\visual studio 2015\Projects\Project1\Debug\Project1.exe

```
1
please enter a value for l and w
5
10
area=50
per=30
Press any key to continue . . .
```

Sheet (3)

1-

    a) 45

    b) 10

    c) Good Luck

    d)

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —   □   ×
Good Luck
0  Good Luck
0  2  Good Luck
0  3  6  Good Luck
0  4  8  12  Good Luck
0  5  10  15  20  Good Luck
0  6  12  18  24  30  Good Luck
0  7  14  21  28  35  42  Good Luck
0  8  16  24  32  40  48  56  Good Luck
0  9  18  27  36  45  54  63  72  Good Luck
Press any key to continue . . .
```

2-

int x, i=0, n, count = 0;

while (i < n)

{

cin >> x;

if (x == i) ++count;

i++;

}

3-

a)

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int i, n, sum = 0;
        cout << "please enter a number" << endl;
        cin >> n;
        for (i = 1; i <= n; i++)
        {
                sum += i*i;
        }
        cout << sum<<endl;
        system("pause");
}
```

b)

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int i, n;
        double sum = 0.0;
        cout << "please enter a number" << endl;
        cin >> n;
        for (i = 1; i <= n; i++)
        {
                sum += 1.0 / i;
        }
        cout << sum<<endl;
        system("pause");
}
```

c)

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int i, n;
        double sum = 0.0;
        cout << "please enter a number" << endl;
        cin >> n;
        for (i = 1; i <= n; i++)
        {
                sum += (double)(2 * i - 1) / (i*i);
        }
        cout << sum;
        system("pause");
}
```

d)

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int i, n;
        double sum = 0.0, k;
        cout << "please enter a number" << endl;
        cin >> n;
        cout << "please enter a constant K" << endl;
        cin >> k;
        for (i = 1; i <= n; i++)
        {
                sum += i*k;
        }
        cout << sum;
        system("pause");
}
```

e)

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int i, n;
        double sum = 0.0, a, b;
        cout << "please enter a number" << endl;
        cin >> n;
        cout << "please enter the 2 constant A and B" << endl;
        cin >> a >> b;
        for (i = 0; i <= n; i++)
        {
                sum += 1 / (a + i*b);
        }
        cout << sum<<endl;
        system("pause");
}
```

4-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int fact(int x)
{
        if (x == 1)
        {
                return 1;
        }
        else
                return x*fact(x - 1);
}
int main()
{
        int i = 0;
        const double PI = 3.14159;
        double angl, radAng, term, sinA=0;
        cout << "enter an angel in degree \n";
        cin >> angl;
        radAng = angl*PI / 180;
        cout << radAng << endl;
        while (sinA>0)
        {
                int powr = 2 * i + 1;
                term = pow((-1), i) *pow(radAng, powr) / fact(powr);
                sinA += term;
                i++;
        }
        cout << sinA;
        system("pause");
}
```
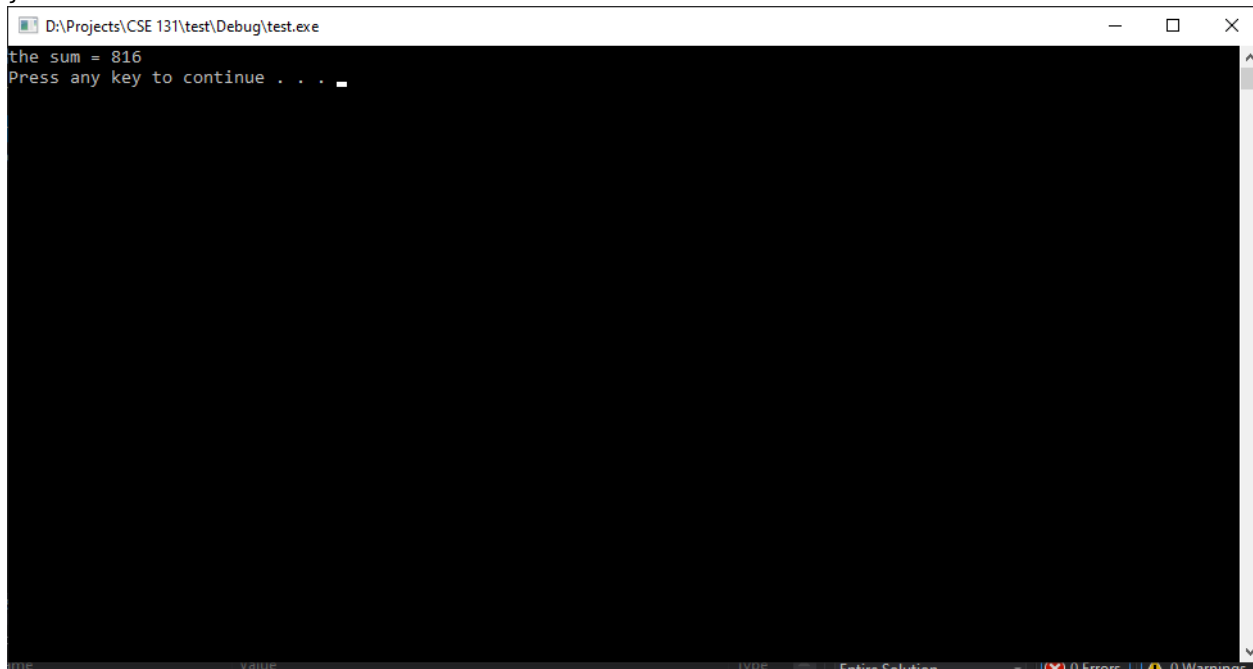
```
D:\Projects\CSE 131\test\Debug\test.exe                          —    □    ×

enter an angel in degree
30
0.523598
0Press any key to continue . . .
```

5-

3456

6-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int sum = 0;
        for (int i = 1; i <= 100; i++)
        {
                if (i % 2 == 0)
                {
                        if (i % 3 == 0)
                        {
                                sum += i;
                        }
                }
        }
        cout << "the sum = " << sum << endl;
        system("pause");
}
```
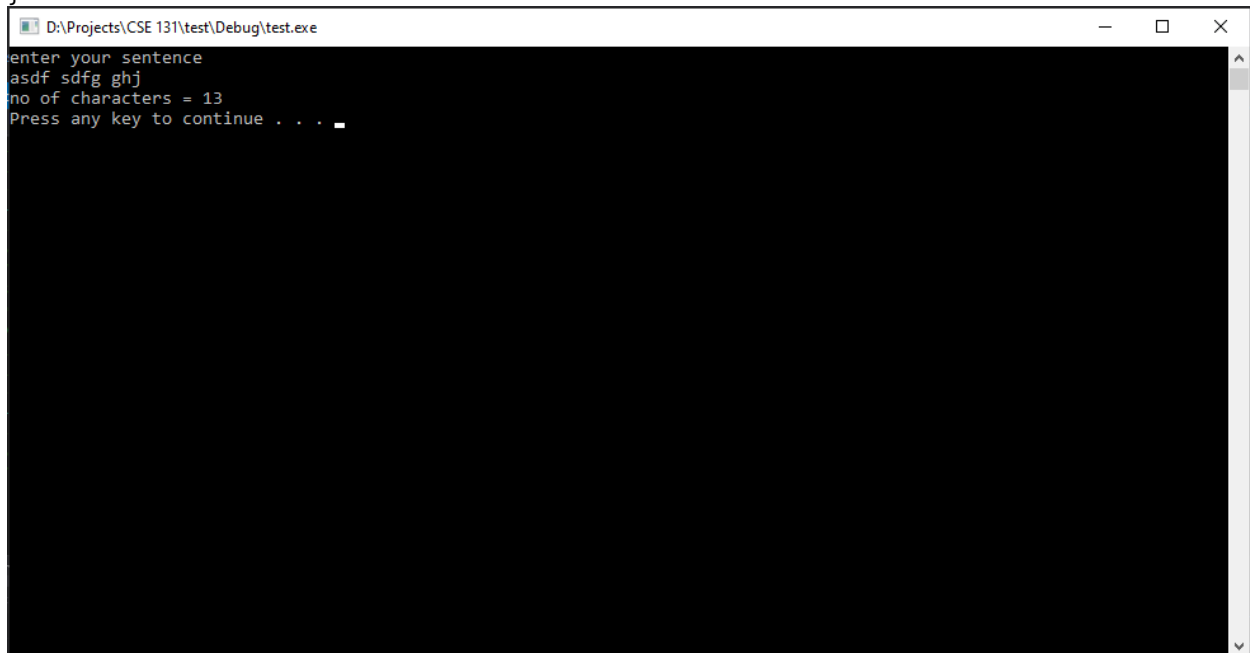
D:\Projects\CSE 131\test\Debug\test.exe   —   □   ✕

```
the sum = 816
Press any key to continue . . .
```

7-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
    float deg, avg, max, min;
    cout << "please ener a grade" << endl;
    cin >> deg;
    float total = max = min = deg;
    cout << "plese enter the students grades " << endl;
    for (int i = 0; i <= 100; i++)
    {
        cin >> deg;
        total += deg;
        if (deg > max)
        {
            max = deg;
        }
        else if (deg < min)
        {
            min = deg;
        }
    }
    avg = total / 100;
    cout << "the average = " << avg << endl << "the maximum grade =" << max << endl <<
"the minimum grade = " << min << endl;
    system("pause");
}
```
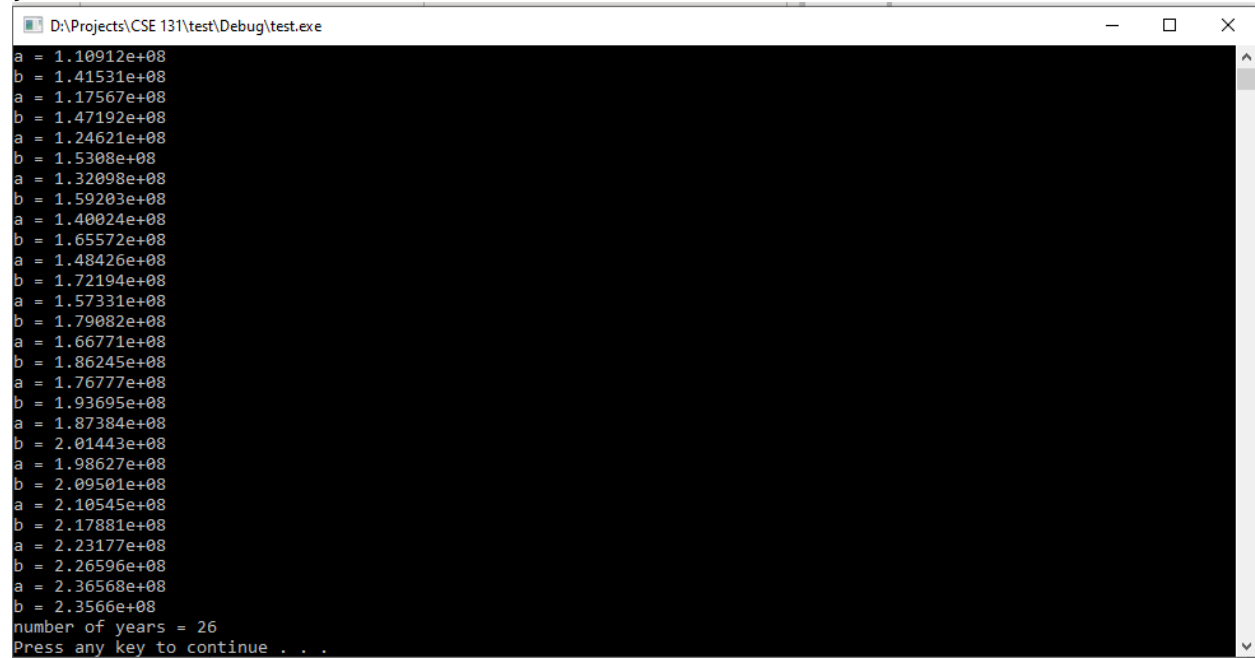// Its too long to screen shot

8-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int main()
{
        int c;
        int cha = 0, wrd = 0;
        cout << "enter your sentence " << endl;
        while((c=getchar())!='\n')
        {
                cin >> c;
                cha++;
        }
        cout << "no of characters = " << cha << endl;
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                          —    □    ✕

enter your sentence
asdf sdfg ghj
no of characters = 13
Press any key to continue . . . _
```

9-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
#include<time.h>
using namespace std;
int main()
{
        float a = 52000000, b = 85000000;
        int counter = 0;
        do
        {
                a += (a*0.06);
                b += (b*0.04);
                cout << "a = " << a << endl << "b = " << b << endl;
                counter++;
        } while (a < b);
        cout << "number of years = " << counter << endl;
        system("pause");
}
```
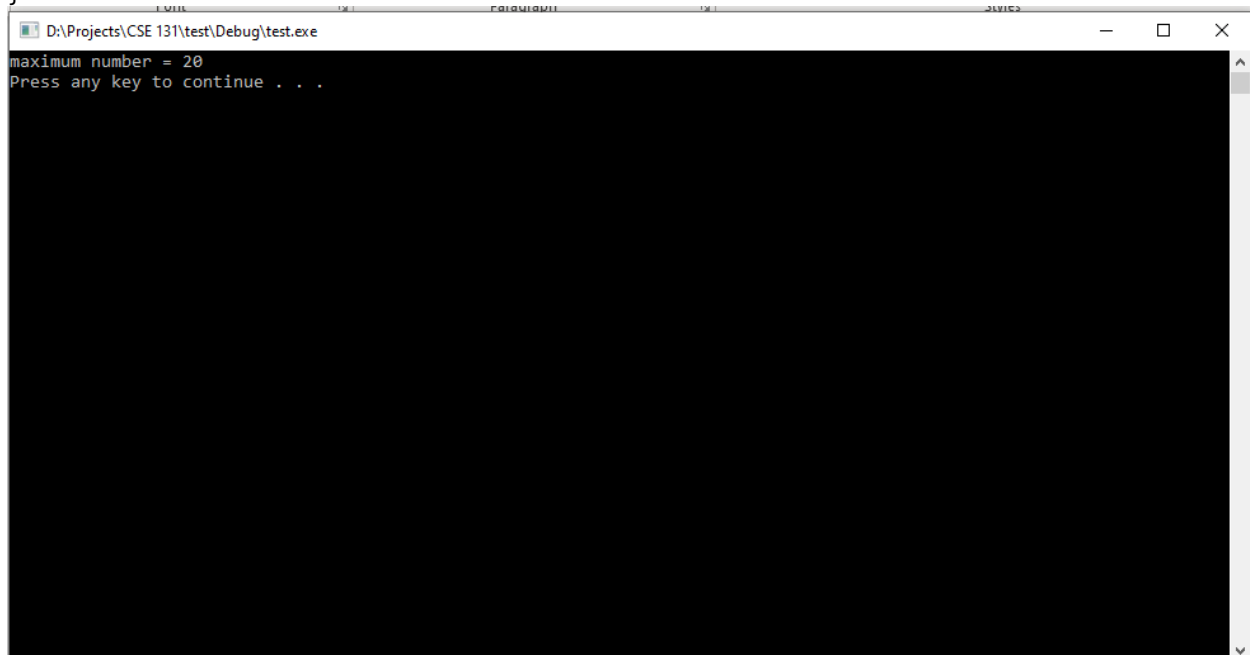
```
D:\Projects\CSE 131\test\Debug\test.exe

a = 1.10912e+08
b = 1.41531e+08
a = 1.17567e+08
b = 1.47192e+08
a = 1.24621e+08
b = 1.5308e+08
a = 1.32098e+08
b = 1.59203e+08
a = 1.40024e+08
b = 1.65572e+08
a = 1.48426e+08
b = 1.72194e+08
a = 1.57331e+08
b = 1.79082e+08
a = 1.66771e+08
b = 1.86245e+08
a = 1.76777e+08
b = 1.93695e+08
a = 1.87384e+08
b = 2.01443e+08
a = 1.98627e+08
b = 2.09501e+08
a = 2.10545e+08
b = 2.17881e+08
a = 2.23177e+08
b = 2.26596e+08
a = 2.36568e+08
b = 2.3566e+08
number of years = 26
Press any key to continue . . .
```

9-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
#include<time.h>
using namespace std;
int findMaxValue()
{
        int res = 2;
        long long fact = 2;
        while (1)
        {
                if (fact < 0)
                        break;
                res++;
                fact = fact * res;
        }
        return res - 1;
}
int main()
{
        cout << "maximum number = " << findMaxValue() << endl;
        system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
maximum number = 20
Press any key to continue . . .
```

```cpp
10-#include<iostream>
#include<math.h>
using namespace std;
int main()
{
	for (int i = 0; i <= 4; i++)
	{
		for (int j = 3; j >= i; j--)
		{
			cout << " ";
		}
		for (int k = 1; k <= (2 * i - 1); k++)
		{
			cout << "*";
		}
		cout << "\n";
	}
	for (int i = 4; i >= 1; i--)
	{
		for (int j = 4; j >= i; j--)
		{
			cout << " ";
		}
		for (int k = 1; k <= (2 * i - 3); k++)
		{
			cout << "*";
		}
		cout << "\n";
	}
	system("pause");
}
```

Sheet (4)

1-

```
int isPrime(int n) {
for (int i = 2; i <= n / 2; ++i) {
if (n%i == 0) {
return 0;
}
}
return 1;
}
```

2-

```
int fact(int x)
{
if(x==1)
{
return 1;
}
else
return x*fact(x-1);
}
```
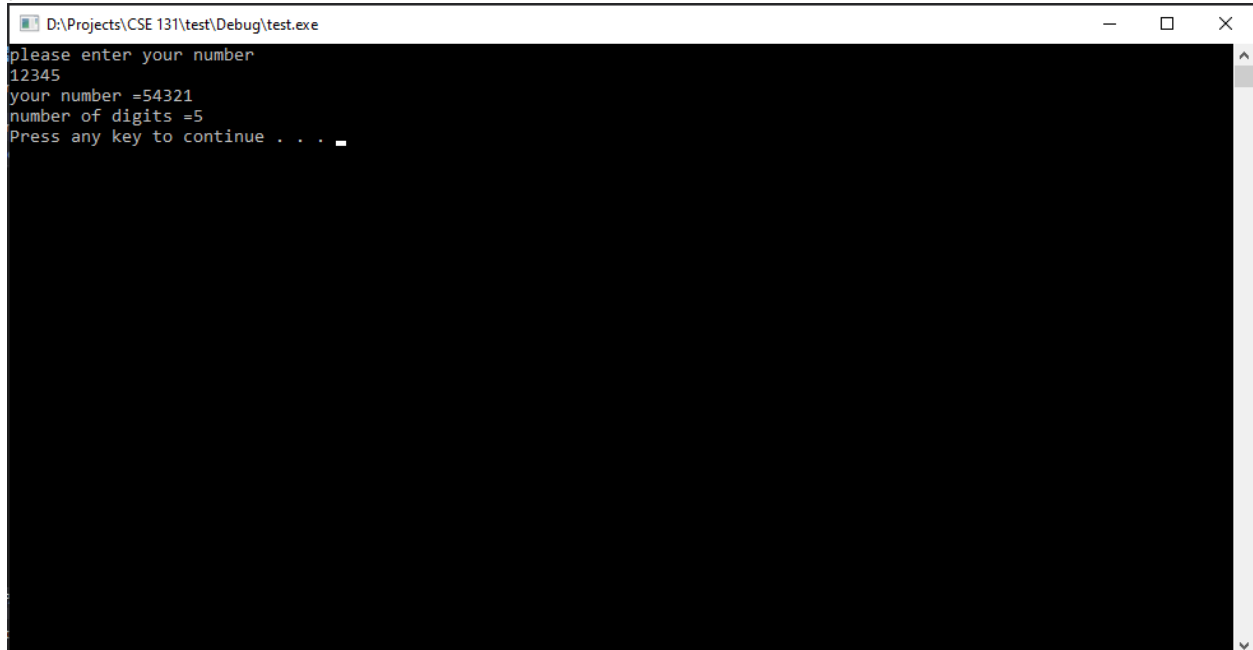
3-

```cpp
#include<iostream>
#include<math.h>
using namespace std;
int fact(int x)
{
        if (x == 1||x==0)
        {
                return 1;
        }
        else
                return x*fact(x - 1);
}
int main()
{
        int x, r;
        cout << "please enter x and r " << endl;
        cin >> x >> r;
        int eq = (fact(x)) / ((fact(r))*(fact(x - r)));
        cout << "your answer = " << eq << endl;
        system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe   — ☐ ✕

```
please enter x and r
3
2
your answer = 3
Press any key to continue . . . _
```

4-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
	int x;
	int sum = 0;
	cout << "please enter your number" << endl;
	cin >> x;
	cout << "your number =";
	do {
	cout<< x % 10 ;
		x /= 10;
		sum++;
	} while (x != 0);
	cout << endl;
	cout <<"number of digits ="<< sum << endl;
system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe

please enter your number
12345
your number =54321
number of digits =5
Press any key to continue . . .
```
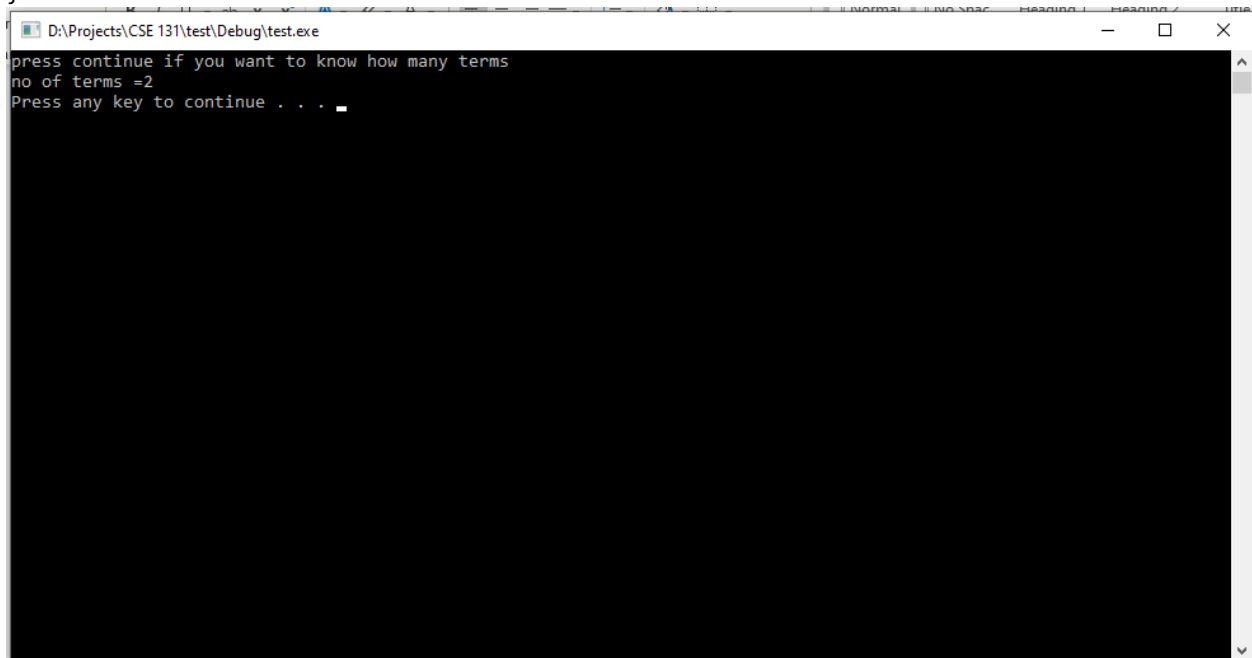
5-

```cpp
int getDigit (long n,int indx) {
long num = n;
long reversnumb = 0;
int digit;
for (int i = 1;i < indx;i++)
{
num = num / 10;
}
digit = num % 10;
return digit;
}
```

6-

```cpp
double getSeries()
{
double Tol = 0.0;
int i = 1;
while (Tol < 2.0)
{
Tol = Tol + (1.0 / i);
i++;
cout << Tol << endl;
}
return Tol;
}
```

7-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
    int pi = 4;
    int n = 1;
    int e = 0;
    int term = 0;
    cout << "press continue if you want to know how many terms" << endl;
    do {

        term = (2 * n) + 1;
        e = (pow((-1), n))*(1 / term);
        pi = (pi)+(4 * e);
        n++;
    } while (pi <= 3.14159);
    cout << "no of terms =" << n << endl;
    system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ✕

press continue if you want to know how many terms
no of terms =2
Press any key to continue . . . _
```
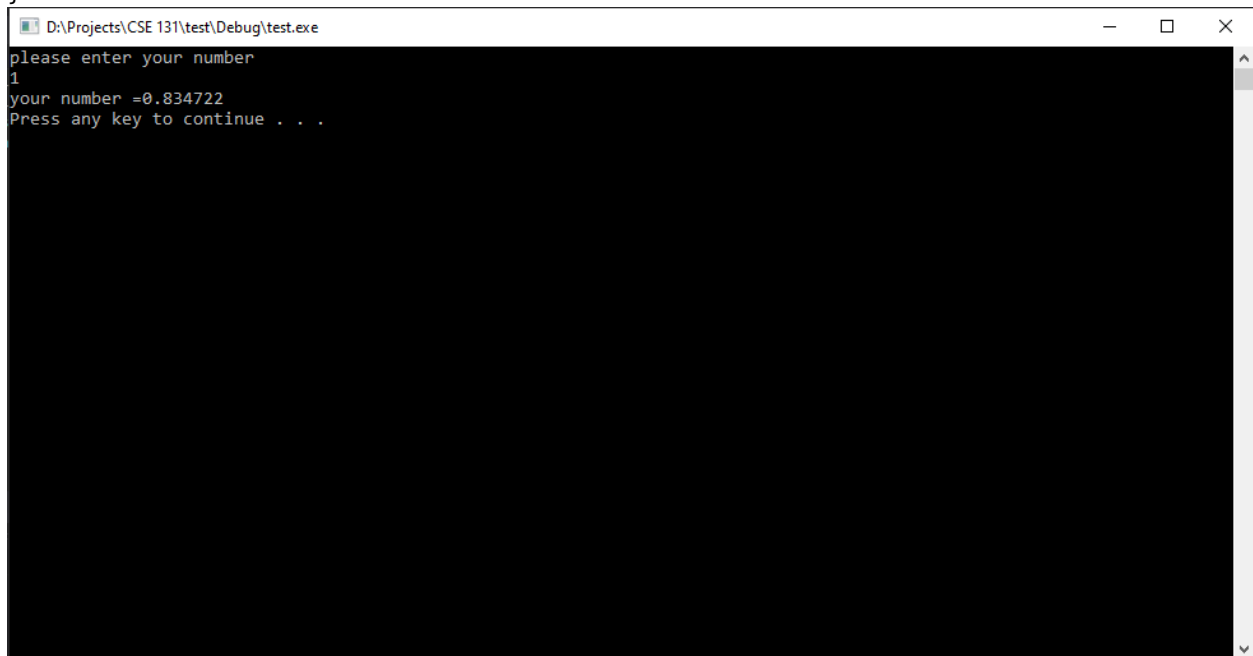
8-

    a. char tolower(char c)

```
{
Return C=c+32;
}
```

    b. char toupper(char c)

```
{
Return C=c-32;
}
```

9-

```
Void count(char c)

{

Int upper=0;

For(int i=0;i<100;i++)

{

Cin>>c;

If(c>='A'&&c<='Z')

 Upper ++;

}
```

10-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
        int y;
        int i = 0;
        double z = 0;
        int fact = 1;
        cout << "please enter your number" << endl;
        cin >> y;
        do
        {
                int k = (2 * i) + 1;
                for (int a = 1; a <= k; a++) {
                        fact = fact*a;
                }
                double v = ((pow((-1), i))*(pow(y, k))) / fact;
                i++;
                z = z + v;
        } while (fact>0);
        cout << "your number =" << z << endl;
    system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                          —   □   ×
please enter your number
1
your number =0.834722
Press any key to continue . . .
```

11-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
        float s = 0;
        float x;
        cout << "please enter value of x " << endl;
        cin >> x;
        for (int i = 0; i <= 100; i++)
        {
                float eq = pow(2.71828, ((-x)*i));
                s += eq;
        }
        cout << "your number =" << s << endl;
        system("pause");
}
```

12-

I.   infinite loop

II.   hi

    hi

    hi

    hi

III.   infinite loop

IV.   hi

    hi

    hi

    hi

13- two function has the same signature

Sheet (5)

1-

    a. Not legal unless f is defined
    b. not legal array out of bound
    c. legal

2-

    I.   6
    II.   20
    III.   15
    IV.   2.5
    V.   1.5
    VI.   Error

3-

    a. X[7]=-56
    b. x[7] = -56

4-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int getMax(int arr[], int n);
int getMinMax(int arr[], int n);
int getmedian(int arr[], int n);
void selectionSort(int arr[], int n);
int mode(int arr[], int n);
int main()
{
	int arr[] = { 1,2,2,4,5,6,7 };
	cout << "the array = {1,2,2,4,5,6,7} " << endl;
	int a, n = 7;
	cout << "choose one of the following " << endl << "1- Average     2- Max.     3-
Min.    4-Median     5-Sort     6-mode " << endl;
	cin >> a;
	switch (a)
	{
	case 1:
		cout << " Average = " << (getMax(arr, n) + getMinMax(arr, n)) / 2 << endl;
		break;
	case 2:
		cout << " Max. = " << getMax(arr, n) << endl;
		break;
	case 3:
		cout << " Min. = " << getMinMax(arr, n) << endl;
		break;
	case 4:
		cout << " Median = " << getmedian(arr, n) << endl;
		break;
	case 5:
		cout << " Sorting = "  ;
		selectionSort(arr, n);
		cout << endl;
		break;
	case 6:
		cout << " Mode = " << mode(arr, n) << endl;
		break;
	default:
		cout << "sorry you didnt choose a correct answer" << endl;

	}
	system("pause");
}
int getMax(int arr[], int n)
{
	int max;
	max = arr[0];
	if (n == 1)
	{
		return max;
	}
	for (int i = 0; i<n; i++)
	{
		if (arr[i] > max)
```

```cpp
                    max = arr[i];
        }
        return max;
}
int getMinMax(int arr[], int n)
{
        int min;
        min = arr[0];
        if (n == 1)
        {
                return min;
        }
        for (int i = 0; i<n; i++)
        {
                if (arr[i] < min)
                {
                        min = arr[i];
                }
        }
        return min;
}
int getmedian(int arr[], int n)
{
        int med = 0;
        if (n % 2 == 0)
        {
                med = arr[n / 2];
        }
        else
        {
                med = arr[(n / 2) + 1];
        }
        return med;
}
void selectionSort(int arr[], int n)
{
        int i, j, min_idx, temp;
        for (i = 0; i < n ; i++)
        {
                min_idx = i;
                for (j = i + 1; j < n; j++)
                {
                        if (arr[j] < arr[min_idx])
                                min_idx = j;
                        temp = arr[j];
                        arr[j] = arr[min_idx];
                        arr[min_idx] = temp;
                }
                cout << arr[min_idx]<<" , ";
        }

}
int mode(int arr[], int n)
{
        int temp=0;
        int count = 0;
        int count1 = 0;
        for (int i = 0; i < n; i++)
```
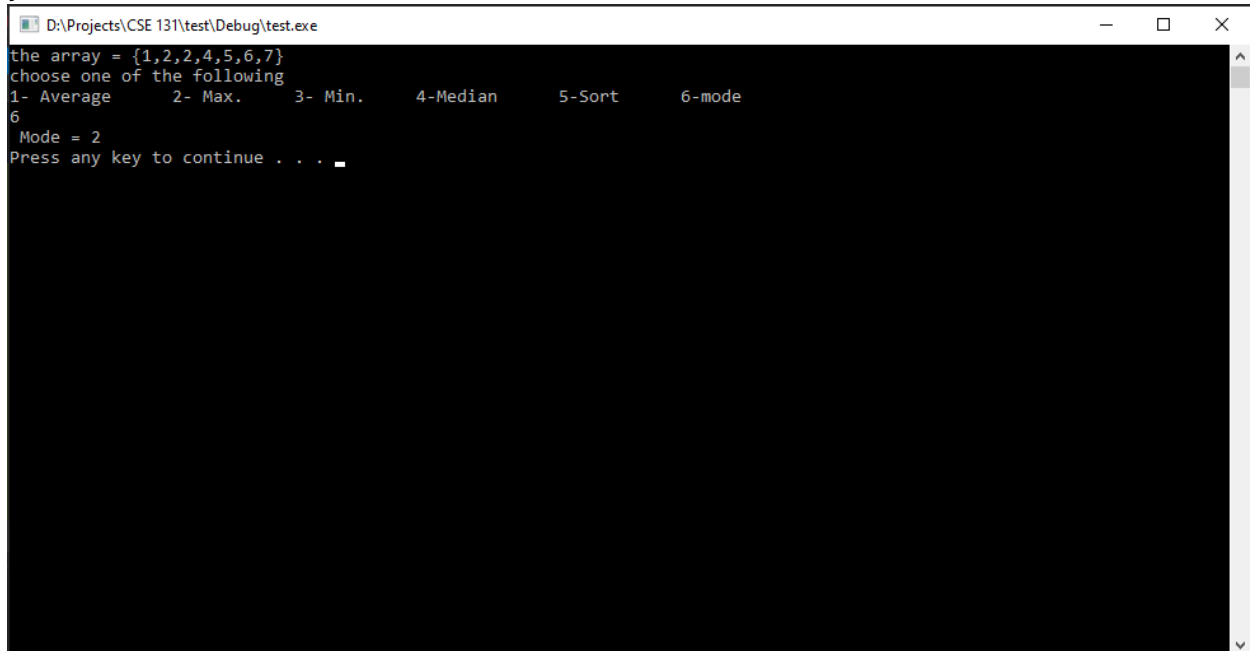
```
    {
        for (int j = 0; j < n; j++)
        {
            if (arr[i] == arr[j])
                count++;
        }
        if (count > count1)
        {
            count1 = count;
            temp = arr[i];
        }
        count = 0;
    }
    return temp;
}
```
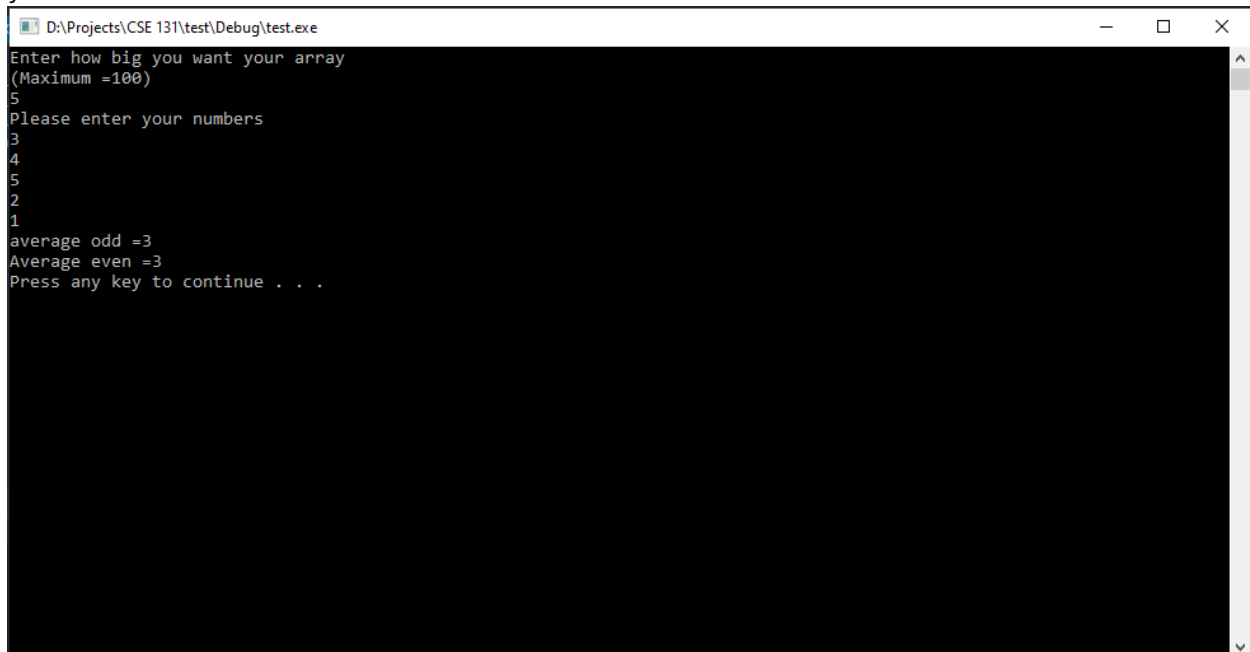
```
the array = {1,2,2,4,5,6,7}
choose one of the following
1- Average      2- Max.    3- Min.    4-Median    5-Sort    6-mode
6
 Mode = 2
Press any key to continue . . . _
```

5-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
        float oddsum = 0;
        float evensum = 0;
        float oddno = 0;
        float evenno = 0;
        int v;
        int x[100];
        cout << "Enter how big you want your array" << endl << "(Maximum =100)" << endl;
        cin >> v;
        cout << "Please enter your numbers" << endl;
        if (v % 2 == 0)
                oddno = evenno = v / 2;
        else
        {
                oddno = v / 2;
                evenno = (v / 2) + 1;
        }
        for (int i = 0; i < v; i++)
        {
                cin >> x[i];
                if (i % 2 == 0)
                        evensum += x[i];
                else
                        oddsum += x[i];
        }
        cout << "average odd =" << oddsum / oddno << endl;
        cout << "Average even =" << evensum / evenno << endl;
        system("pause");
}
```
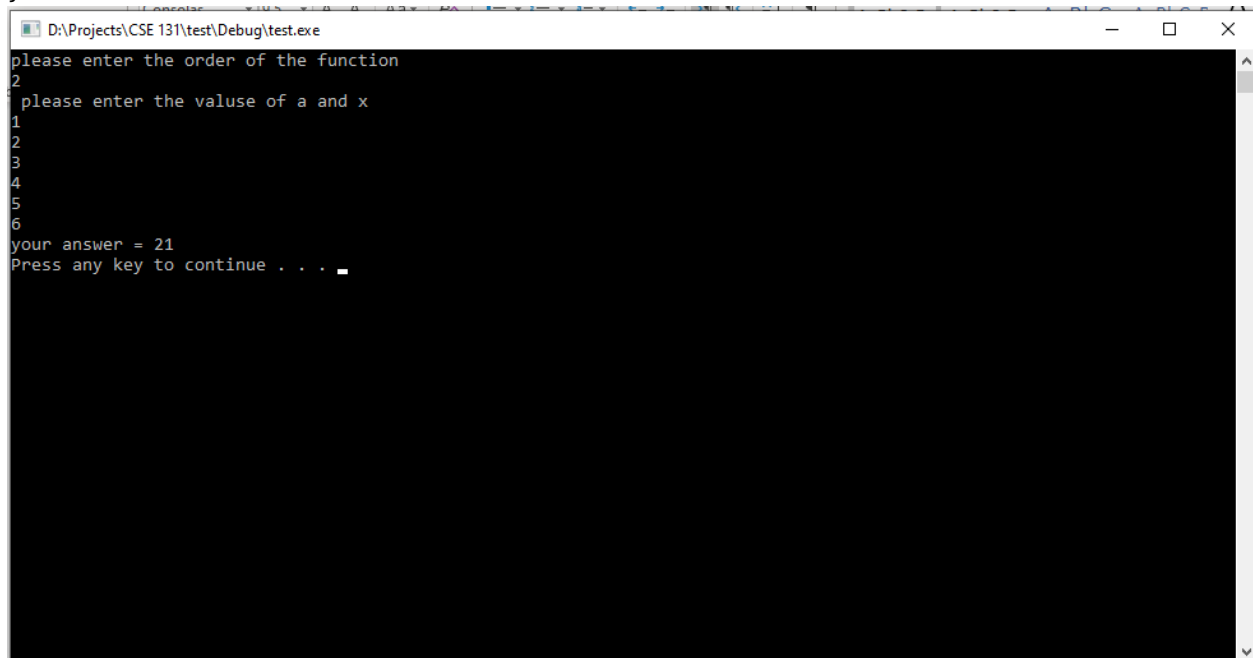


```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ✕

Enter how big you want your array
(Maximum =100)
5
Please enter your numbers
3
4
5
2
1
average odd =3
Average even =3
Press any key to continue . . .
```

6-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
        int n,x,a;
        int arrx[100];
        int arra[100];
        float eq,sum=0;
        cout << "please enter the order of the function " << endl;
        cin >> n;
        cout << " please enter the valuse of a and x " << endl;
        for (int i = n; i >=0; i--)
        {
                cin >> arra[i] >> arrx[i];
        }
        for (int i = n; i >= 0; i--)
        {
                eq = (arra[i])*(pow(arrx[i], i));
                sum += eq;
        }
        cout << "your answer = " << sum << endl;
        system("pause");
}
```
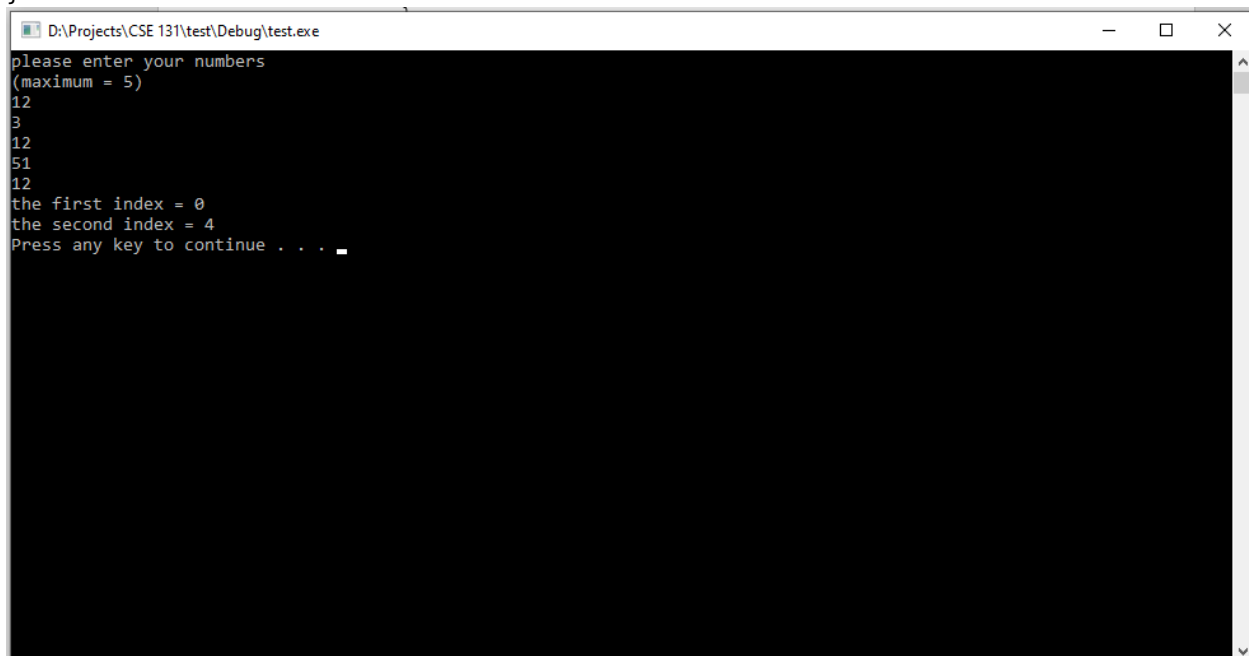
D:\Projects\CSE 131\test\Debug\test.exe — □ ✕

```
please enter the order of the function
2
 please enter the valuse of a and x
1
2
3
4
5
6
your answer = 21
Press any key to continue . . .
```

7-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
        int arr[5];
        int key = 12;
        int firstIndx = 5;
        int lastindex = 5;
        cout << "please enter your numbers " << endl << "(maximum = 5)" << endl;
        for (int i = 0; i<5; i++)
        {
                cin >> arr[i];
                if (arr[i] == 12 && firstIndx == 5)
                {
                        firstIndx = lastindex = i;
                }
                else if (arr[i] == 12)
                {
                        lastindex = i;
                }
        }
        if (firstIndx == 5)
        {
                cout << "key not found \n";
        }
        else
        {
                cout <<"the first index = "<< firstIndx << endl;
                cout <<"the second index = "<< lastindex << endl;
        }
        system("pause");
}
```
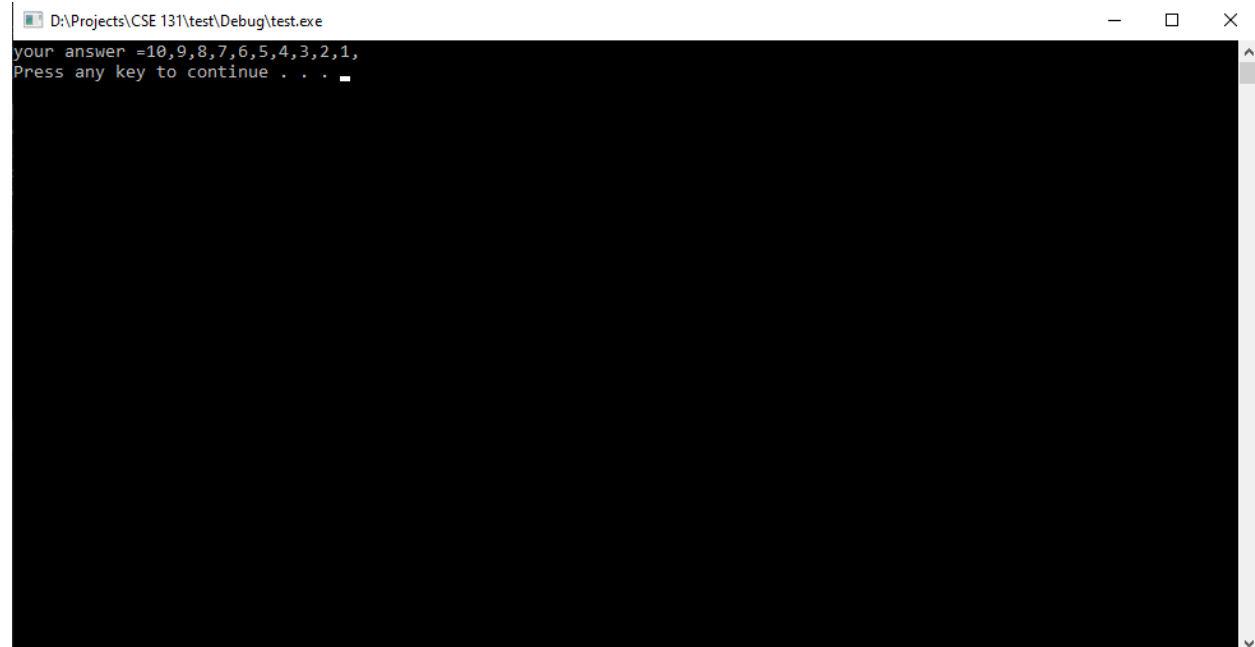
D:\Projects\CSE 131\test\Debug\test.exe — □ ×

```
please enter your numbers
(maximum = 5)
12
3
12
51
12
the first index = 0
the second index = 4
Press any key to continue . . . ■
```

8-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
    int main()
    {
        int y[] = { 1,2,3,4,5,6,7,8,9,10 };
        cout << "your answer =";
        for (int z = 9; z >= 0; z--)
            cout << y[z] << ",";
        cout << endl;

        system("pause");
    }
```
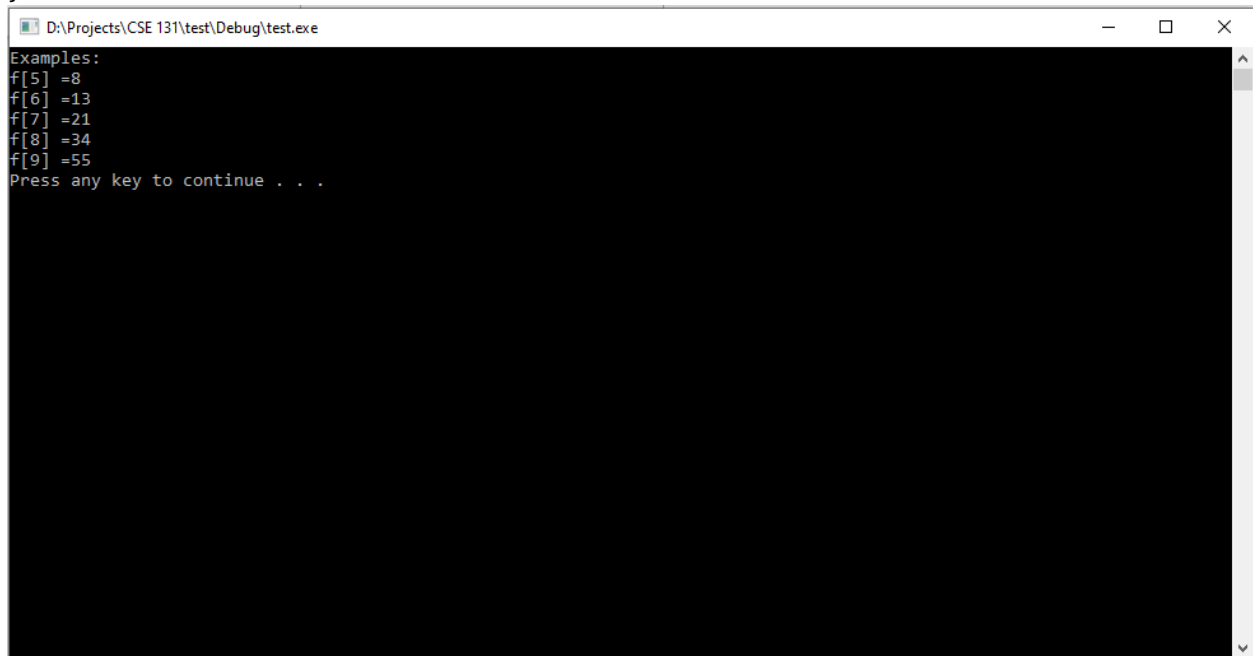
D:\Projects\CSE 131\test\Debug\test.exe

```
your answer =10,9,8,7,6,5,4,3,2,1,
Press any key to continue . . .
```

9-

```cpp
#include<math.h>
#include<iostream>
using namespace std;
int main()
{
            float f[100];
            f[0] = { 1 }, f[1] = { 1 };
            for (int t = 2; t < 100; t++)
            {
                  f[t] = (f[t - 1]) + (f[t - 2]);
            }
            cout << "Examples:" << endl;
            cout << "f[5] =" << f[5] << endl << "f[6] =" << f[6] << endl << "f[7] =" <<
f[7] << endl << "f[8] =" << f[8] << endl << "f[9] =" << f[9] << endl;



      system("pause");
}
```
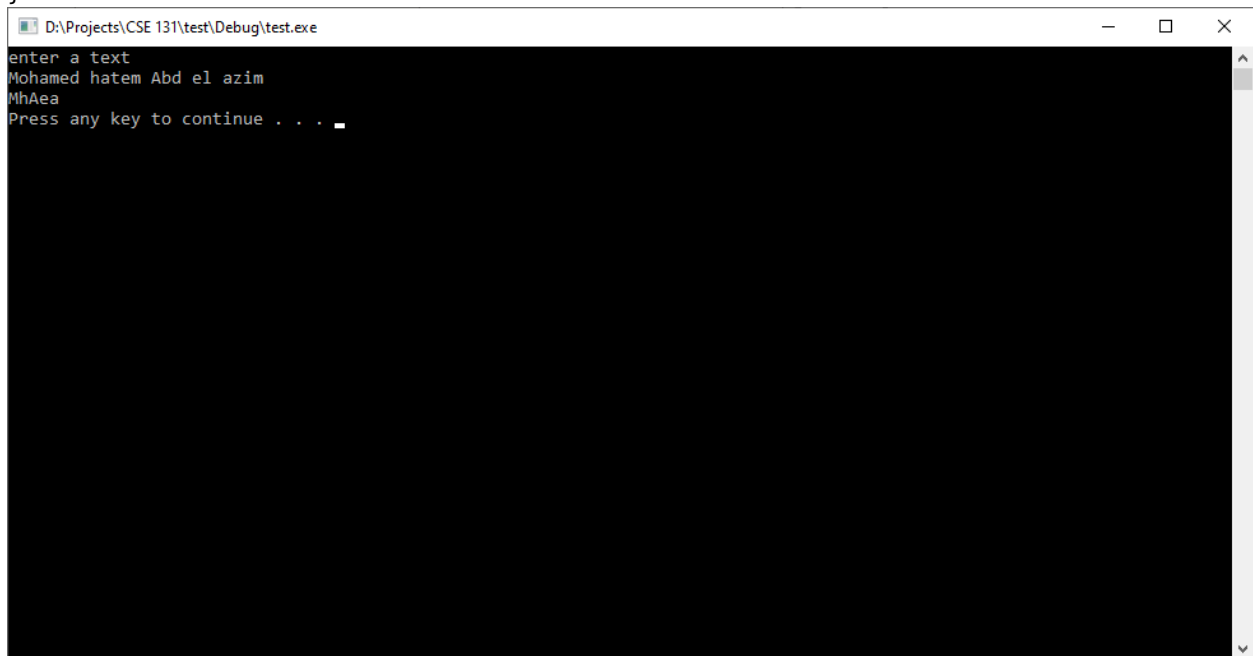
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ✕

Examples:
f[5] =8
f[6] =13
f[7] =21
f[8] =34
f[9] =55
Press any key to continue . . .
```

Sheet (6)

1-

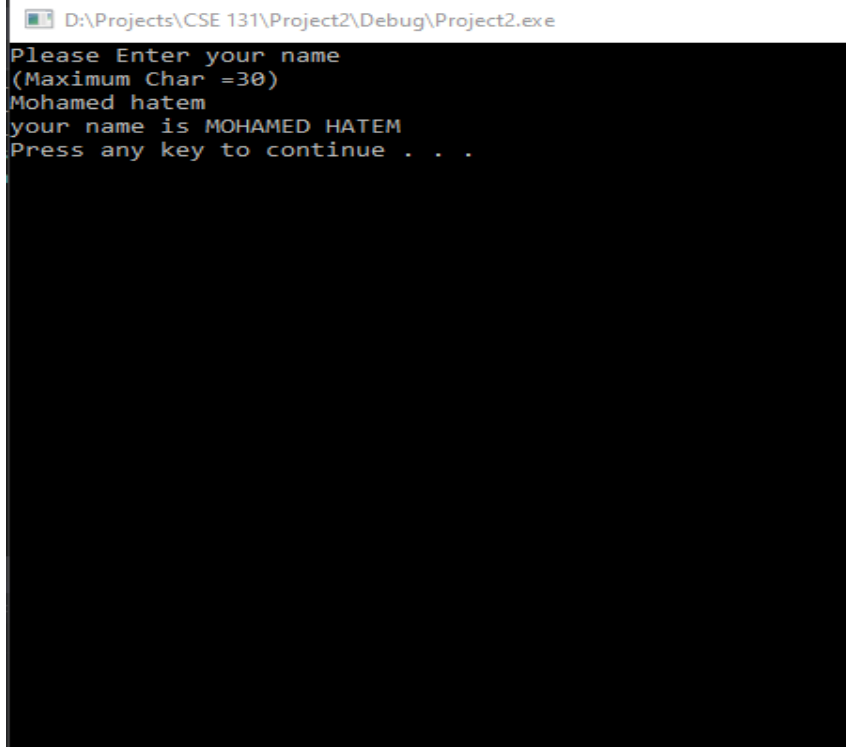```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
        char ss[100];
        char* ptr;
        cout << "enter a text \n";
        cin.getline(ss, 100, '\n');
        ptr = strtok(ss, " ");
        while (ptr != NULL)
        {
                cout << ptr[0] ;
                ptr = strtok(NULL, " ");
        }
        cout << endl;
        system("pause");
}
```

2-
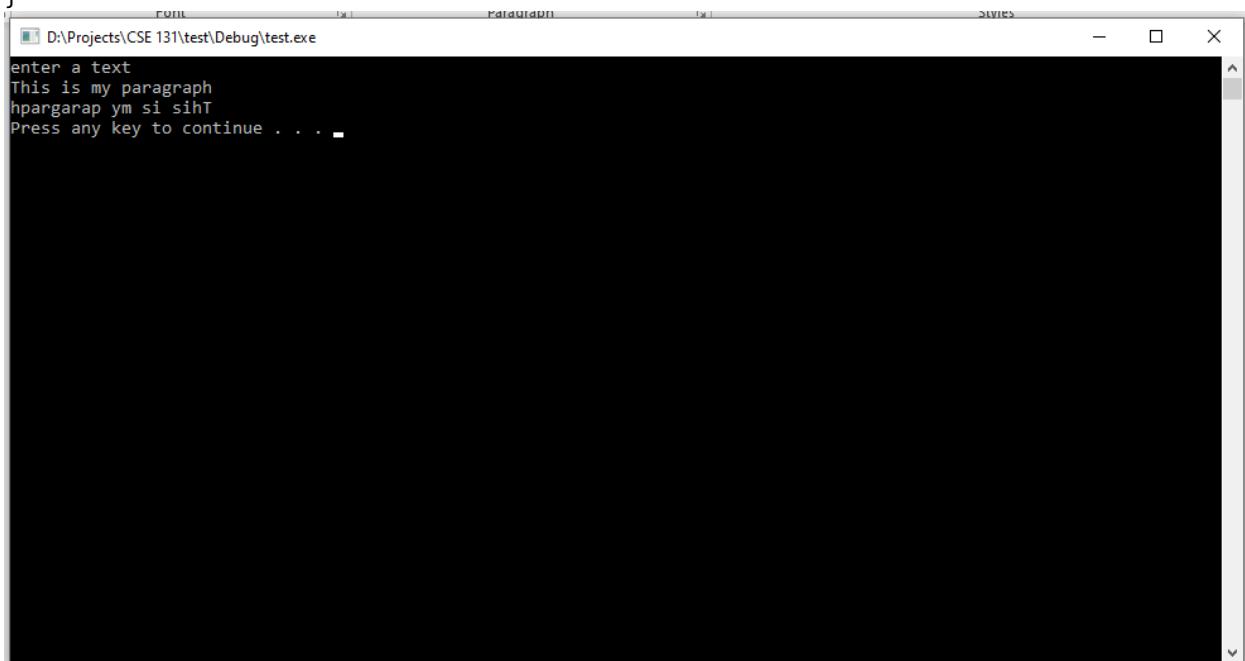
```cpp
#include<iostream>
#include<cstring>
#include<string.h>
using namespace std;
int main()
{

    char name[30];
    int i;
    cout << "Please Enter your name" << endl << "(Maximum Char =30)" << endl;
    cin.getline(name, 30);
    cout << "your name is ";
    for (int i = 0; i <= strlen(name); i++)
    {
        if (name[i] >= 'a' && name[i] <= 'z')
        {
            name[i] = name[i] - 32;
        }
    }
    cout << name << endl;

    system("pause");
}
```

```
 D:\Projects\CSE 131\Project2\Debug\Project2.exe
Please Enter your name
(Maximum Char =30)
Mohamed hatem
your name is MOHAMED HATEM
Press any key to continue . . .
```

3-

```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
    char ss[100];
    cout << "enter a text \n";
    cin.getline(ss, 100, '\n');
    for (int i = strlen(ss); i > 0; i--)
    {
        cout << ss[i - 1];
    }
    cout << endl;
    system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
enter a text
This is my paragraph
hpargarap ym si sihT
Press any key to continue . . .
```
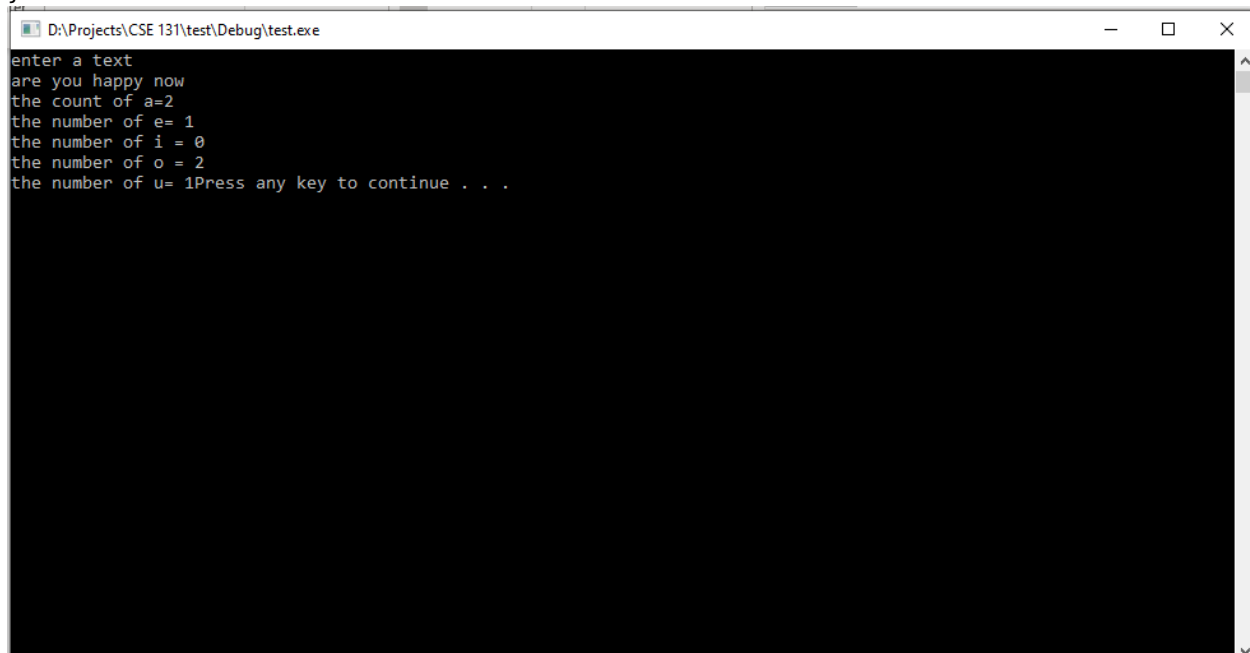
4-

```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
```

```cpp
int counte = 0;
int counta = 0;
int counti = 0;
int countu = 0;
int counto = 0;
char ss[100];
cout << "enter a text \n";
cin.getline(ss, 100, '\n');
for (int i = 0; i <100; i++)
{
        if (ss[i] == 'a')
        {
                counta++;
        }
        else if (ss[i] == 'e')
        {
                counte++;
        }
        else if (ss[i] == 'i')
        {
                counti++;
        }
        else if (ss[i] == 'o')
        {
                counto++;
        }
        else if (ss[i] == 'u')
        {
                countu++;
        }
}
cout << "the count of a=" << counta << endl << "the number of e= " << counte <<
endl << "the number of i = " << counti << endl << "the number of o = " << counto
        << endl << "the number of u= " << countu;
system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    X

enter a text
are you happy now
the count of a=2
the number of e= 1
the number of i = 0
the number of o = 2
the number of u= 1Press any key to continue . . .
```

5-
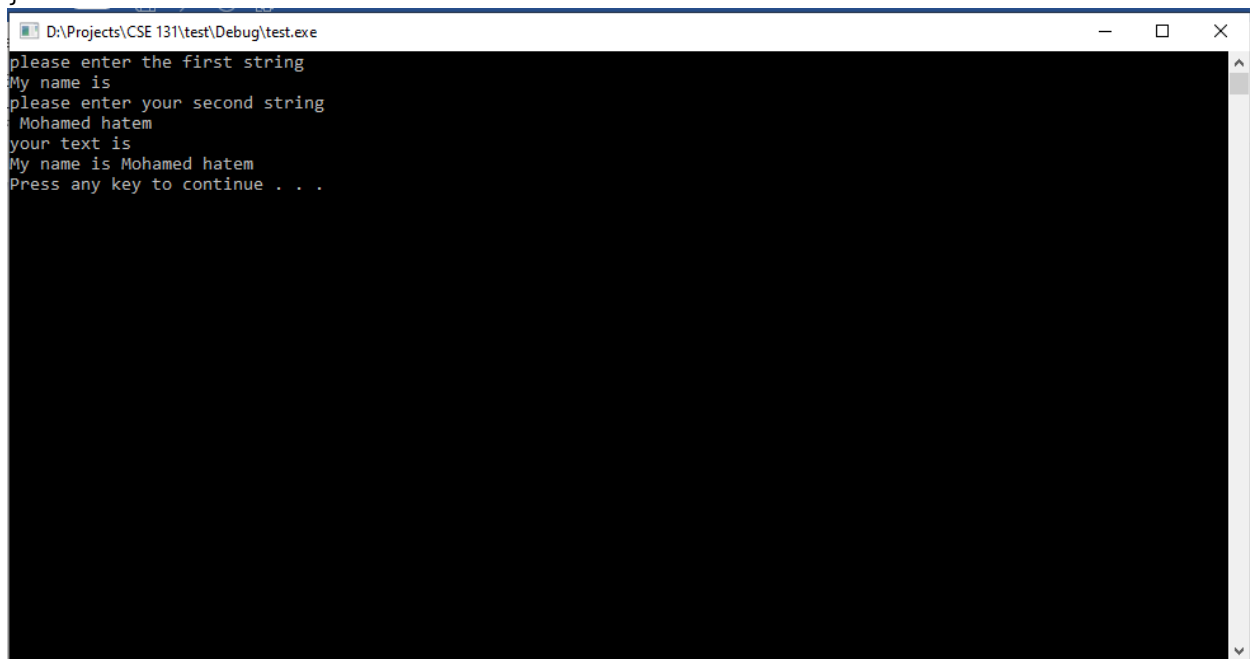
```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
        char ss[100];
        char* ptr;
        int count = 0;
        cout << "enter a text \n";
        cin.getline(ss, 100, '\n');
        ptr = strtok(ss, " ");
        while (ptr != NULL)
        {
                ptr = strtok(NULL, " ");
                count++;
        }
        cout <<"no of words = "<<count<< endl;
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                          —   □   X

enter a text
This is my word do you like it
no of words = 8
Press any key to continue . . .
```

6-
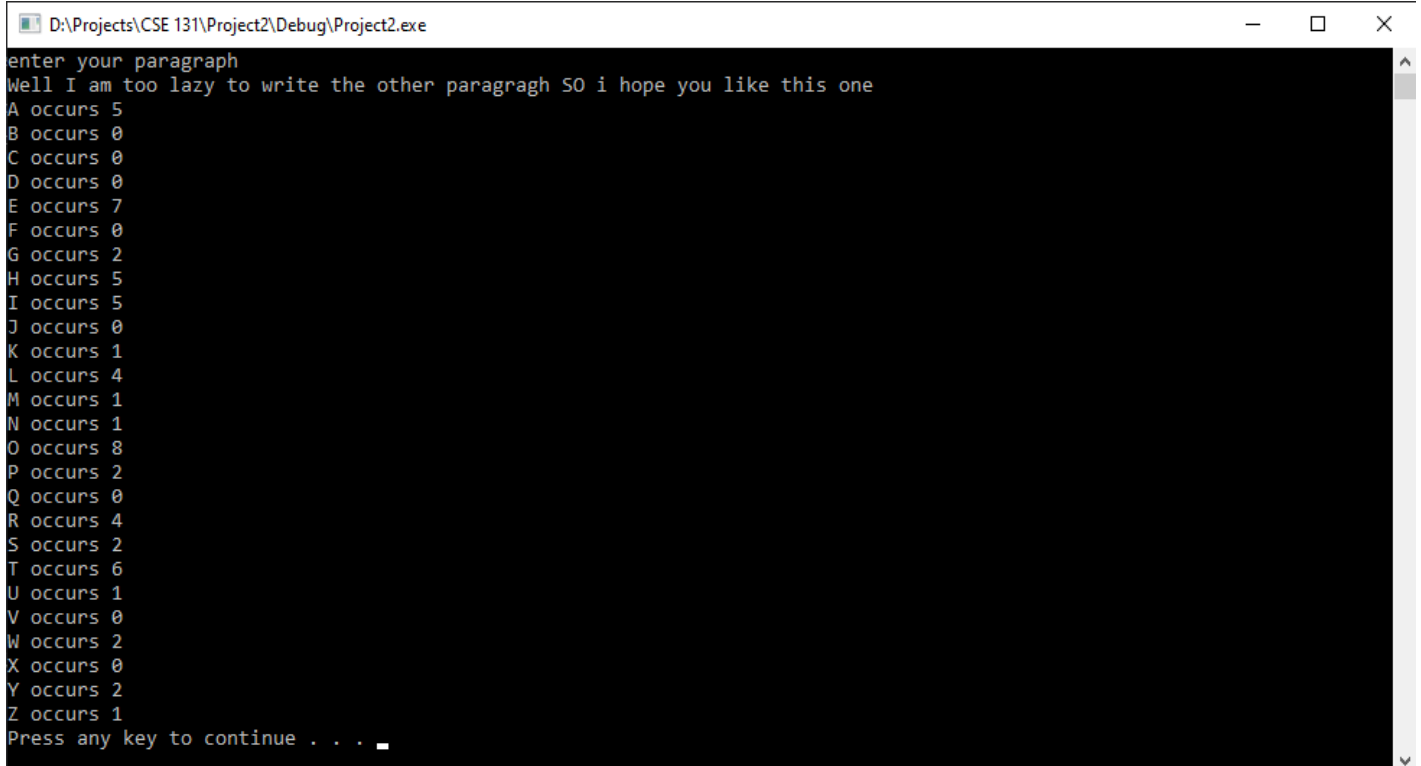
```cpp
#include<iostream>
#include<cstring>
using namespace std;
int main()
{
        char s1[100];
        char s2[100];
        cout << "please enter the first string " << endl;
        cin.getline(s1, 100, '\n');
        cout << "please enter your second string " << endl;
        cin.getline(s2, 100, '\n');
        strcat(s1, s2);
        cout << "your text is " << endl << s1 << endl;
        system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
please enter the first string
My name is
please enter your second string
 Mohamed hatem
your text is
My name is Mohamed hatem
Press any key to continue . . .
```

7-

```cpp
#include<iostream>
#include<cstring>
#include<string.h>
using namespace std;
int main()
{

    char par[100];
    int c = 0, counter[26] = { 0 }, a;
    cout << "enter your paragraph" << endl;
    cin.getline(par, 100, '\n');
    for (c = 0; par[c] != '\0'; c++)
    {
        if (par[c] >= 'a' &&par[c] <= 'z')
        {
            a = par[c] - 'a';
            counter[a]++;
        }
        else if (par[c] >= 'A'&& par[c] <= 'Z')
        {
            a = par[c] - 'A';
            counter[a]++;
        }
    }
    for (char C = 'A', c = 0; C <= 'Z'; C++, c++)
    {
        cout << C << " occurs " << counter[c] << endl;
    }
    system("pause");
}
```
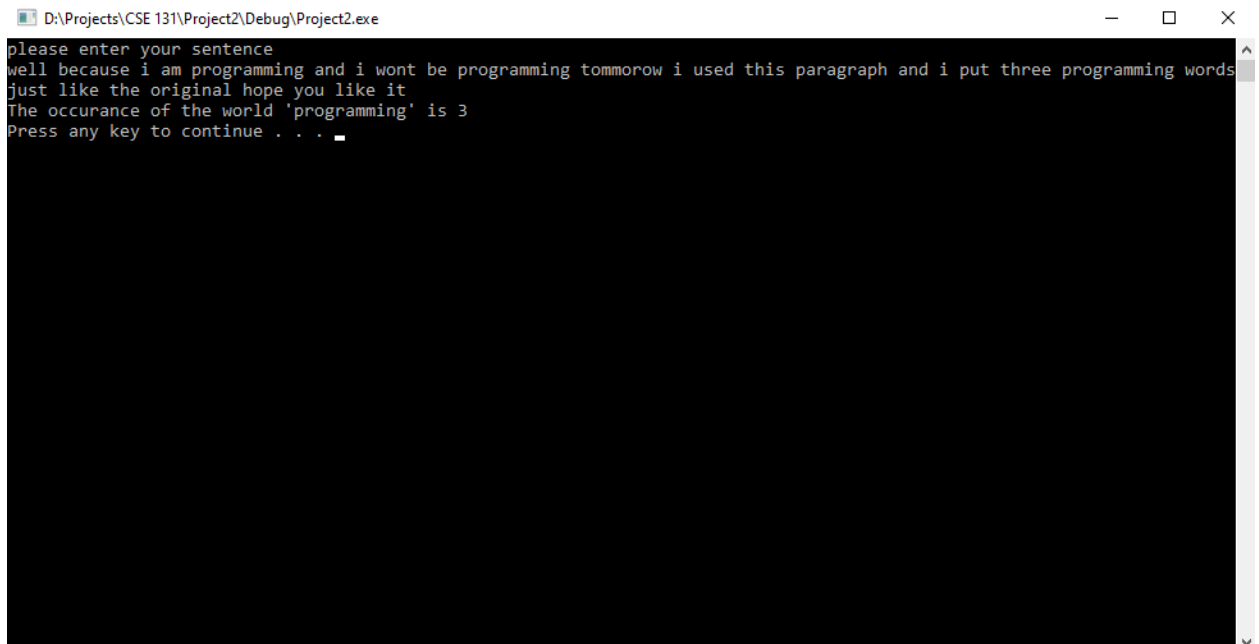
D:\Projects\CSE 131\Project2\Debug\Project2.exe

```
enter your paragraph
Well I am too lazy to write the other paragragh SO i hope you like this one
A occurs 5
B occurs 0
C occurs 0
D occurs 0
E occurs 7
F occurs 0
G occurs 2
H occurs 5
I occurs 5
J occurs 0
K occurs 1
L occurs 4
M occurs 1
N occurs 1
O occurs 8
P occurs 2
Q occurs 0
R occurs 4
S occurs 2
T occurs 6
U occurs 1
V occurs 0
W occurs 2
X occurs 0
Y occurs 2
Z occurs 1
Press any key to continue . . . _
```

8-

```cpp
#include<iostream>
#include<cstring>
#include<string.h>
using namespace std;
int main()
{
    char sentence[200];
    char word[] = "programming";
    int number = 0;
    int j;
    cout << "please enter your sentence" << endl;
    cin.getline(sentence, 200, '\n');
    for (int v = 0; v <= strlen(sentence); v++)
    {
        for (j = 0; j <= strlen(word); j++)
        {
            if (sentence[v + j] != word[j])
            {
                break;
            }
        }
        if (j == strlen(word))
        {
            number++;
        }
    }

    cout << "The occurance of the world 'programming' is " << number << endl;



    system("pause");
}
```

9-
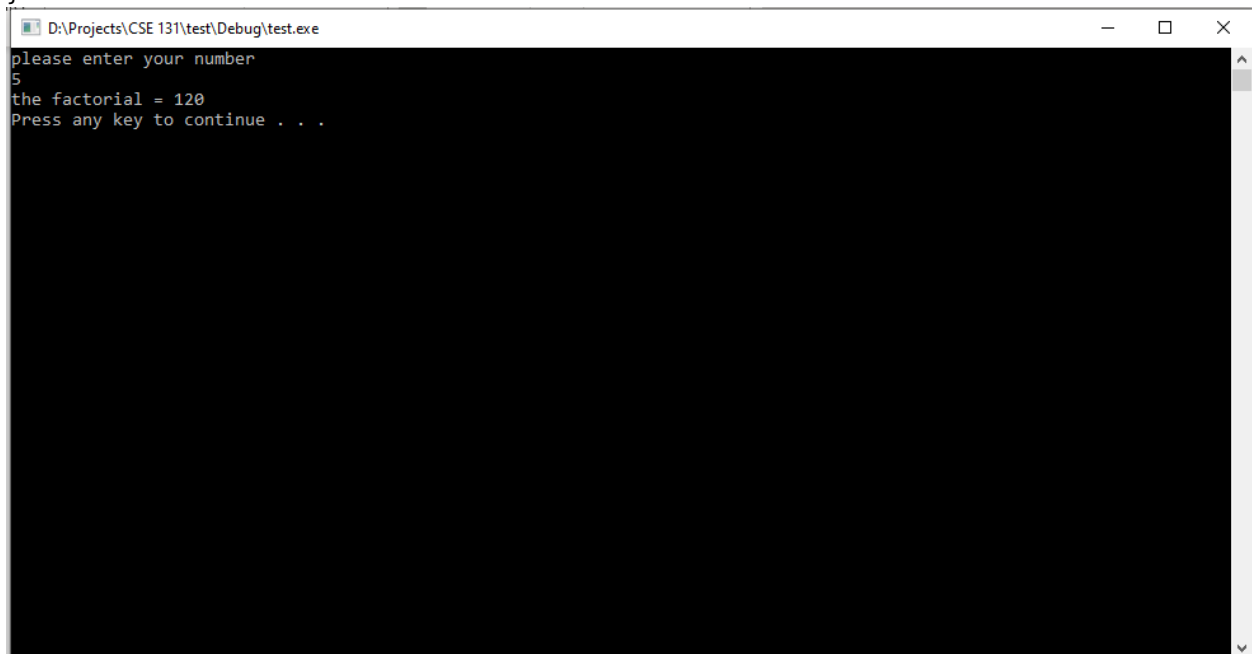
I. copies the contents of the src to the des.
II. return the length of a string without counting the null terminator.
III. compares str1 with str2 and returns 0 if str1 == str2, returns 1 if str1 < str2 and returns 1 if str1 > str2
IV. returns the integer value of a string for example "123"---123
V. returns the float value of a string

Sheet (7)

1-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int factfun(int n)
{
    if (n == 0)
        return 1;
    else
        return (n*factfun(n - 1));
}
int main()
{
    int f;
    cout << "please enter your number" << endl;
    cin >> f;
    cout << "the factorial = " << factfun(f) << endl;

    system("pause");
}
```



```
please enter your number
5
the factorial = 120
Press any key to continue . . .
```

2-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int gcd(int a, int b)
{
        if (b == 0)
                return a;
        return gcd(b, a % b);
}
int main()
{
        int a, b;
        cout << "Enter the values of a and b: " << endl;
        cin >> a >> b;
        cout << "GCD of " << a << " and " << b << " is " << gcd(a, b) << endl;

        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                — □ ×

Enter the values of a and b:
3
2
GCD of 3 and 2 is 1
Press any key to continue . . .
```

3-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int fabfun(int c)
{
        if (c <= 1)
                return c;
        return (fabfun(c - 1) + fabfun(c - 2));
}
int main()
{
        int f;
        cout << "enter your fibomacci number " << endl;
        cin >> f;
        cout << "the number = " << fabfun(f) << endl;

        system("pause");
}
```
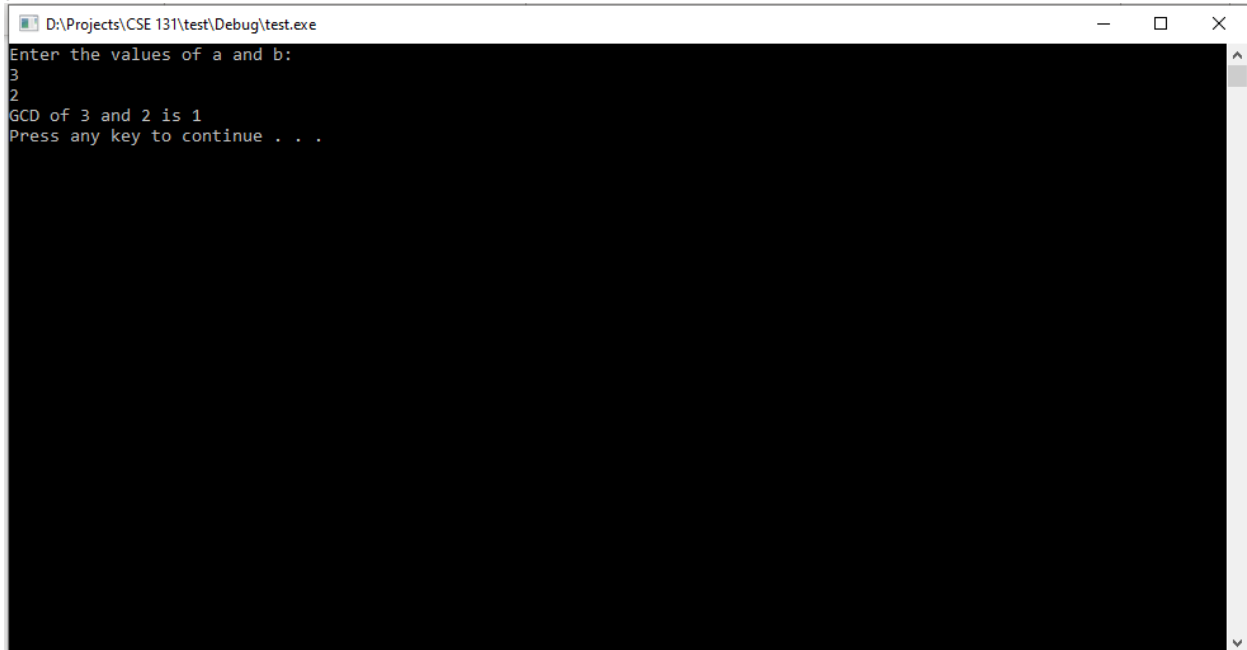
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×

enter your fibomacci number
9
the number = 34
Press any key to continue . . .
```

4-
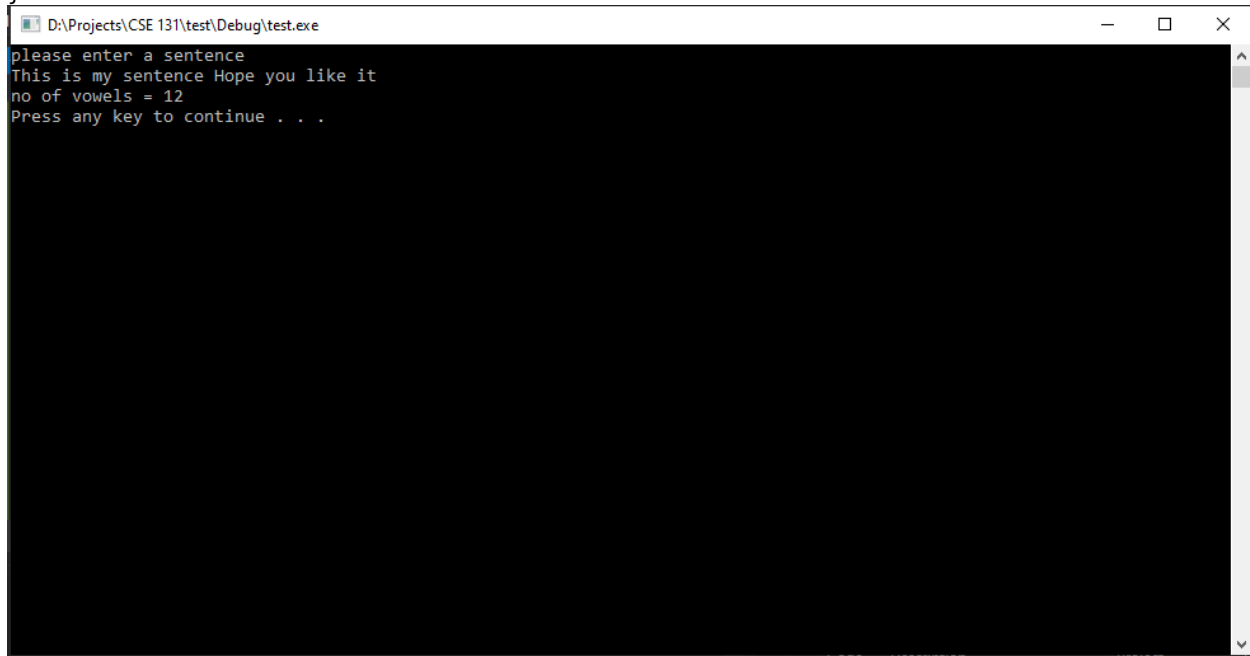
Print each digit in the number into distinct line

5-

    a. 15

    b. 6

6-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
bool vowels(char letters)
{
    letters = toupper(letters);
    return (letters == 'A' || letters == 'E' || letters == 'O' || letters == 'U' ||
letters == 'I');

}
int vowelsno(string vow, int n)
{
    if (n == 1)
        return vowels(vow[n - 1]);
    return vowelsno(vow, n - 1) + vowels(vow[n - 1]);
}
int main()
{
    char v[100];
    cout << "please enter a sentence " << endl;
    cin.getline(v, 100, '\n');
    cout << "no of vowels = " << vowelsno(v, strlen(v)) <<endl;
    system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    X
please enter a sentence
This is my sentence Hope you like it
no of vowels = 12
Press any key to continue . . .
```

7-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
float powerfun(int x, int  y)
{
        if (y == 0)
                return 1;
        else if (y == 1)
                return x;
        return x*pow(x, y - 1);


}
int main()
{
        int x, y;
        cout << "please enter x , y " << endl;
        cin >> x >> y;
        cout << "answer = " << powerfun(x, y) << endl;
        system("pause");
}
```
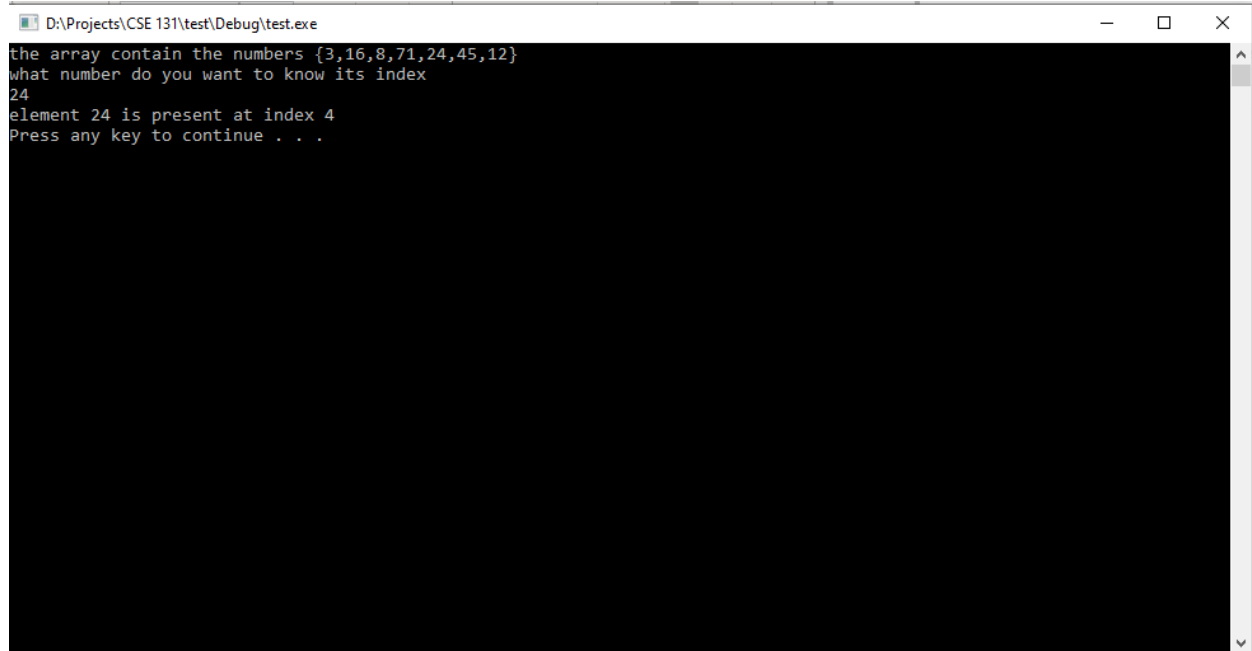
```
D:\Projects\CSE 131\test\Debug\test.exe                          —    □    ✕
please enter x , y
2
3
answer = 8
Press any key to continue . . .
```

8-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int seqfun(int arry[], int x, int b, int e)
{
        if (e < b)
                return -1;
        if (arry[e] == x)
                return e;
        if (arry[b] == x)
                return b;
        return seqfun(arry, x, b + 1, e - 1);
}
int main()
{
        int arr[7] = { 3,16,8,71,24,45,12 };
        int n = 7;
        int z;
        cout << "the array contain the numbers {3,16,8,71,24,45,12} " << endl;
        cout << "what number do you want to know its index " << endl;
        cin >> z;
        int index = seqfun(arr, z, 0, n);
        if (index == -1)
        {
                cout << "element " << z << " is not present " << endl;
        }
        else
        {
                cout << "element " << z << " is present at index " << seqfun(arr, z, 0, n)
<< endl;
        }
        system("pause");
```

}
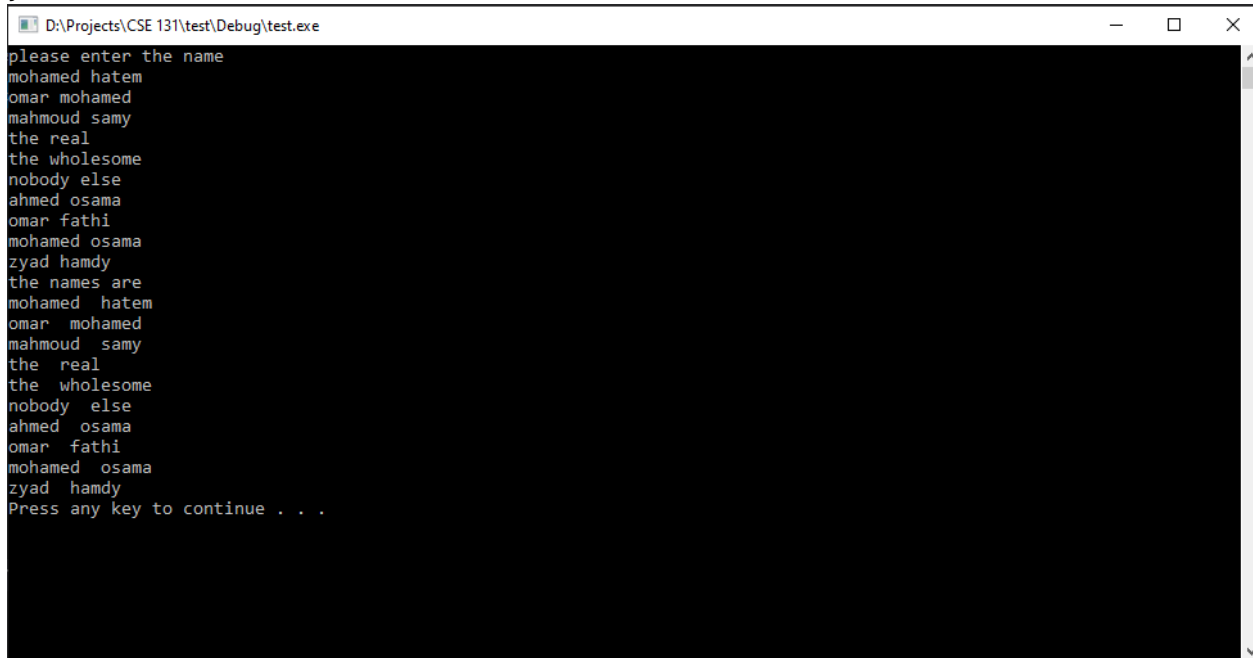
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×

the array contain the numbers {3,16,8,71,24,45,12}
what number do you want to know its index
24
element 24 is present at index 4
Press any key to continue . . .
```

Sheet (8)

1-
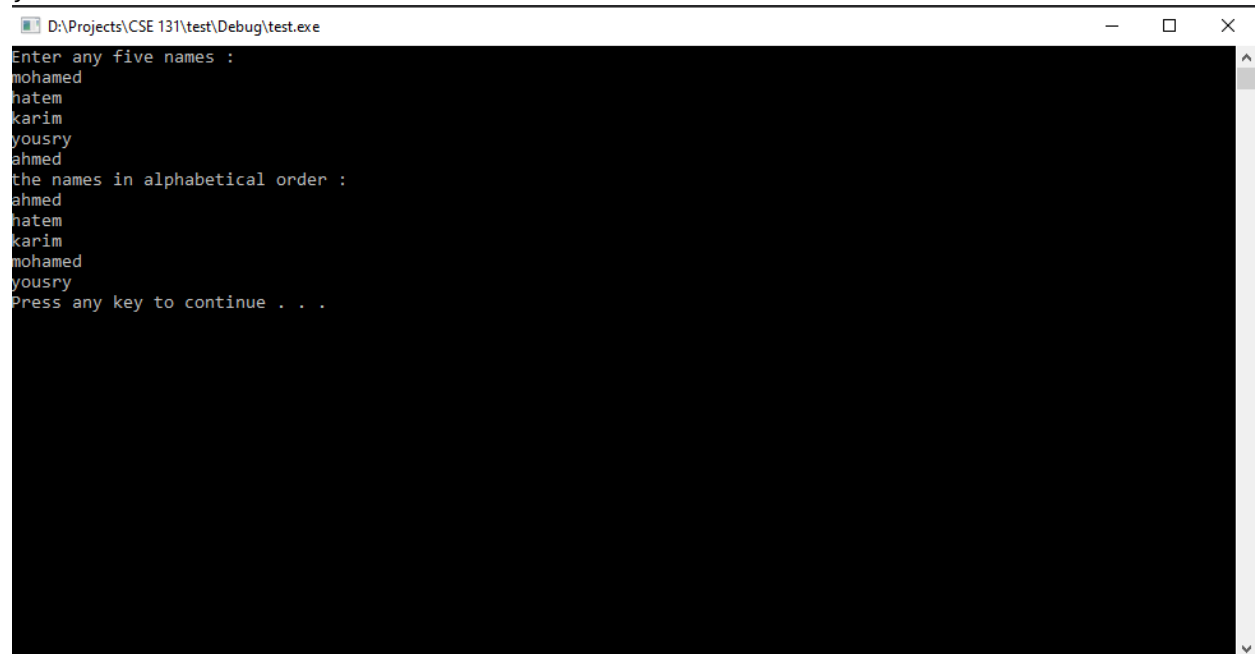
```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int main()
{
        char strng[20][30];
        cout << "please enter the name " << endl;
        for (int i = 0; i < 20; i++)
        {
                cin >> strng[i];
        }
        cout << "the names are " << endl;
        for (int j = 0; j < 19; j+=2)
         cout << strng[j]<<"  "<<strng[j+1]<<endl;
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                          —    ☐    ✕

please enter the name
mohamed hatem
omar mohamed
mahmoud samy
the real
the wholesome
nobody else
ahmed osama
omar fathi
mohamed osama
zyad hamdy
the names are
mohamed  hatem
omar   mohamed
mahmoud   samy
the   real
the   wholesome
nobody  else
ahmed   osama
omar   fathi
mohamed   osama
zyad   hamdy
Press any key to continue . . .
```

2-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int main()
{
    char str[5][20], t[20];
    int i, j;
    cout << "Enter any five names : "<<endl;
    for (i = 0; i<5; i++)
    {
        cin >> str[i];
    }
    for (i = 1; i<5; i++)
    {
        for (j = 1; j<5; j++)
        {
            if (strcmp(str[j - 1], str[j])>0)
            {
                strcpy(t, str[j - 1]);
                strcpy(str[j - 1], str[j]);
                strcpy(str[j], t);
            }
        }
    }
    cout << "the names in alphabetical order : \n";
    for (i = 0; i<5; i++)
    {
        cout << str[i] << "\n";
    }
    system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe   —   □   ✕

```
Enter any five names :
mohamed
hatem
karim
yousry
ahmed
the names in alphabetical order :
ahmed
hatem
karim
mohamed
yousry
Press any key to continue . . .
```
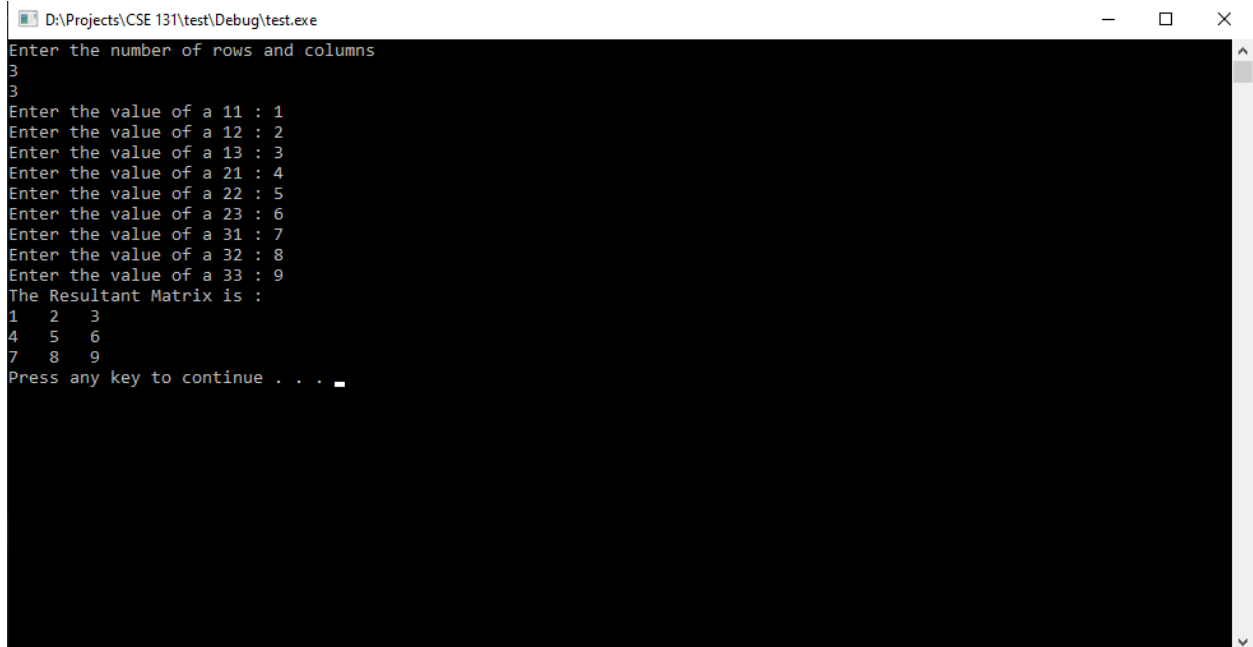
3-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int main()
{
        int i, j, a[3][3], b[3][3], c[3][3], d[3][3];
        cout << "Enter the Elements of Matrix A: \n";
        for (i = 0; i<3; i++)
        {
                for (j = 0; j<3; j++)
                {
                        cin >> a[i][j];
                }
        }
        cout << "Enter the Elements of Matrix B: \n";
        for (i = 0; i<3; i++)
        {
                for (j = 0; j<3; j++)
                {
                        cin >> b[i][j];
                }
        }
        for (i = 0; i<3; i++)
        {
                for (j = 0; j<3; j++)
                {
                        c[i][j] = a[i][j] + b[i][j];
                        d[i][j] = a[i][j] - b[i][j];
                }
        }
        cout << "The Resultant Matrix C=A+B is :\n";
        for (i = 0; i<3; i++)
        {
                for (j = 0; j<3; j++)
                {
                        cout << c[i][j] << " ";
                }
                cout << "\n";
        }
        cout << "The Resultant Matrix D=A-B is : \n";
        for (i = 0; i<3; i++)
        {
                for (j = 0; j<3; j++)
                {
                        cout << d[i][j] << " ";
                }
                cout << "\n";
        }
        system("pause");
```

}

```
Enter the Elements of Matrix A:
1
2
3
4
5
6
7
8
9
Enter the Elements of Matrix B:
1
2
3
4
5
6
7
8
9
The Resultant Matrix C=A+B is :
2 4 6
8 10 12
14 16 18
The Resultant Matrix D=A-B is :
0 0 0
0 0 0
0 0 0
Press any key to continue . . .
```

4-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int main()
{
    int i, j, N[100][100], n, m;
    cout << "Enter the number of rows and columns \n";
    cin >> n >> m;
    for (i = 0; i<n; i++)
    {
        for (j = 0; j<m; j++)
        {
            cout << "Enter the value of a " << i + 1 << j + 1 << " : ";
            cin >> N[i][j];
        }
    }
    cout << "The Resultant Matrix is :\n";
    for (i = 0; i<n; i++)
    {
        for (j = 0; j<m; j++)
        {
            cout << N[i][j] << "   ";
        }
        cout << "\n";
    }
    system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                          —  ☐  ✕

Enter the number of rows and columns
3
3
Enter the value of a 11 : 1
Enter the value of a 12 : 2
Enter the value of a 13 : 3
Enter the value of a 21 : 4
Enter the value of a 22 : 5
Enter the value of a 23 : 6
Enter the value of a 31 : 7
Enter the value of a 32 : 8
Enter the value of a 33 : 9
The Resultant Matrix is :
1   2   3
4   5   6
7   8   9
Press any key to continue . . .
```

5-

```cpp
#include <iostream>
#include<math.h>
#include<cstring>
using namespace std;

int main()
{
        int a[3][3];
        int b[3][3];
        int c[3][3];
        cout << endl << "Enter elements of matrix A :" << endl;
        for (int i = 0; i < 3; i++)
                for (int j = 0; j < 3; j++)
                {
                        cout << "Enter element a " << i + 1 << j + 1 << " : ";
                        cin >> a[i][j];
                }
        cout << endl << "Enter elements of matrix B :" << endl;
        for (int i = 0; i < 3; i++)
                for (int j = 0; j < 3; j++)
                {
                        cout << "Enter element b " << i + 1 << j + 1 << " : ";
                        cin >> b[i][j];
                }
        for (int i = 0; i < 3; i++)
                for (int j = 0; j < 3; j++)
                {
                        c[i][j] = 0;
                }
        for (int i = 0; i < 3; i++)
                for (int j = 0; j < 3; j++)
                        for (int k = 0; k < 3; k++)
                        {
                                c[i][j] += a[i][k] * b[k][j];
                        }
        cout << endl << "Multiplying Matrix : " << endl;
        for (int i = 0; i < 3; i++)
                for (int j = 0; j < 3; j++)
                {
                        cout << " " << c[i][j];
                        if (j == 3 - 1)
                                cout << endl;
                }

        system("pause");
```

}

6-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
const int MAX = 100;
void printDiagonalSums(int mat[MAX][MAX], int n)
{
    int principal = 0, secondary = 0;
    for (int i = 0; i < n; i++) {
```

```cpp
            for (int j = 0; j < n; j++)
            {
                if (i == j)
                    principal += mat[i][j];
                if ((i + j) == (n - 1))
                    secondary += mat[i][j];
            }
        }
    cout << "Principal Diagonal:" << principal << endl;
    cout << "Secondary Diagonal:" << secondary << endl;
}
int main()
{
    int a[MAX][MAX],n;
    cout << "Please enter number of row and columns of square matrix " << endl;
    cin >> n;
    for (int i = 0; i<n; i++)
    {
        for (int j = 0; j<n; j++)
        {
            cout << "Enter the value of a " << i + 1 << j + 1 << " : ";
            cin >> a[i][j];
        }
    }
    printDiagonalSums(a, n);
    system("pause");
}
```
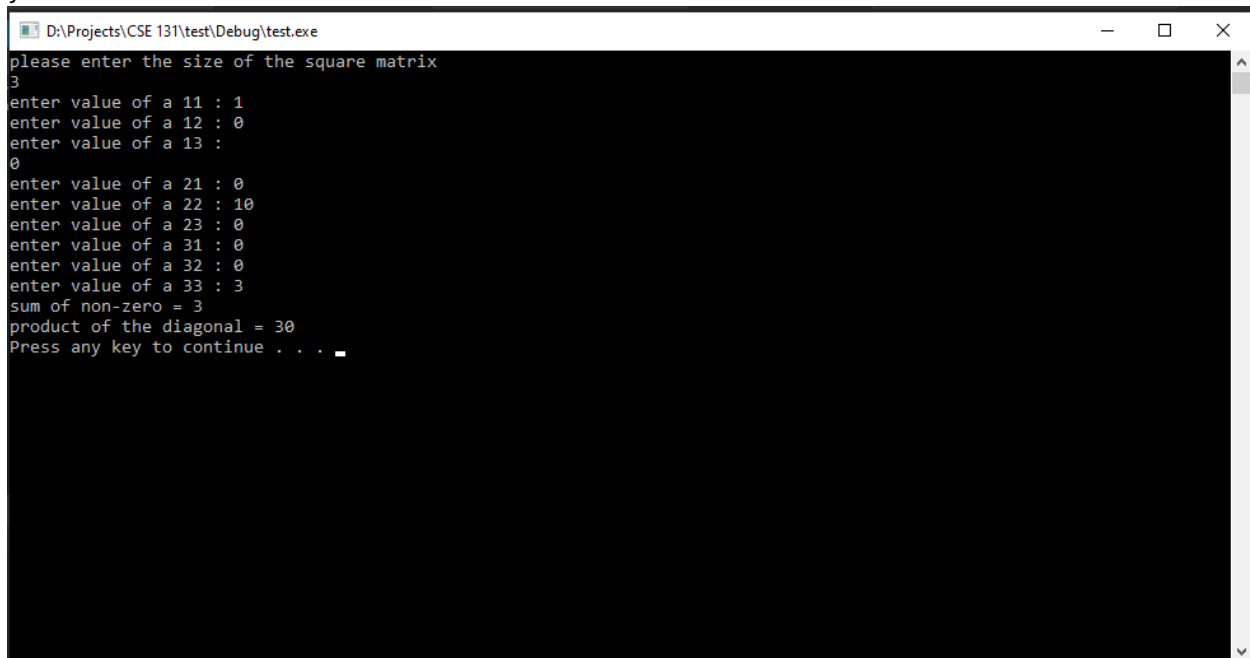


```
Please enter number of row and columns of square matrix
3
Enter the value of a 11 : 1
Enter the value of a 12 : 2
Enter the value of a 13 : 3
Enter the value of a 21 : 4
Enter the value of a 22 : 5
Enter the value of a 23 : 6
Enter the value of a 31 : 7
Enter the value of a 32 : 8
Enter the value of a 33 : 9
Principal Diagonal:15
Secondary Diagonal:15
Press any key to continue . . .
```

7-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
int main()
{
    int a[5][5];
    int s;
    cout << "please enter the size of the square matrix " << endl;
    cin >> s;
    for (int i = 0; i < s; i++)
        for (int j = 0; j < s; j++)
        {
            cout << "enter value of a " << i + 1 << j + 1 << " : ";
            cin >> a[i][j];
        }
    int sum = 0;
    for (int i = 0; i < s; i++)
        for (int j = 0; j < s; j++)
        {
            if (a[i][j] != 0)
                sum++;
        }
    cout << "sum of non-zero = " << sum << endl;
    int product = 1;
    for (int i = 0; i < s; i++)
        product *= a[i][i];
    cout << "product of the diagonal = " << product << endl;

    system("pause");
}
```
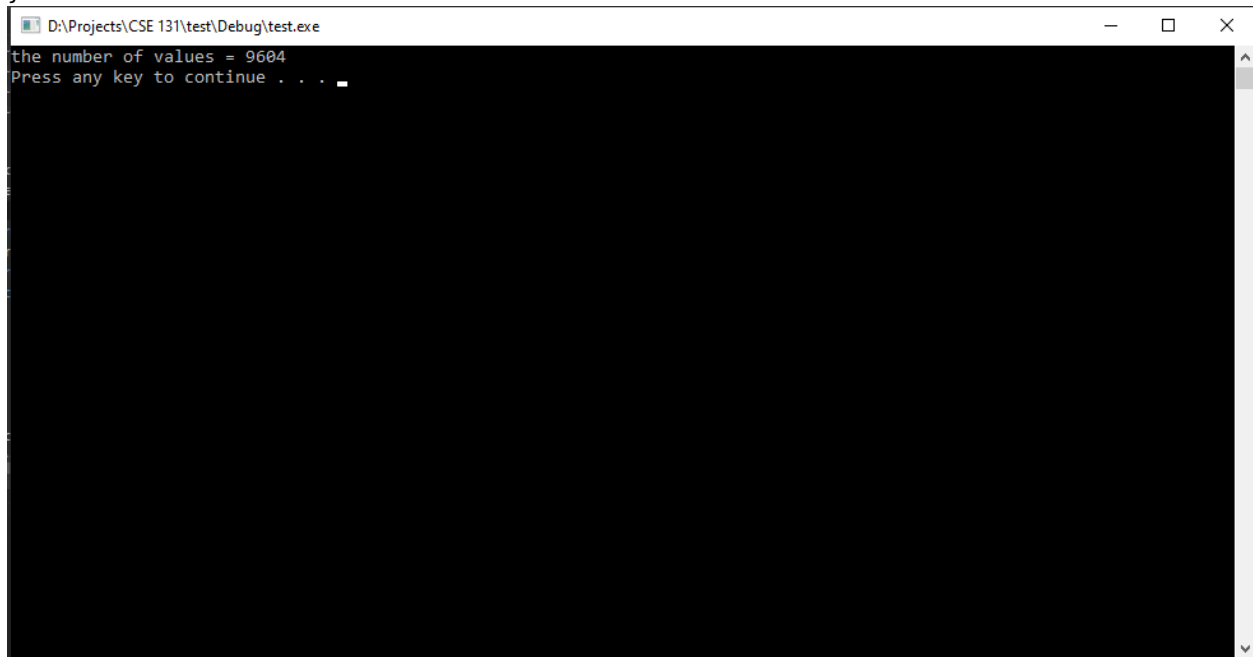
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —   □   ×

please enter the size of the square matrix
3
enter value of a 11 : 1
enter value of a 12 : 0
enter value of a 13 :
0
enter value of a 21 : 0
enter value of a 22 : 10
enter value of a 23 : 0
enter value of a 31 : 0
enter value of a 32 : 0
enter value of a 33 : 3
sum of non-zero = 3
product of the diagonal = 30
Press any key to continue . . . _
```

8-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
#include<time.h>
using namespace std;
const int MAX = 100;
void counter( int a[MAX][MAX]);
int main()
{
        int n[MAX][MAX];
        srand(time(NULL));
        int num = rand() % 1000 + 1;
        for (int i = 0; i<100; i++)
        {
                for (int j = 0; j<100; j++)
                {
                        n[i][j]=num;
                }
        }
        counter(n);
        system("pause");
}
void counter( int a[MAX][MAX])
{
        int counter = 0;
        for (int i = 1; i<99; i++)
        {
                for (int j = 1; j<99; j++)
                {
                        if (a[i][j] > ((a[i - 1][j - 1]) && a[i][j] >(a[i - 1][j]) &&
a[i][j] > (a[i - 1][j + 1]) && a[i][j] > (a[i][j - 1]) && a[i][j] > (a[i][j + 1]) &&
a[i][j] > (a[i + 1][j - 1] ) && a[i][j] > (a[i + 1][j]) && a[i][j] > (a[i + 1][j + 1])))
                        {
                                counter++;
                        }
                }
        }
        cout << "the number of values = " << counter << endl;
```

}

D:\Projects\CSE 131\test\Debug\test.exe

the number of values = 9604
Press any key to continue . . .

Sheet (9)

1-

3 0x1024 0x1024 0x1128

2-

3 4 5 2

0x1024 0x1028 0x1032 0x1036

4 1 4

3-

7 8 2

8 2 7

4-

1.2

3.4

3.1

5-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
#include<time.h>
using namespace std;
int GetValues(char* Text, double* Values)
{
        int nValues = 0;
        char * pch;
        cout << "Splitting string " << Text << " into tokens:\n";
        pch = strtok(Text, " ");
        while (pch != NULL)
        {
                cout<<pch<<endl;
                pch = strtok(NULL, " ");
                nValues++;
        }
        return nValues;
}
int main()
{
        char Text[] = "7672.28 276763.22 0.767 1.2878 772.2 1878 152 0.0123";
        double Values[100];
        int nValues;
        GetValues(Text, Values);
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×

Splitting string 7672.28 276763.22 0.767 1.2878 772.2 1878 152 0.0123 into tokens:
7672.28
276763.22
0.767
1.2878
772.2
1878
152
0.0123
Press any key to continue . . .
```

6-

```cpp
#include<iostream>
#include <stdio.h>
#include <string.h>
using namespace std;
int GetValues(char* Text, double* Values)
{
        int nValues = 0;
        double Ftoken;
        char cc = Text[0];
        char * token;
        int i = 0;
        int j = 1;
        while (cc !='\0')
        {
                if (cc != ' ')
                {
                    token[i] = cc;
                        i++;
                        cc = Text[j];
                        j++;
                }
                else
                {
                        token[i] = '\0';
                        Ftoken = atof(token);
                        cout << Ftoken << endl;
                        i = 0;
                        Values[nValues] = Ftoken;
                        nValues++;
                }
        }
        return nValues;
}
int main()
{
        char Text[] = "7672.28 276763.22 0.767 1.2878 772.2 1878 152 0.0123";
        double Values[100];
        int nValues=GetValues(Text, Values);
        for (int i = 0; i<nValues; i++)
        cout << Values[i] << endl;
        system("pause");
```
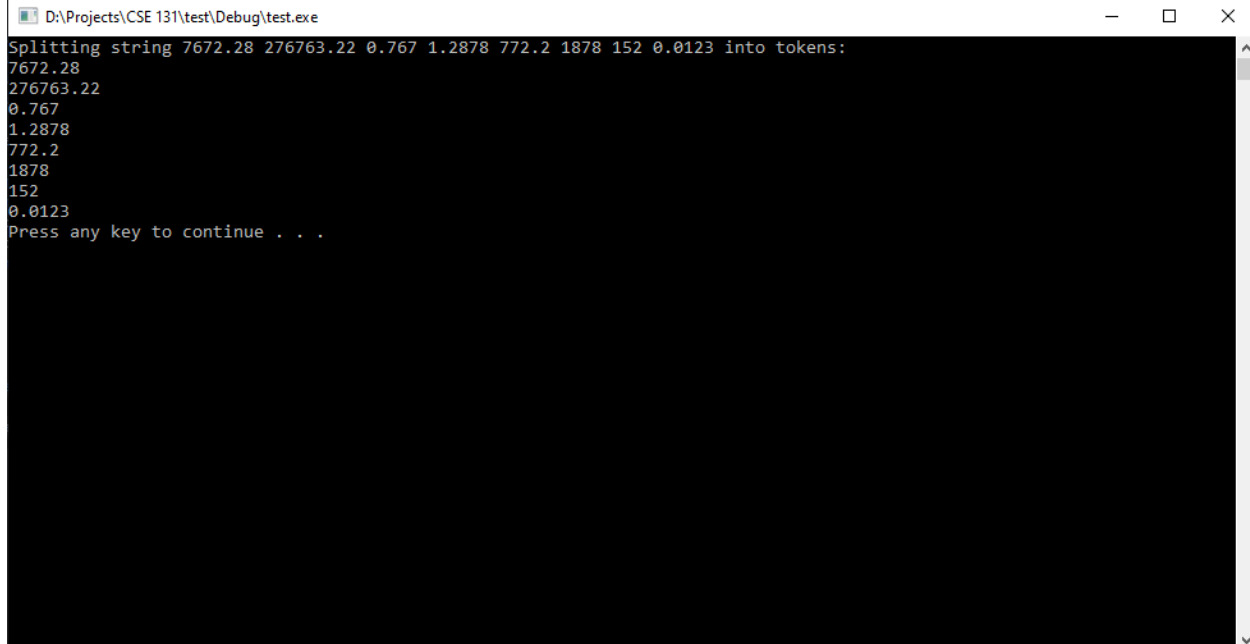
}

```
D:\Projects\CSE 131\test\Debug\test.exe                                    —    □    ×

Splitting string 7672.28 276763.22 0.767 1.2878 772.2 1878 152 0.0123 into tokens:
7672.28
276763.22
0.767
1.2878
772.2
1878
152
0.0123
Press any key to continue . . .
```
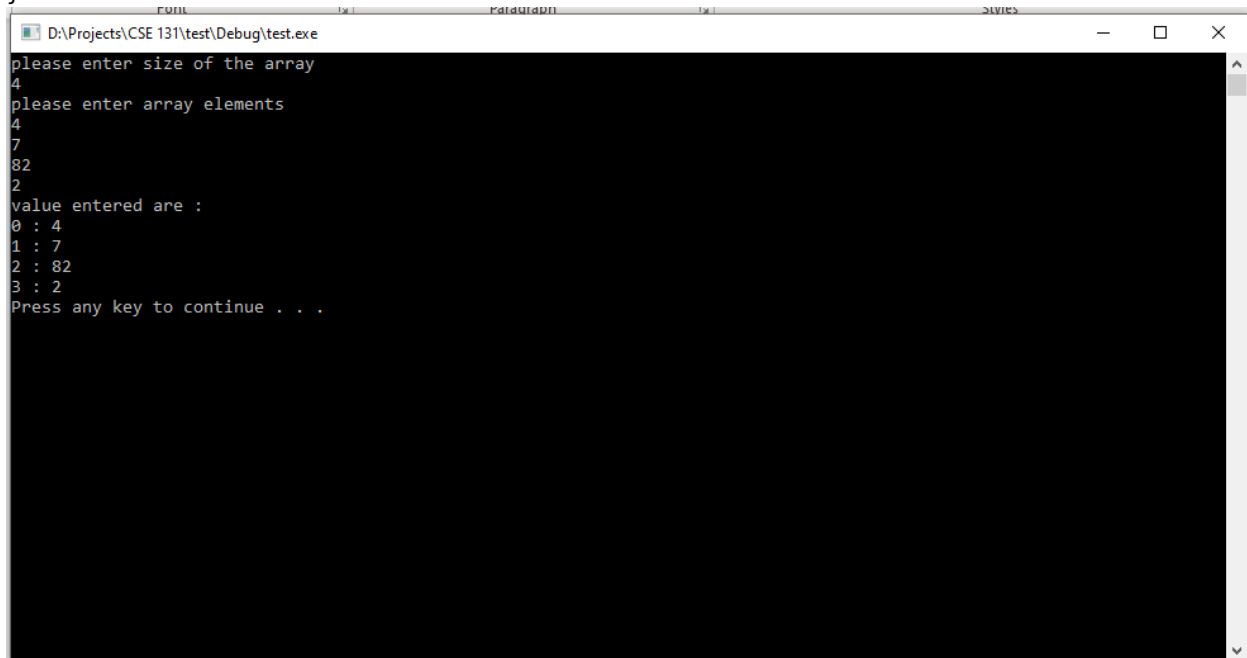
7-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
void main()
{
        int n;
        int * parr;
        cout << "please enter size of the array " << endl;
        cin >> n;
        parr = new int[n];
        cout << "please enter array elements" << endl;
        for (int i = 0; i < n; i++)
        {
                cin >> parr[i];
        }
        cout << "value entered are :" << endl;
        for (int i = 0; i < n; i++)
        {
                cout << i << " : " << parr[i] << endl;
        }
        system("pause");
}
```
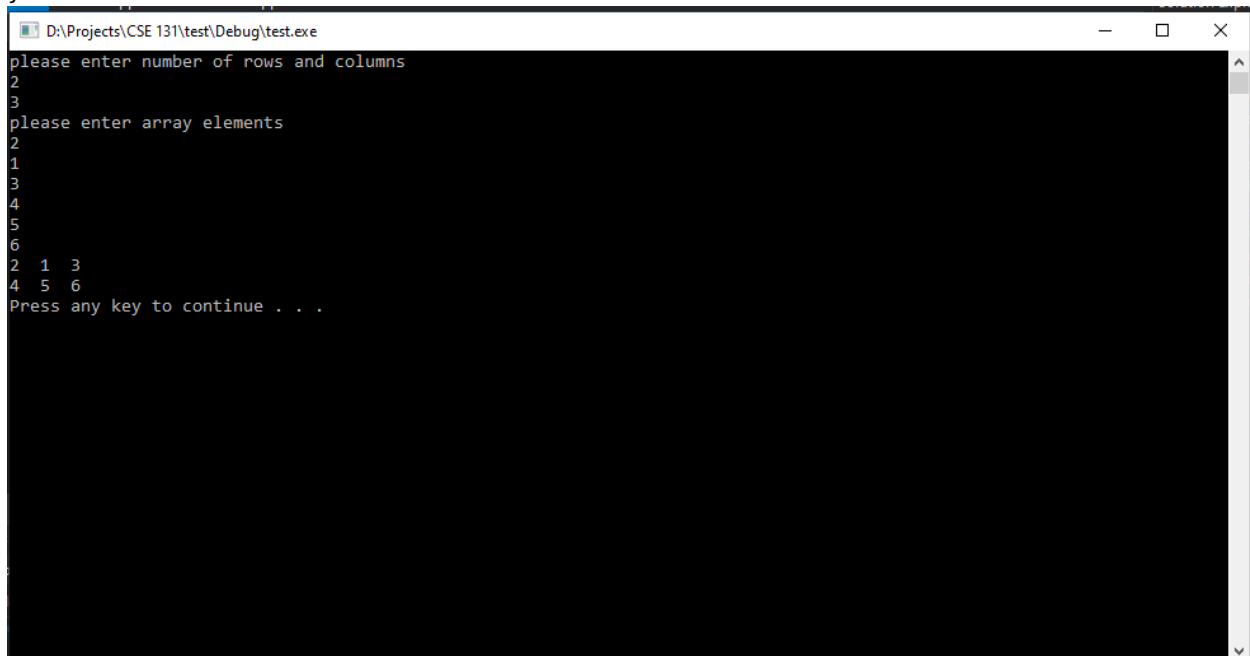
```
D:\Projects\CSE 131\test\Debug\test.exe                                    —   □   ×

please enter size of the array
4
please enter array elements
4
7
82
2
value entered are :
0 : 4
1 : 7
2 : 82
3 : 2
Press any key to continue . . .
```

8-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
void main()
{
    int rows, cols;
    cout << "please enter number of rows and columns " << endl;
    cin >> rows >> cols;
    int **pmat;
    pmat = new int *[rows];
    for (int i = 0; i < rows; i++)
    {
        *(pmat + i) = new int[cols];
    }
    cout << "please enter array elements " << endl;
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < cols; j++)
        {
            cin >> *(*(pmat + i) + j);
        }
    }
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < cols; j++)
        {
            cout << *(*(pmat + i) + j) << "  ";
        }
        cout << endl;
    }
    system("pause");
}
```

D:\Projects\CSE 131\test\Debug\test.exe

```
please enter number of rows and columns
2
3
please enter array elements
2
1
3
4
5
6
2  1  3
4  5  6
Press any key to continue . . .
```

9-

```cpp
#include<iostream>
#include<math.h>
#include<cstring>
using namespace std;
#include<string.h>
int main()
{
        char *x[20];
        int i, n = 0;
        void reorder(int n, char *x[]);
        cout << "enter number of names " << endl;
        cin >> n;
        cout << "enter your names" << endl;
        for (i = 0; i<n; i++)
        {
                x[i] = (char *)malloc(20 * sizeof(char));
                cin >> x[i];
        }
        reorder(n, x);
        cout << "the order is : " << endl;
        for (i = 0; i<n; i++)
        {
                cout << x[i] << endl;
        }
        system("pause");
}
void reorder(int n, char *x[])
{
        int i, j;
        char t[20];
        for (i = 0; i<n - 1; i++)
                for (j = i + 1; j<n; j++)
                        if (strcmp(x[i], x[j])>0)
                        {
                                strcpy(t, x[j]);
                                strcpy(x[j], x[i]);
                                strcpy(x[i], t);
                        }
```

}

```
D:\Projects\CSE 131\test\Debug\test.exe

enter number of names
3
enter your names
mohamed
hatem
karim
the order is :
hatem
karim
mohamed
Press any key to continue . . .
```

Sheet (10)
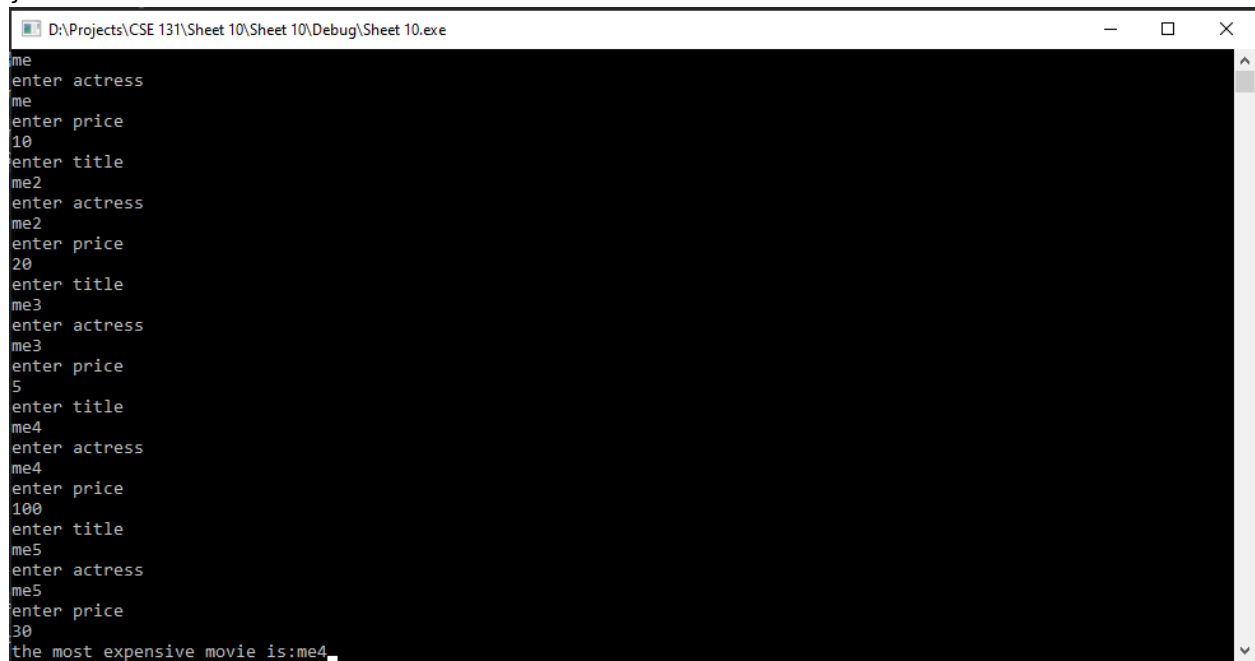
1-

```cpp
#include<iostream>
#include <stdio.h>
#include<string>
using namespace std;
struct Movie
{
        string title;
        string actress;
        float Price;
};
int main()
{
        Movie arr[5];
        for (int i = 0; i<5; i++)
        {
                cout << "enter title\n";
                cin >> arr[i].title;
                cout << "enter actress\n";
                cin >> arr[i].actress;
                cout << "enter price\n";
                cin >> arr[i].Price;
        }
        int MaxPriceIndex = 0;
        for (int i = 0; i<5; i++)
        {
                if (arr[i].Price > arr[MaxPriceIndex].Price)
                {
                        MaxPriceIndex = i;
                }
        }
        cout << "the most expensive movie is:" << arr[MaxPriceIndex].title;
        getchar();
        getchar();
        system("pause");
```

}

```
me
enter actress
me
enter price
10
enter title
me2
enter actress
me2
enter price
20
enter title
me3
enter actress
me3
enter price
5
enter title
me4
enter actress
me4
enter price
100
enter title
me5
enter actress
me5
enter price
30
the most expensive movie is:me4
```

2-

```cpp
#include <stdio.h>
#include<string>
using namespace std;
struct automobiles
{
        char manfacture[10000];
        int yom;
        float price;
};
int main()
{
        automobiles x[5];
        for (int i = 0; i < 5; i++)
        {
                cout << "for automobile number " << i + 1 << endl;
                cout << "enter manfacture name : ";
                cin>>x[i].manfacture;
                cout << "enter the year of manfactuer : ";
                cin >> x[i].yom;
                cout << "enter price : ";
                cin >> x[i].price;
        }
        cout << "enter year you want to search about : ";
        int year;
        cin >> year;
        for (int i = 0; i <5; i++)
        {
                if (x[i].yom == year)
                {
                        cout << "car is manifactured by " << x[i].manfacture << endl;
                        cout << "the price is " << x[i].price << endl;
                }
        }
        system("pause");
}
```

```
D:\Projects\CSE 131\test\Debug\test.exe                              —    □    ×

for automobile number 1
enter manfacture name : me
enter the year of manfactuer : 1234
enter price : 1234
for automobile number 2
enter manfacture name : me
enter the year of manfactuer : 123
enter price : 123
for automobile number 3
enter manfacture name : me
enter the year of manfactuer : 12
enter price : 12
for automobile number 4
enter manfacture name : me
enter the year of manfactuer : 1
enter price : 1
for automobile number 5
enter manfacture name : me
enter the year of manfactuer : 0
enter price : 0
enter year you want to search about : 1234
car is manifactured by me
the price is 1234
Press any key to continue . . .
```
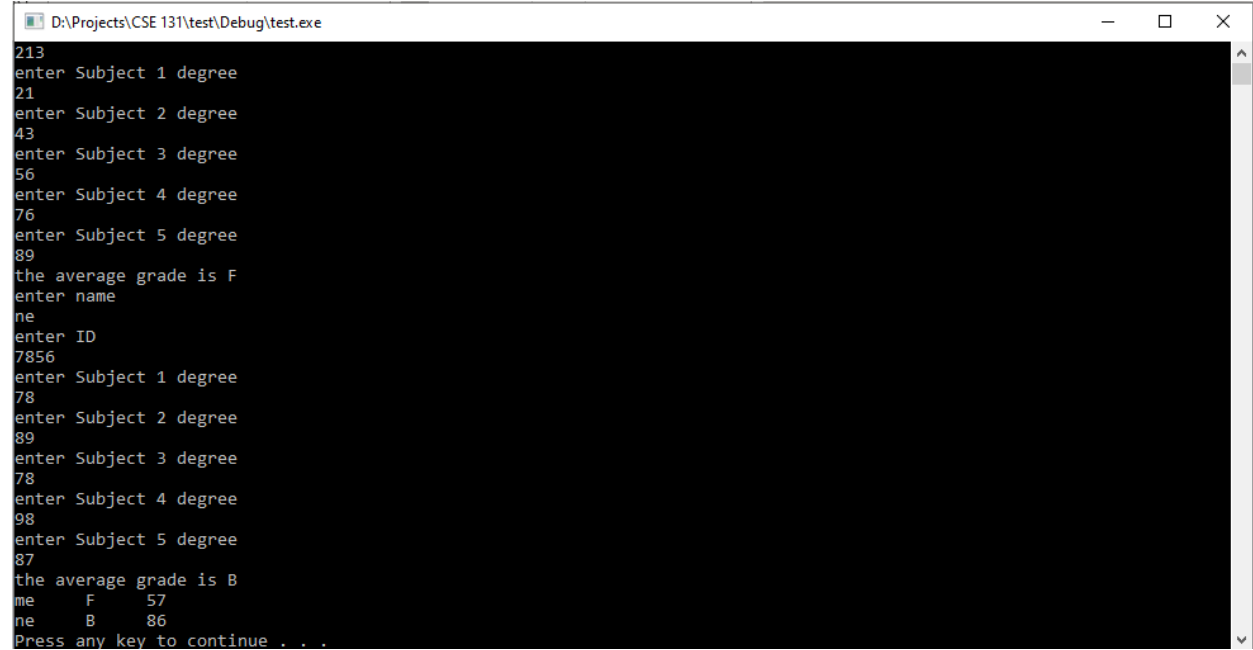
3-

\\ I made it less than 50 so I can snap it

```cpp
#include<iostream>
#include<cstring>
#include<math.h>
#include<string>
using namespace std;
struct Student
{
        char name[100];
        int ID;
        double sc1;
        double sc2;
        double sc3;
        double sc4;
        double sc5;
        double Avg;
        char Rate;
};
int main()
{
        Student std[50];
        for (int i = 0; i < 50; i++)
        {
                cout << "enter name\n";
                cin>>std[i].name;
                cout << "enter ID\n";
                cin >> std[i].ID;
                cout << "enter Subject 1 degree\n";
                cin >> std[i].sc1;
                cout << "enter Subject 2 degree\n";
                cin >> std[i].sc2;
                cout << "enter Subject 3 degree\n";
                cin >> std[i].sc3;
                cout << "enter Subject 4 degree\n";
                cin >> std[i].sc4;
                cout << "enter Subject 5 degree\n";
                cin >> std[i].sc5;
                std[i].Avg = (std[i].sc1 + std[i].sc2 + std[i].sc3 + std[i].sc4
+std[i].sc5) / 5;
                if (std[i].Avg >= 90)
                {
                        std[i].Rate = 'A';
                }
                else if (std[i].Avg >= 80)
                {
                        std[i].Rate = 'B';
                }
                else if (std[i].Avg >= 70)
                {
                        std[i].Rate = 'C';
                }
                else if (std[i].Avg >= 60)
                {
                        std[i].Rate = 'D';
                }
```

```
            else
            {
                std[i].Rate = 'F';
            }
        }
    system("pause");
}
```

```
213
enter Subject 1 degree
21
enter Subject 2 degree
43
enter Subject 3 degree
56
enter Subject 4 degree
76
enter Subject 5 degree
89
the average grade is F
enter name
ne
enter ID
7856
enter Subject 1 degree
78
enter Subject 2 degree
89
enter Subject 3 degree
78
enter Subject 4 degree
98
enter Subject 5 degree
87
the average grade is B
me      F      57
ne      B      86
Press any key to continue . . .
```

4-

```cpp
include<iostream>
#include<math.h>
#include <stdio.h>
#include<string>
using namespace std;
struct Name
{
        string first;
        string middle;
        string last;
};
struct HireDate
{
        int day;
        int month;
        int year;
};
struct Address
{
        string address1;
        string address2;
        string city;
        string zip_code;
};
struct Contacts
{
        string phone;
        string cellphone;
        string fax;
        string email;
};
struct Employee
{
        Name empName;
        HireDate empHireDate;
        Address empAddress;
        Contacts empContacts;
};
int main()
{
        Employee emps[100];
        char ch = 'Y';
        int i = 0;
        while (ch != 'x')
        {
                cout << "enter Emp First\middle\last name :";
                cin >> emps[i].empName.first >> emps[i].empName.middle >>
emps[i].empName.last;
                cout << "enter Emp First\ Second address \ city \ Zip Code :";
                cin >> emps[i].empAddress.address1 >> emps[i].empAddress.address2 >>
emps[i].empAddress.city >> emps[i].empAddress.zip_code;
                cout << "the emp was hired on Day \ Month \ year :";
                cin >> emps[i].empHireDate.day >> emps[i].empHireDate.month >>
emps[i].empHireDate.year;
                cout << "the emp contact information ( phone \ cell phone \ fax \ email :
";
```

```cpp
            cin >> emps[i].empContacts.phone >> emps[i].empContacts.cellphone >>
emps[i].empContacts.fax >> emps[i].empContacts.email;
            i++;
            cout << "press x to exit and y to continue "<<endl;
            cin >> ch;
        }
        return 0;
}
```

\\ sorry but its impossible to debug this one sorry again