School of mechanical and manufacturing engineering, NUST

Department of mechanical engineering

CS-114-Fundamental of programming

Assignment #1

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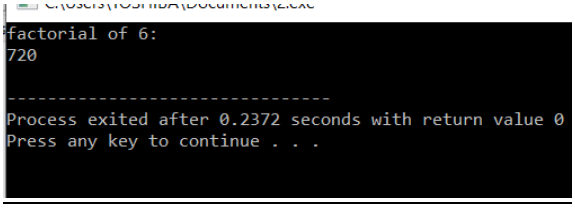
1. **Write a C++ code to calculate a factorial of 6?**

Answer :

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
int n;
  n=6;
cout<<"factorial of 6:"<<endl;
cout<<n*(n-1)*(n-2)*(n-3)*(n-4)*(n-5)<<endl;
          return 0;}
```

RESULT:



2.**Write a code in C++ to calculate distance between two points. The values of coordinates of input are given by user D= (x1-x2)^2+(y1-y2)^2.**

Answer :

```
#include <iostream>
#include<cmath>
using namespace std;
int main() {
          float x1 ,x2,y1,y2;
          cout<<"distance between two points"<<endl;
          cout<<"enter x1"<<endl;
          cin>>x1;
          cout<<"enter x2"<<endl;
          cin>>x2;
          cout<<"enter y1"<<endl;
          cin>>y1;
          cout<<"enter y2"<<endl;
          cin>>y2
cout<<pow(pow( x1-x2,2)+pow(y1-y2,2), 0.5) <<endl;
```

return 0;}

Result:

```
distance between two points
enter x1
4
enter x2
5
enter y1
4
enter y2
5
1.41421

--------------------------------
Process exited after 4.2 seconds with return value 0
Press any key to continue . . .
```

3.Write a code ic C++to take length from user in centimeter and convert it into meter and kilometer.

Answer :

```
#include <iostream>

#include<cmath>

using namespace std;

int main() {

float cm,m,km;

cout<<"enter length in cm"<<endl;

cin>>cm;

cout<<"length in m"<<endl;

cout<<cm/100<<endl;

cout<<"length in km"<<endl;

cout<<cm/100000;

return 0;}
```

Result :

```
C:\Users\TOSHIBA\Documents\2.exe
enter length in cm
100
length in m
1
length in km
0.001
--------------------------------
Process exited after 5.219 seconds with return value 0
Press any key to continue . . .
```

4.**Write a code in C++ that take values a of and b from user and displays result of a^2+b^2+2*a*b.**

Answer :

```
#include <iostream>

#include<cmath>

using namespace std;

int main() {

//take two values as input and use them to calculate polynomial

float a,b;

cout<<"enter value of a"<<endl;

cin>>a;

cout<<"enter value of b"<<endl;

cin>>b;

cout<<"answer:"<<endl;

cout<<pow(a,2)+pow(b,2)+2*a*b<<endl;

return 0;

}
```

Result:

```
enter value of a
2
enter value of b
2
answer:
16

--------------------------------
Process exited after 2.161 seconds with return value 0
Press any key to continue . . .
```