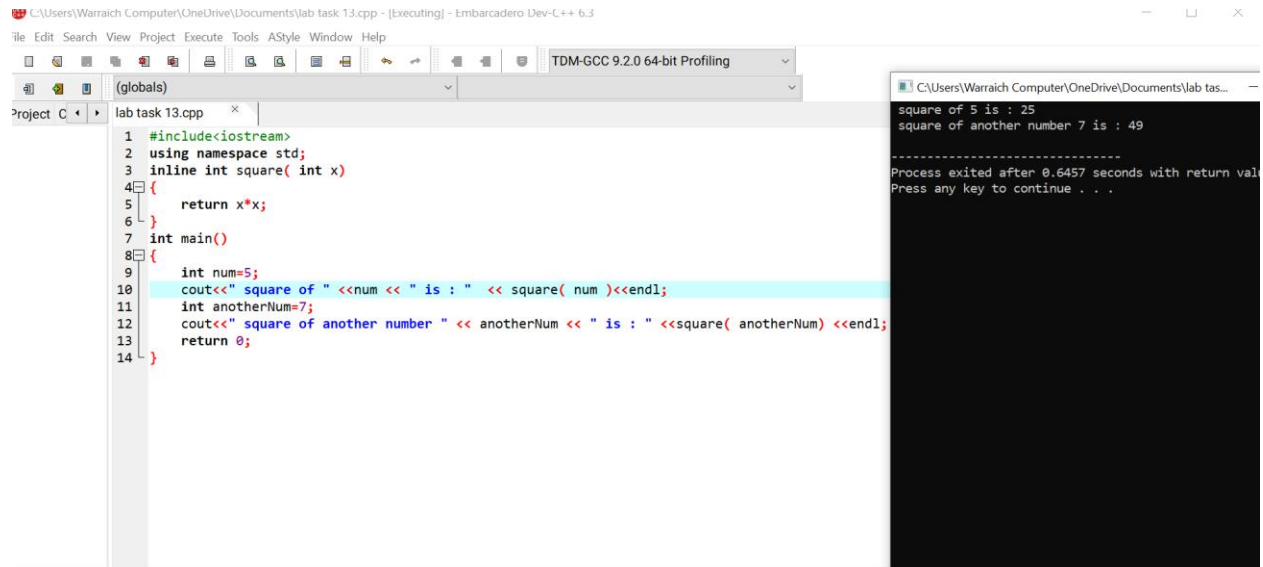


PROGRAMMING FUNDAMENTAL

TASK 13

TASK 1



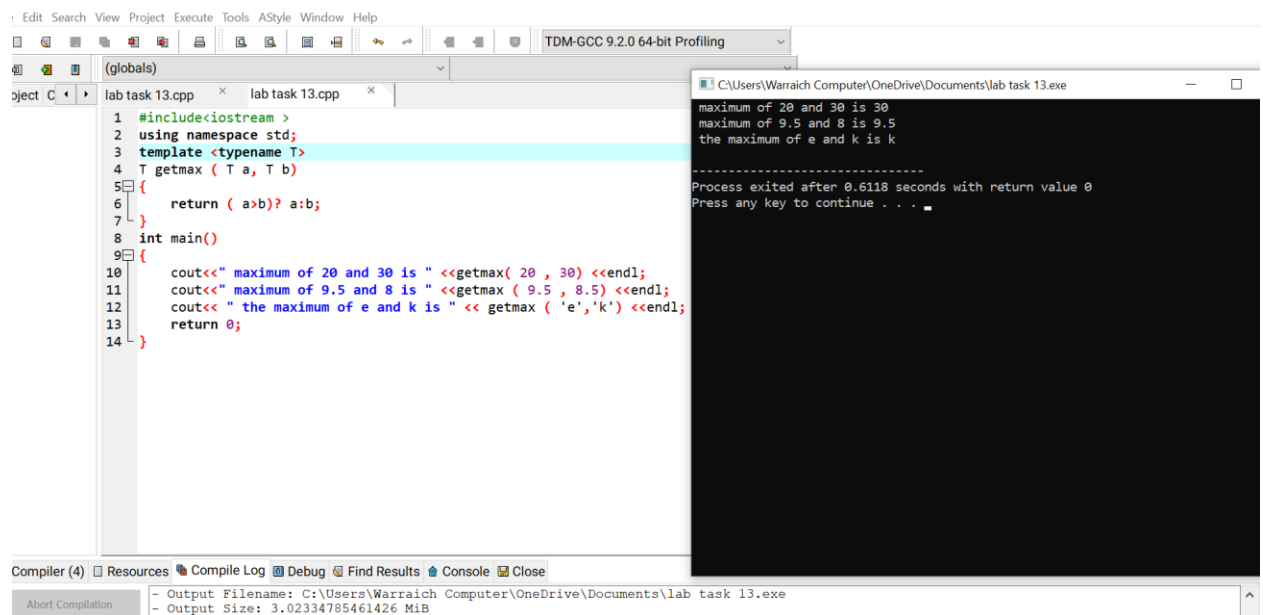
The screenshot shows an IDE with a C++ file named 'lab task 13.cpp'. The code defines an inline function 'square' that takes an integer 'x' and returns 'x*x'. In the 'main' function, it calculates the square of 5 (25) and the square of 7 (49), printing the results. The output window shows the execution results: 'square of 5 is : 25' and 'square of another number 7 is : 49'. The process exited after 0.6457 seconds.

```
1 #include<iostream>
2 using namespace std;
3 inline int square( int x)
4 {
5     return x*x;
6 }
7 int main()
8 {
9     int num=5;
10    cout<<" square of " <<num << " is : " << square( num )<<endl;
11    int anotherNum=7;
12    cout<<" square of another number " << anotherNum << " is : " <<square( anotherNum) <<endl;
13    return 0;
14 }
```

Output:

```
square of 5 is : 25
square of another number 7 is : 49
-----
Process exited after 0.6457 seconds with return val
Press any key to continue . . .
```

TASK 2



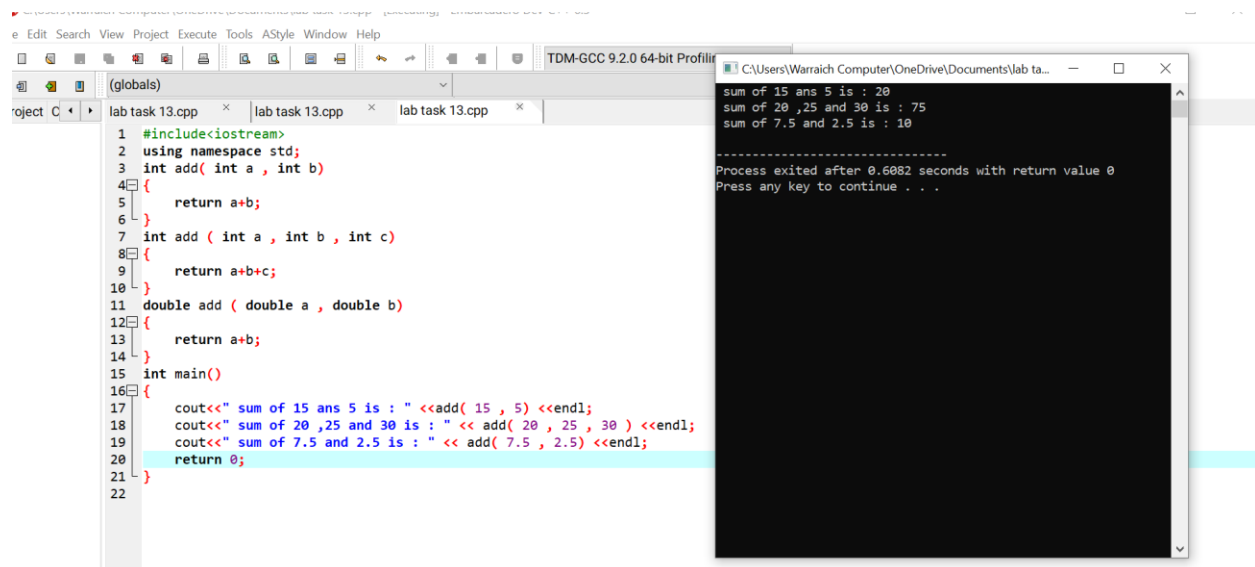
The screenshot shows an IDE with a C++ file named 'lab task 13.cpp'. The code defines a template function 'getmax' that takes two arguments of type 'T' and returns the maximum of them. In the 'main' function, it uses 'getmax' to find the maximum of 20 and 30 (30), 9.5 and 8 (9.5), and the maximum of 'e' and 'k' ('k'). The output window shows the execution results: 'maximum of 20 and 30 is 30', 'maximum of 9.5 and 8 is 9.5', and 'the maximum of e and k is k'. The process exited after 0.6118 seconds.

```
1 #include<iostream >
2 using namespace std;
3 template <typename T>
4 T getmax ( T a, T b)
5 {
6     return ( a>b)? a:b;
7 }
8 int main()
9 {
10    cout<<" maximum of 20 and 30 is " <<getmax( 20 , 30) <<endl;
11    cout<<" maximum of 9.5 and 8 is " <<getmax ( 9.5 , 8.5) <<endl;
12    cout<<" the maximum of e and k is " << getmax ( 'e','k') <<endl;
13    return 0;
14 }
```

Output:

```
maximum of 20 and 30 is 30
maximum of 9.5 and 8 is 9.5
the maximum of e and k is k
-----
Process exited after 0.6118 seconds with return value 0
Press any key to continue . . .
```

Task 3

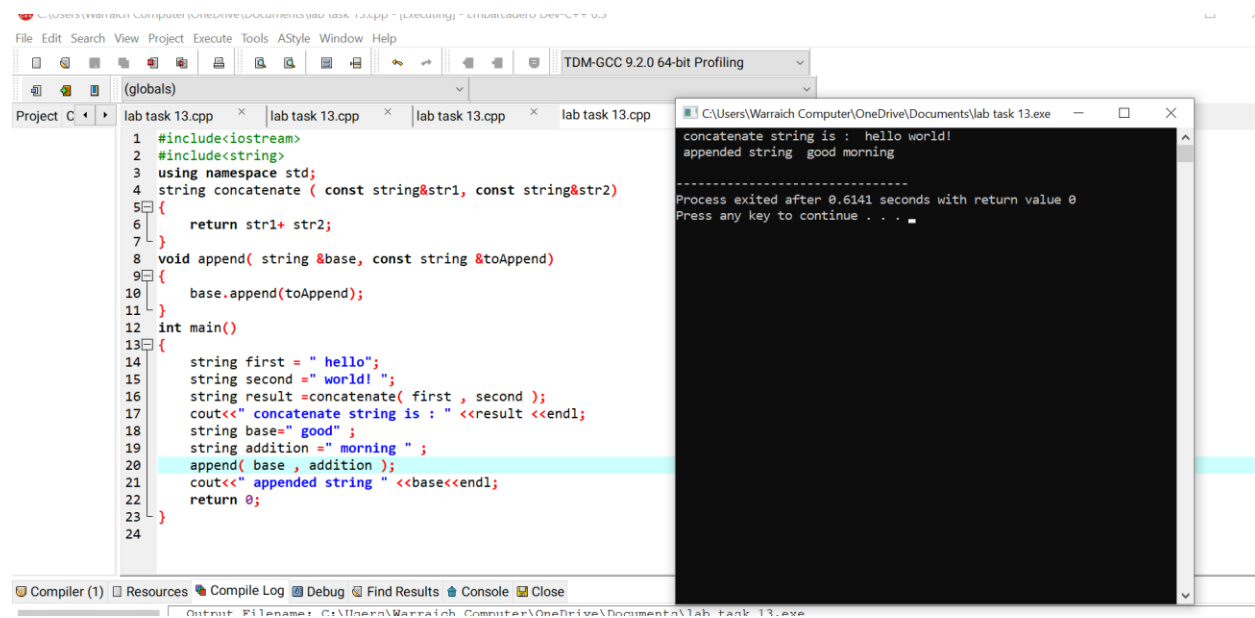


The screenshot shows the TDM-GCC 9.2.0 IDE with a C++ file named 'lab task 13.cpp'. The code defines three functions: 'add' for two integers, 'add' for three integers, and 'add' for two doubles. The 'main' function calls these functions with various inputs and prints the results. The output window shows the execution results, including the sum of 15 and 5 (20), the sum of 20, 25, and 30 (75), and the sum of 7.5 and 2.5 (10). The process exited after 0.6082 seconds.

```
1 #include<iostream>
2 using namespace std;
3 int add( int a , int b)
4 {
5     return a+b;
6 }
7 int add ( int a , int b , int c)
8 {
9     return a+b+c;
10 }
11 double add ( double a , double b)
12 {
13     return a+b;
14 }
15 int main()
16 {
17     cout<<" sum of 15 ans 5 is : " <<add( 15 , 5) <<endl;
18     cout<<" sum of 20 ,25 and 30 is : " << add( 20 , 25 , 30 ) <<endl;
19     cout<<" sum of 7.5 and 2.5 is : " << add( 7.5 , 2.5) <<endl;
20     return 0;
21 }
22
```

```
sum of 15 ans 5 is : 20
sum of 20 ,25 and 30 is : 75
sum of 7.5 and 2.5 is : 10
-----
Process exited after 0.6082 seconds with return value 0
Press any key to continue . . .
```

Task 4



The screenshot shows the TDM-GCC 9.2.0 IDE with a C++ file named 'lab task 13.cpp'. The code defines two functions: 'concatenate' which concatenates two strings, and 'append' which appends a string to the end of another string. The 'main' function demonstrates these functions with 'hello' and 'world!' to create 'hello world!', and 'good' and 'morning' to create 'good morning'. The output window shows the concatenated string and the appended string. The process exited after 0.6141 seconds.

```
1 #include<iostream>
2 #include<string>
3 using namespace std;
4 string concatenate ( const string&str1, const string&str2)
5 {
6     return str1+ str2;
7 }
8 void append( string &base, const string &toAppend)
9 {
10     base.append(toAppend);
11 }
12 int main()
13 {
14     string first = " hello";
15     string second =" world! ";
16     string result =concatenate( first , second );
17     cout<<" concatenate string is : " <<result <<endl;
18     string base=" good" ;
19     string addition =" morning " ;
20     append( base , addition );
21     cout<<" appended string " <<base<<endl;
22     return 0;
23 }
24
```

```
concatenate string is : hello world!
appended string good morning
-----
Process exited after 0.6141 seconds with return value 0
Press any key to continue . . .
```

Task 5

```
#include<iostream>
using namespace std;
inline int cube( int a)
{
    return a*a*a;
}
int main ()
{
    int num=3;
    cout<<" the cube of given number " <<num << " is : " <<cube(num) <<endl;
    int anothernum=4;
    cout<<" the cube of given number " <<anothernum << " is : " <<cube( anothernum) <<endl;
    int thirddnum=5;
    cout<<" the cube of given number " <<thirddnum << " is : " <<cube( thirddnum) <<endl;
    return 0;
}
```

Output File: C:\Users\Warraich Computer\OneDrive\Documents\p ask.exe
Output Size: 3.02285480499268 MiB
Compilation Time: 1.13s

Process exited after 0.5967 seconds with return value 0
Press any key to continue . . .

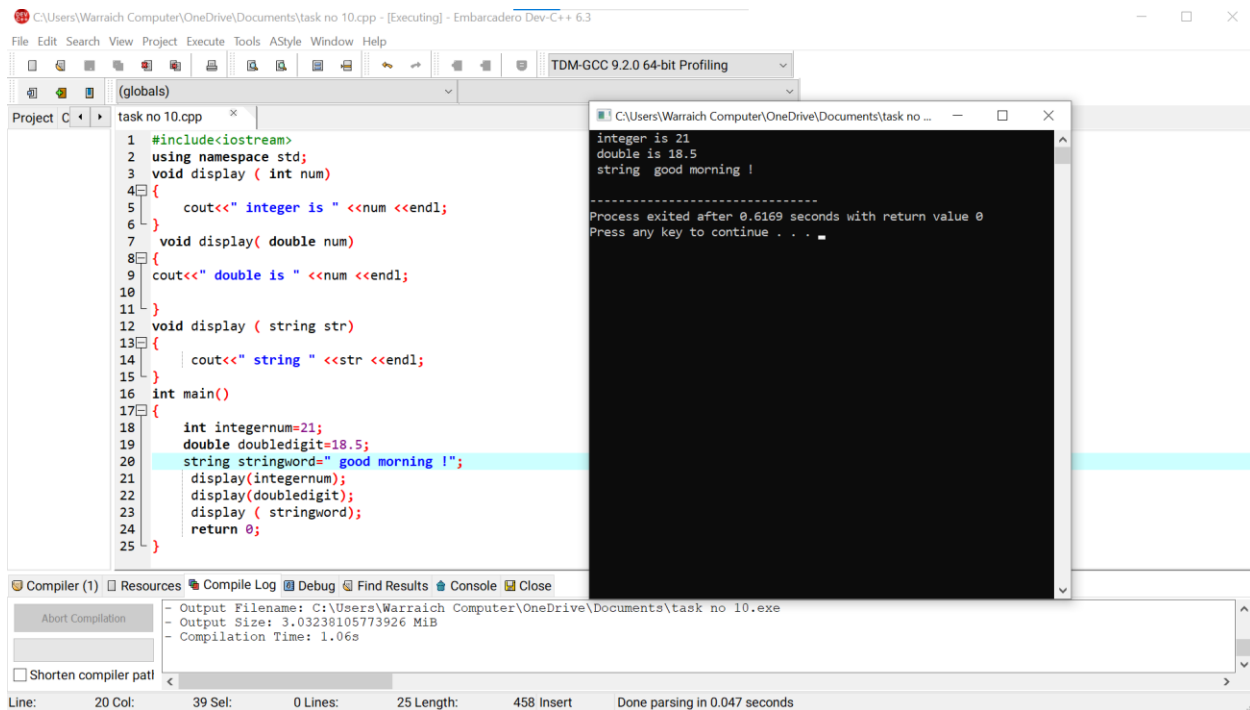
Task 6

```
#include<iostream>
using namespace std;
inline areaOfrectangle ( int a , int b)
{
    return a*b;
}
int main()
{
    int num1 =10;
    int num2= 15;
    cout<<" area of rectangle is : " <<areaOfrectangle(num1 , num2) <<endl;
    return 0;
}
```

Output File: C:\Users\Warraich Computer\OneDrive\Documents\p ask.exe
Output Size: 3.02291297912598 MiB
Compilation Time: 1.03s

Process exited after 0.6178 seconds with return value 0
Press any key to continue . . .

Task 7



```
1 #include<iostream>
2 using namespace std;
3 void display ( int num)
4 {
5     cout<<" integer is " <<num <<endl;
6 }
7 void display( double num)
8 {
9     cout<<" double is " <<num <<endl;
10 }
11
12 void display ( string str)
13 {
14     cout<<" string " <<str <<endl;
15 }
16 int main()
17 {
18     int integernum=21;
19     double doubledigit=18.5;
20     string stringword=" good morning !";
21     display(integernum);
22     display(doubledigit);
23     display ( stringword);
24     return 0;
25 }
```

```
integer is 21
double is 18.5
string good morning !

-----
Process exited after 0.6169 seconds with return value 0
Press any key to continue . . .
```

Compiler (1) Resources Compile Log Debug Find Results Console Close

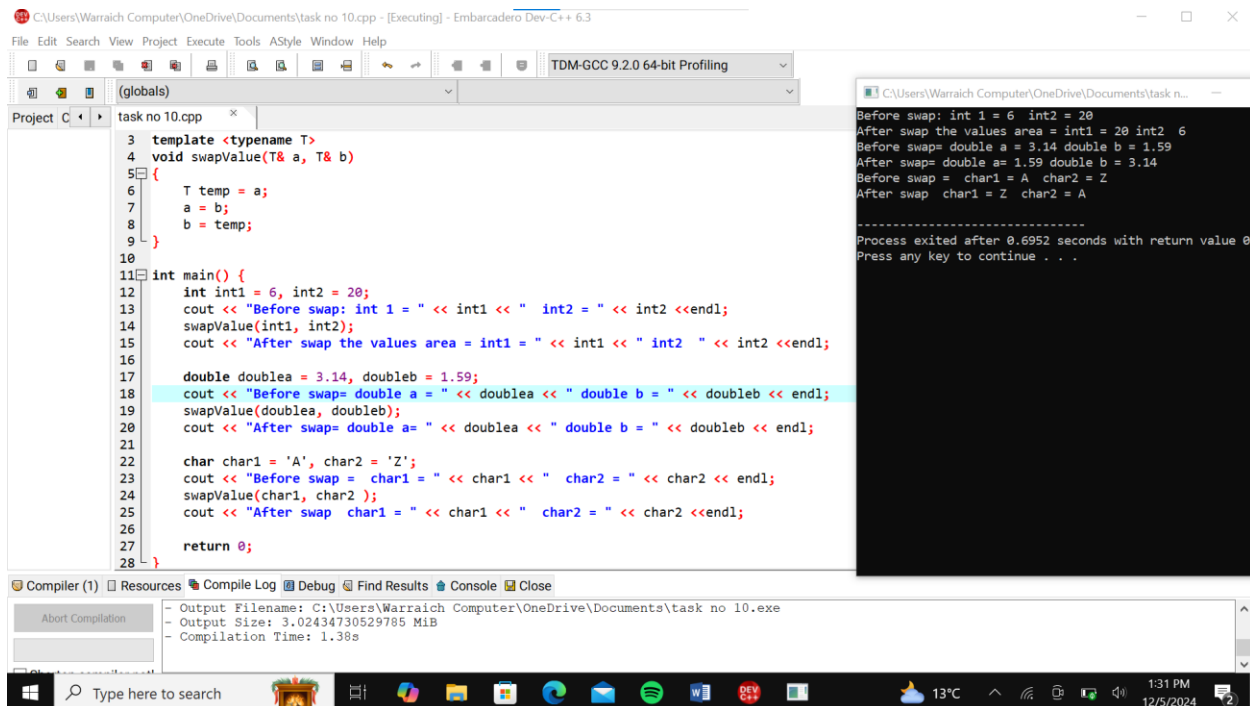
Abort Compilation

Output Filename: C:\Users\Warraich Computer\OneDrive\Documents\task no 10.exe
Output Size: 3.03238105773926 MiB
Compilation Time: 1.06s

Shorten compiler path

Line: 20 Col: 39 Sel: 0 Lines: 25 Length: 458 Insert Done parsing in 0.047 seconds

Task 8



```
3 template <typename T>
4 void swapValue(T& a, T& b)
5 {
6     T temp = a;
7     a = b;
8     b = temp;
9 }
10
11 int main() {
12     int int1 = 6, int2 = 20;
13     cout << "Before swap: int 1 = " << int1 << " int2 = " << int2 <<endl;
14     swapValue(int1, int2);
15     cout << "After swap the values area = int1 = " << int1 << " int2 " << int2 <<endl;
16
17     double doublea = 3.14, doubleb = 1.59;
18     cout << "Before swap= double a = " << doublea << " double b = " << doubleb << endl;
19     swapValue(doublea, doubleb);
20     cout << "After swap= double a = " << doublea << " double b = " << doubleb << endl;
21
22     char char1 = 'A', char2 = 'Z';
23     cout << "Before swap = char1 = " << char1 << " char2 = " << char2 << endl;
24     swapValue(char1, char2 );
25     cout << "After swap char1 = " << char1 << " char2 = " << char2 <<endl;
26
27     return 0;
28 }
```

```
Before swap: int 1 = 6 int2 = 20
After swap the values area = int1 = 20 int2 6
Before swap= double a = 3.14 double b = 1.59
After swap= double a = 1.59 double b = 3.14
Before swap = char1 = A char2 = Z
After swap char1 = Z char2 = A

-----
Process exited after 0.6952 seconds with return value 0
Press any key to continue . . .
```

Compiler (1) Resources Compile Log Debug Find Results Console Close

Abort Compilation

Output Filename: C:\Users\Warraich Computer\OneDrive\Documents\task no 10.exe
Output Size: 3.02434730529785 MiB
Compilation Time: 1.36s

Type here to search

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