

31-03-2021 Lab Exercises

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- 1. Create a class that stores a String and all its status details such as number of upper case characters, lower case characters, words, vowels and special characters through appropriate member functions and constructors.**

main.cpp

```
#include "mystring.h"
#include<iostream>
using namespace std;

int main()
{
    mystring s1;

    return 0;
}
```

mystring.cpp

```
#include "mystring.h"
```

```
#include<iostream>
using namespace std;

mystring::mystring()
{
    getmystr();
    count();
}

void mystring::getmystr()
{
    cout<<"\n\n  enter a string:  ";getline(cin,s1);

}

void mystring::count()
{

    for (int i = 0; i < s1.length(); i++)
    {
        int flag=0;
        if (s1[i] == 'a' || s1[i] == 'e'
            || s1[i] == 'i' || s1[i] == 'o'
            || s1[i] == 'u' || s1[i] == 'A'
            || s1[i] == 'E' || s1[i] == 'I'
            || s1[i] == 'O' || s1[i] == 'U')
            vow++;
    }
}
```

```

else
    conso++;
if (s1[i] >= 'A' && s1[i] <= 'Z')
    up++;
else if (s1[i] >= 'a' && s1[i] <= 'z')
    low++;
else if (s1[i]>= '0' && s1[i]<= '9')
    num++;
else
{
    special++;flag=1;

if(s1[i+1]==' ' || s1[i+1]=='\0')
{
    if (flag==0) wc++;

}

cout<< "\n\n  Upper case letters :  " << up;
cout<< "\n\n  Lower case letters :  " << low ;
cout<< "\n\n  Number :  " << num ;
cout<< "\n\n  vowels :  "<<vow ;
cout<< "\n\n  consonant :  "<<conso ;
cout<<"\n\n  words :  "<<wc;
cout<< "\n\n  Special characters :  " << special << endl;
}

```

mystring.h

```

#ifndef MYSTRING_H
#define MYSTRING_H

```

```
#include<string>
using namespace std;
class mystring{
private:
    int vow=0,up=0,low=0,num=0,special=0,conso=0,wc=0;
    string s1="";
public:
    mystring();
    void getmystr();
    void count();
};

#endif
```

```
E:\DEV\cpp file\31 march\q1\Project1.exe
enter a string: My Code Name is *?@Hu67i0p

Upper case letters :      5
Lower case letters :     12
Number :      2
vowels :      8
consonant :   18
words :      5
Special characters :    7

Process exited after 32.1 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEV\cpp file\31 march\q1\Project1.exe
enter a string: I was born in 2002

Upper case letters :      1
Lower case letters :      9
Number :      4
vowels :      4
consonant :   14
words :      5
Special characters :    4

Process exited after 26.61 seconds with return value 0
Press any key to continue . . .
```

1426 04-04-2021

Project1 - [Project1.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project Classes Debug main.cpp mystring.h mystring.cpp

```
39     low++;
40     else if (s1[i]>= '0' && s1[i]<= '9')
41         num++;
42     else
43     {
44         special++;flag=1;
45
46         if(s1[i+1]==' ' || s1[i+1]=='\0')
47         {
48             if (flag==0) wc++;
49         }
50
51     }
52     cout << "\n\n    Upper case letters : " << up;
53     cout << "\n\n    Lower case letters : " << low ;
54     cout << "\n\n    Number : " << num ;
55     cout<< "\n\n    vowels : " << vow ;
56     | cout<< "\n\n    consonant : " <<conso ;
57     cout<< "\n\n    words : " <<wc;
58     cout << "\n\n    Special characters : " << special << endl;
59 }
```

Compiler Resources Compile Log Debug Find Results Close

Abort Compilation Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\ql\Project1.exe
- Output Size: 1,880,303,828,7354 MiB
- Compilation Time: 0.22s

Line: 34 Col: 14 Sel: 0 Lines: 59 Length: 1389 Insert Done parsing in 0.015 seconds

Project1 - [Project1.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Project Classes Debug main.cpp mystring.h mystring.cpp

```
22 L }
23 void mystring::count()
24 {
25
26     for (int i = 0; i < s1.length(); i++)
27     {
28         int flag=0;
29         if (s1[i] == 'a' || s1[i] == 'e'
30             || s1[i] == 'i' || s1[i] == 'o'
31             || s1[i] == 'u' || s1[i] == 'A'
32             || s1[i] == 'E' || s1[i] == 'I'
33             || s1[i] == 'O' || s1[i] == 'U')
34             VOW++;
35         else
36             conson++;
37         if (s1[i]>= 'A' && s1[i]<= 'Z')
38             up++;
39         else if (s1[i]>= 'a' && s1[i]<= 'z')
40             low++;
41         else if (s1[i]>= '0' && s1[i]<= '9')
42             num++;
43         else
44     }
```

Compiler Resources Compile Log Debug Find Results Close

Abort Compilation Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\ql\Project1.exe
- Output Size: 1,880,303,828,7354 MiB
- Compilation Time: 0.22s

Line: 34 Col: 14 Sel: 0 Lines: 59 Length: 1389 Insert Done parsing in 0.015 seconds

Project1 - [Project1.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp mystring.h mystring.cpp

```

1 #ifndef MYSTRING_H
2 #define MYSTRING_H
3 #include<string>
4 using namespace std;
5 class mystring{
6     private:
7         int vow=0,up=0,low=0,num=0,special=0,conso=0,wc=0;
8         string s1="";
9
10    public:
11        mystring();
12        void getmystr();
13        void count();
14
15    };
16
17 };
18 #endif

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\ql\Project1.exe
- Output Size: 1.88030338287354 MiB
- Compilation Time: 0.23s

Line: 4 Col: 21 Sel: 0 Lines: 18 Length: 268 Insert Done parsing in 0.015 seconds

Type here to search

Project1 - [Project1.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp mystring.h mystring.cpp

```

1 #include "mystring.h"
2 #include<iostream>
3 using namespace std;
4
5 int main()
6 {
7     mystring s1;
8
9     return 0;
10 }

```

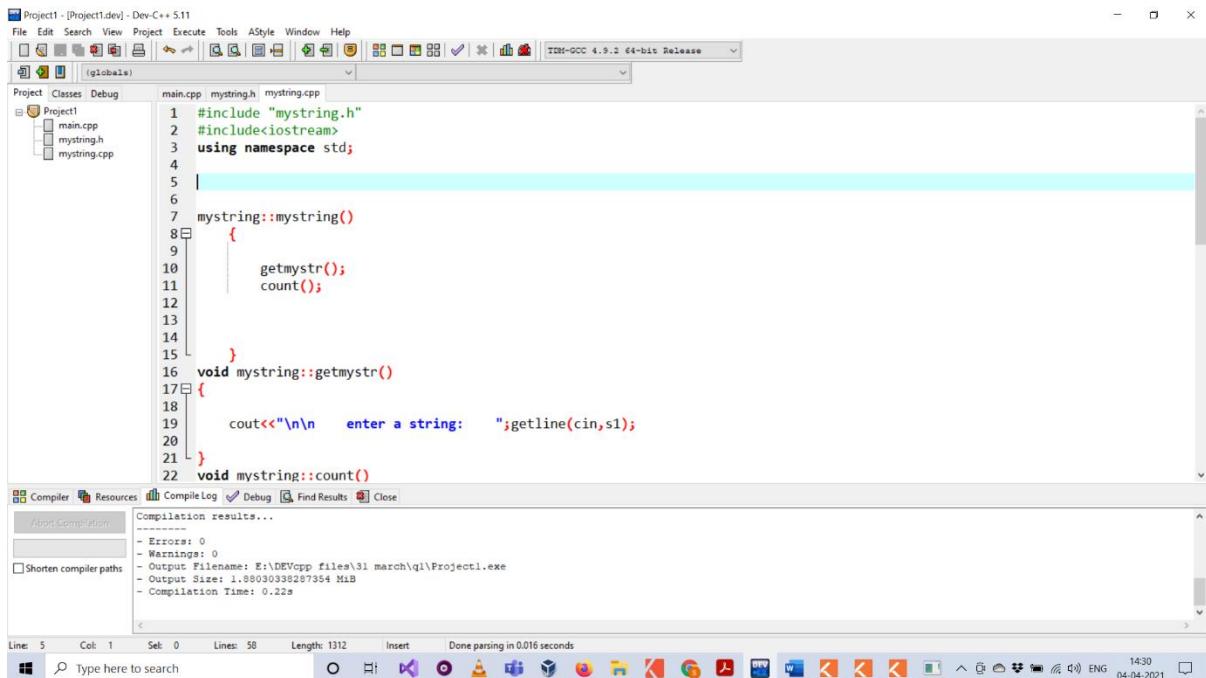
Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\ql\Project1.exe
- Output Size: 1.88030338287354 MiB
- Compilation Time: 0.23s

Line: 1 Col: 22 Sel: 0 Lines: 10 Length: 124 Insert Done parsing in 0.015 seconds

Type here to search



2. Write a C++ program to dynamically allocate memory to a string. Write suitable friend functions to encrypt and decrypt the string and display it properly. Deallocate the memory properly during the termination.

main.cpp

```
#include<cstring>
#include <iostream>
#include<cctype>
#include "Mystring.h"
using namespace std;

int main()
{
    int i, x, ch=0; char c1[100]; int key=0;
    do{
        Mystring str((char*)"");

```

```

cout<<" \n\n do you wish to 0.exit , 1.encrypt or 2.decrypt? ";cin>>ch;

switch(ch)
{
    case 0: cout<<"\n quitting" ;break;
    case 1:
        cout<<"\n\n enter code  ";
        cin>>c1;str.setstr(c1);
        cout<<"\n\n enter key  ";
        cin>>key;
        for(i = 0; str[i] != '\0'; i++)
            str[i] = str[i] + key;

        cout << "\n Encrypting the given string "<<c1<< " : " << str << endl;
        break;

    case 2:
        cout<<"\n\n enter code  ";
        cin>>c1;str.setstr(c1);
        cout<<"\n\n enter key  ";
        cin>>key;
        for(i = 0; str[i] != '\0'; i++)
            str[i] = str[i] - key;

        cout << "\n Decrypting the given string "<<c1<< " : " << str << endl;
        break;

    default: break;
}

}while(ch!=0);

```

```
    return 0;  
}
```

Mystring.cpp

```
#include "Mystring.h"  
  
#include<cstring>  
  
#include <iostream>  
  
#include<cctype>  
  
ostream& operator<<(ostream& os,const Mystring& s)  
{  
    os<<s.mystr;  
  
    return os;  
}
```

```
Mystring::Mystring(char* c)  
{  
    strcpy(mystr,c);  
  
}
```

```
void Mystring::setstr(char*c)  
{  
    strcpy(mystr,c);  
}
```

```
Mystring::~Mystring()
{
    delete[] mystr;
}

char& Mystring::operator[](int i)
{
    return mystr[i];
}
```

Mystring.h

```
#ifndef MYSTRING_H
#define MYSTRING_H

#include<cstring>
#include <iostream>
#include<cctype>
using namespace std;

class Mystring
{
    char *mystr=new char[100];

public:
    Mystring(char* c);
```

```
void setstr(char*c);

~Mystring();

char& operator[](int i);

friend ostream& operator<<(ostream& os,const Mystring& s);

};

#endif
```

```
E:\DEVcpp file\31 march\q2\Project2.exe
do you wish to 0. exit , 1.encrypt or 2.decrypt?  1

enter code    hello

enter key    3

Encrypting the given string  hello :  khoor

do you wish to 0. exit , 1.encrypt or 2.decrypt?  2

enter code    khoor

enter key    3

Decrypting the given string  khoor :  hello

do you wish to 0. exit , 1.encrypt or 2.decrypt?  0

quitting
-----
Process exited after 19.4 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEVcpp file\31 march\q2\Project2.exe
do you wish to 0. exit , 1.encrypt or 2.decrypt?  2

enter code    goodbye

enter key    1

Decrypting the given string  goodbye :  fmncaxd

do you wish to 0. exit , 1.encrypt or 2.decrypt?  1

enter code    fmncaxd

enter key    1

Encrypting the given string  fmncaxd :  goodbye

do you wish to 0. exit , 1.encrypt or 2.decrypt?  0

quitting
-----
Process exited after 31.76 seconds with return value 0
Press any key to continue . . .
```

15:12 04-04-2021

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp MyString.h MyString.cpp

```

1 #include "MyString.h"
2 #include<cstring>
3 #include <iostream>
4 #include<cctype>
5
6 ostream& operator<<(ostream& os,const MyString& s)
7 {
8     | os<<s.mystr;
9
10    return os;
11 }
12
13 MyString::MyString(char* c)
14 {
15     | strcpy(mystr,c);
16 }
17
18
19 void MyString::setstr(char*c)
20 {
21     | strcpy(mystr,c);
22 }
```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

Type here to search

Line: 5 Col: 1 Sel: 0 Lines: 36 Length: 436 Insert Done parsing in 0.031 seconds

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp MyString.h MyString.cpp

```

4
5 #include<cstring>
6 #include <iostream>
7 #include<cctype>
8 using namespace std;
9 class MyString
10 {
11     char *mystr=new char[100];
12 public:
13     MyString(char* c);
14     |
15     void setstr(char*c);
16
17     ~MyString();
18
19     char& operator[](int i);
20
21     friend ostream& operator<<(ostream& os,const MyString& s);
22 };
23
24 #endif
```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

Type here to search

Line: 14 Col: 5 Sel: 0 Lines: 24 Length: 350 Insert Done parsing in 0.031 seconds

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Mystring.h Mystring.cpp

```

27 |     break;
28 |
29 |
30 | case 2:
31 |     cout<<"\n\n    enter code    ";
32 |     cin>>c1;str.setstr(c1);
33 |     cout<<"\n\n    enter key    ";
34 |     cin>>key;
35 |     for(i = 0; str[i] != '\0'; i++)
36 |     str[i] = str[i] - key;
37 |     cout << "\n    Decrypting the given string " <<c1<< :    << str << endl;
38 |     break;
39 | default: break;
40 | }
41 |
42 | }while(ch!=0);
43 |
44 |
45 |
46 | return 0;
47 |

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

Line: 5 Col: 22 Sel: 0 Lines: 47 Length: 1067 Insert Done parsing in 0.031 seconds 15:13 04-04-2021 ENG

Type here to search

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Mystring.h Mystring.cpp

```

14 |
15 |
16 switch(ch)
17 {
18     case 0: cout<<"\n    quitting" ;break;
19     case 1:
20         cout<<"\n\n    enter code    ";
21         cin>>c1;str.setstr(c1);
22         cout<<"\n\n    enter key    ";
23         cin>>key;
24         for(i = 0; str[i] != '\0'; i++)
25             str[i] = str[i] + key;
26
27         cout << "\n    Encrypting the given string " <<c1<< :    << str << endl;
28         break;
29
30     case 2:
31         cout<<"\n\n    enter code    ";
32         cin>>c1;str.setstr(c1);
33         cout<<"\n\n    enter key    ";
34         cin>>key;
35         for(i = 0; str[i] != '\0'; i++)
36

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

Line: 5 Col: 22 Sel: 0 Lines: 47 Length: 1067 Insert Done parsing in 0.031 seconds 15:13 04-04-2021 ENG

Type here to search

```

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug main.cpp MyString.h MyString.cpp
1 #include<cstring>
2 #include <iostream>
3 #include <cctype>
4 #include "MyString.h"
5 using namespace std;
6
7
8 int main()
9 {
10    int i, x, ch=0; char c1[100]; int key=0;
11    do{
12        Mystring str((char*)"");
13        cout<<"\n\n do you wish to 0. exit , 1.encrypt or 2.decrypt?   ";
14        cin>>ch;
15        switch(ch)
16        {
17            case 0: cout<<"\n quitting" ;break;
18            case 1:
19                cout<<"\n\n enter code   ";
20                cin>>c1;str.setstr(c1);
21                cout<<"\n\n enter key   ";
22                cin>>key;
}

```

Compilation results...

```

-----
- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

```

Line: 5 Col: 22 Sel: 0 Lines: 47 Length: 1067 Insert Done parsing in 0.031 seconds

Type here to search

```

Project2 - [Project2.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug main.cpp MyString.h MyString.cpp
16 |     strcpy(mystr,c);
17 |
18 }
19
20 void Mystring::setstr(char*c)
21 {
22     |     strcpy(mystr,c);
23 }
24
25 Mystring::~Mystring()
26 {
27
28     delete[] mystr;
29 }
30
31
32 char& Mystring::operator[](int i)
33 {
34     return mystr[i];
35 }
36

```

Compilation results...

```

-----
- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q2\Project2.exe
- Output Size: 1.855342864599023 MiB
- Compilation Time: 0.25s

```

Line: 5 Col: 1 Sel: 0 Lines: 36 Length: 436 Insert Done parsing in 0.031 seconds

Type here to search

3. Write a C++ program to increment/decrement a Timer (HH:MM:SS) using incrementation and decrementation operator overloading

main.cpp

```

#include "Time.h"
#include <iostream>
using namespace std;

int main()
{
    Time now;
    cin >> now;
    cout << "\n  The time is now : " << now << endl;
    cout << "\n  post increment : " << now++ << endl;
    cout << "\n  The time is now : " << now << endl;
    cout << "\n  pre increment : " << ++now << endl;
    return 0;
}

```

DayTime.cpp

```

#include <iostream>
#include<iomanip>
using namespace std;
#include "DayTime.h"

void DayTime::inc()
{
    ++second;
    if( second >= 60)
        second = 0, ++minute;
}

```

```
if( minute >= 60)
minute = 0, ++hour;
if( hour >= 24)
hour = 0;
}
```

```
void DayTime::dec()
{
--second;
if( second < 0)
second = 59, --minute;
if( minute < 0)
minute = 59, --hour;
if( hour < 0)
hour = 0;
}
```

```
DayTime::DayTime( int h , int m , int s )
{
setTime( h, m, s);
}
```

```
void DayTime::setTime(int h, int m, int s)
{
if( h >= 0 && h < 24
&& m >= 0 && m < 60
```

```
&& s >= 0 && s < 60 )  
{  
    hour = h;  
    minute = m;  
    second = s;  
}  
else  
    cout<<" invalid time ";  
  
}
```

```
DayTime& DayTime::operator++() // ++Seconds  
{  
    inc();  
    return *this;  
}  
DayTime DayTime::operator++(int)  
{  
    DayTime temp(*this);  
    inc();  
    return temp;  
}  
DayTime& DayTime::operator--()  
{  
    dec();  
    return *this;  
}  
DayTime DayTime::operator--(int)  
{
```

```
DayTime temp(*this);

dec();

return temp;

}

ostream& operator<<( ostream& os, const DayTime& t)

{

os << setfill('0')

<< setw(2) << t.hour << ':'

<< setw(2) << t.minute << ':'

<< setw(2) << t.second;

os << setfill(' ');

return os;

}

istream& operator>>( istream& is, DayTime& t)

{

cout << "\n  Enter daytime in hh:mm:ss format: ";

int hr = 0, min = 0, sec = 0;

char c1 = 0, c2 = 0;

is >> hr >> c1 >> min >> c2 >> sec;

t.setTime(hr,min,sec);

return is;

}
```

DayTime.h

```
#ifndef _DAYTIME_
#define _DAYTIME_
#include<iostream>
using namespace std;

class DayTime
{
private:
    int hour, minute, second;

public:
    void inc();
    void dec();
    DayTime( int h=0 , int m=0, int s=0 );
    void setTime(int h, int m, int s);

    DayTime operator++(int) ;
    DayTime& operator++() ;
    DayTime& operator--() ;
    DayTime operator--(int);
    friend istream& operator>>( istream& is, DayTime& t);
    friend ostream& operator<<( ostream& os, const DayTime& t);
};

#endif
```

```
E:\DEVcpp file\31 march\q3\Project3.exe
Enter daytime in hh:mm:ss format: 05:11:15
The time is now : 05:11:15
post increment : 05:11:15
The time is now : 05:11:16
pre increment : 05:11:17
-----
Process exited after 12.14 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEVcpp file\31 march\q3\Project3.exe
Enter daytime in hh:mm:ss format: 03:17:18
The time is now : 03:17:18
post increment : 03:17:18
The time is now : 03:17:19
pre increment : 03:17:20
-----
Process exited after 9.009 seconds with return value 0
Press any key to continue . . .
```

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

68 Time Time::operator--(int)
69 {
70     Time temp(*this);
71     dec();
72     return temp;
73 }
74
75 ostream& operator<<( ostream& os, const Time& t )
76 {
77     os << setfill('0')
78     << setw(2) << t.hour << ':'
79     << setw(2) << t.minute << ':'
80     << setw(2) << t.second;
81     os << setfill(' ');
82     return os;
83 }
84 istream& operator>>( istream& is, Time& t )
85 {
86     cout << "\n    Enter Time in hh:mm:ss format: ";
87     int hr = 0, min = 0, sec = 0;
88     char c1 = 0, c2 = 0;
89     is >> hr >> c1 >> min >> c2 >> sec;

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

52 Time& Time::operator++() // ++Seconds
53 {
54     inc();
55     return *this;
56 }
57 Time Time::operator++(int)
58 {
59     Time temp(*this);
60     inc();
61     return temp;
62 }
63 Time& Time::operator--()
64 {
65     dec();
66     return *this;
67 }
68 Time Time::operator--(int)
69 {
70     Time temp(*this);
71     dec();
72     return temp;
73 }

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

29
30 Time::Time( int h , int m , int s )
31 {
32     setTime( h , m , s );
33 }
34
35
36
37 void Time::setTime(int h, int m, int s)
38 {
39     if( h >= 0 && h < 24
40         && m >= 0 && m < 60
41         && s >= 0 && s < 60 )
42     {
43         hour = h;
44         minute = m;
45         second = s;
46     }
47     else
48         cout<<" invalid time ";
49 }

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

17
18 void Time::dec()
19 {
20     --second;
21     if( second < 0 )
22         second = 59, --minute;
23     if( minute < 0 )
24         minute = 59, --hour;
25     if( hour < 0 )
26         hour = 0;
27 }
28
29
30 Time::Time( int h , int m , int s )
31 {
32     setTime( h , m , s );
33 }
34
35
36
37 void Time::setTime(int h, int m, int s)
38 {

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

1 #include <iostream>
2 #include<iomanip>
3 using namespace std;
4 #include "Time.h"
5
6
7 void Time::inc()
8 {
9     ++second;
10    if(second >= 60)
11        second = 0, ++minute;
12    if(minute >= 60)
13        minute = 0, ++hour;
14    if(hour >= 24)
15        hour = 0;
16 }
17
18 void Time::dec()
19 {
20     --second;
21    if(second < 0)
22        second = 59, --minute;

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

Time.h Time.cpp main.cpp

```

2 #ifndef _TIME_
3 #define _TIME_
4 #include<iostream>
5 using namespace std;
6 class Time
7 {
8 private:
9     int hour, minute, second;
10    public:
11        void inc();
12        void dec();
13        Time( int h=0 , int m=0, int s=0 );
14        void setTime( int h, int m, int s );
15
16        Time operator++(int);
17        Time& operator++();
18        Time& operator--();
19        Time operator--(int);
20        friend istream& operator>>( istream& is, Time& t );
21        friend ostream& operator<<( ostream& os, const Time& t );
22 };
23 #endif

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.85857105255127 MiB
- Compilation Time: 2.27s

Line: 7 Col: 2 Sel: 0 Lines: 23 Length: 463 Insert Done parsing in 0.032 seconds

Type here to search

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIFF-GCC 4.9.2 64-bit Release

Project Classes Debug Time.h Time.cpp main.cpp

```

1 #include "Time.h"
2 #include <iostream>
3 using namespace std;
4
5 int main()
6 {
7     Time now;
8     cin >> now;
9     cout << "\n The time is now : " << now << endl;
10    cout << "\n post increment : " << now++ << endl;
11    cout << "\n The time is now : " << now << endl;
12    cout << "\n pre increment : " << ++now << endl;
13
14    return 0;
15 }
```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.05857105255127 MiB
- Compilation Time: 2.27s

Type here to search

Line: 4 Col: 21 Sel: 0 Lines: 19 Length: 353 Insert Done parsing in 0.032 seconds

Project3 - [Project3.dev] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIFF-GCC 4.9.2 64-bit Release

Project Classes Debug Time.h Time.cpp main.cpp

```

79 << setw(2) << t.minute << ':';
80 << setw(2) << t.second;
81 os << setfill(' ');
82 return os;
83 }
84 istream& operator>>( istream& is, Time& t)
85 {
86     cout << "\n Enter Time in hh:mm:ss format: ";
87     int hr = 0, min = 0, sec = 0;
88     char c1 = 0, c2 = 0;
89     is >> hr >> c1 >> min >> c2 >> sec;
90
91     t.setTime(hr,min,sec);
92
93
94     return is;
95 }
```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q3\Project3.exe
- Output Size: 1.05857105255127 MiB
- Compilation Time: 2.27s

Type here to search

Line: 86 Col: 26 Sel: 0 Lines: 99 Length: 1356 Insert Done parsing in 0.032 seconds

4. Write a C++ program to overload unary minus and & operator in a fraction class.

main.cpp

```

#include "Fraction.h"
#include <iostream>
using namespace std;
int main()
{
    Fraction f1,f2;
    cout<<"\n\n for fraction f1:\n";
    cin>>f1;
    cout<<"\n\n for fraction f2:\n";
    cin>>f2;
    Fraction a=&f1;
    Fraction b=&f2;
    cout << "\n\n overloaded& : a=&f1,b=&f2 \n\n";
    cout << "\n\n a = " << a << endl;
    cout << "\n\n -a = " << -a << endl;
    cout << "\n\n b = " << b << endl;
    cout << "\n\n -b = " << -b << endl;

    return 0;
}

```

Fraction.cpp

```

#include <iostream>
using namespace std;
#include "Fraction.h"

```

Fraction Fraction::operator-() const

```
{  
    return Fraction(-numerator, denominator);  
}
```

```
Fraction Fraction::operator&()  
{  
    return *(this);  
}
```

```
Fraction::Fraction(int n, int d)  
{  
    numerator = n; denominator = d;  
}
```

```
ostream& operator<<(ostream& os, const Fraction& a)  
{  
    os << a.numerator << "/" << a.denominator;  
    return os;  
}
```

```
istream& operator>>(istream& is, Fraction& a)  
{  
    cout << "\n enter Numerator: "; is >> a.numerator;  
    cout << "\n enter Denominator: "; is >> a.denominator;  
    if( a.denominator < 0 )  
        a.numerator = -a.numerator,  
        a.denominator= -a.denominator;  
    return is;
```

```
}
```

Fraction.h

```
#ifndef _FRACTION_
#define _FRACTION_
#include <iostream>
using namespace std;

class Fraction

{
private:
    int numerator, denominator;

public:
    Fraction(int n = 0, int d = 1);

    Fraction operator-() const;

    friend ostream& operator<< (ostream& os, const Fraction& a);

    friend istream& operator>> (istream& is, Fraction& a);

    Fraction operator&() ;

};

#endif
```

```
E:\DEV\cpp file\31 march\q4\Project4.exe
for fraction f1:
enter Numerator: 5
enter Denominator: 6

for fraction f2:
enter Numerator: 7
enter Denominator: 8

overloaded& : a=&f1,b=&f2

a = 5/6
-a = -5/6
b = 7/8
-b = -7/8
-----
Process exited after 6.788 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEV\cpp file\31 march\q4\Project4.exe
for fraction f1:
enter Numerator: 4
enter Denominator: 3

for fraction f2:
enter Numerator: 2
enter Denominator: 5

overloaded& : a=&f1,b=&f2

a = 4/3
-a = -4/3
b = 2/5
-b = -2/5
-----
Process exited after 6.398 seconds with return value 0
Press any key to continue . . .
```

Project4 - [Project4.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug Fraction.h Fraction.cpp main.cpp

```

1 #include <iostream>
2 using namespace std;
3 #include "Fraction.h"
4
5
6 Fraction Fraction::operator-() const
7 {
8     return Fraction(-numerator, denominator);
9 }
10
11 Fraction Fraction::operator&()
12 {
13     return *(this);
14 }
15
16
17 Fraction::Fraction(int n, int d)
18 {
19     // 1/2 * constructor Fraction::Fraction (int n, int d)
20     | numerator = n; denominator = d;
21 }
22 ostream& operator<<(ostream& os, const Fraction& a)

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q4\Project4.exe
- Output Size: 1.85513782501221 MiB
- Compilation Time: 0.25s

Line: 17 Col: 30 Sel: 0 Lines: 36 Length: 690 Insert Done parsing in 0.015 seconds

Type here to search

Project4 - [Project4.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug Fraction.h Fraction.cpp main.cpp

```

1 ifndef _FRACTION_
2 define _FRACTION_
3 #include <iostream>
4 using namespace std;
5 class Fraction
6 {
7 private:
8     int numerator, denominator;
9
10 public:
11
12 Fraction(int n = 0, int d = 1);
13
14 Fraction operator-() const;
15
16 friend ostream& operator<< (ostream& os, const Fraction& a);
17
18 friend istream& operator>> (istream& is, Fraction& a);
19
20 Fraction operator&();
21
22 };

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q4\Project4.exe
- Output Size: 1.85513782501221 MiB
- Compilation Time: 0.25s

Line: 17 Col: 1 Sel: 0 Lines: 26 Length: 387 Insert Done parsing in 0.015 seconds

Type here to search

```

Project4 - [Project4.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Fraction.h Fraction.cpp main.cpp
Project Classes Debug
Project4
Fraction.cpp
Fraction.h
main.cpp
1 #include "Fraction.h"
2 #include <iostream>
3 using namespace std;
4 int main()
5 {
6     Fraction f1,f2;
7     cout<<"\n\n for fraction f1:\n";
8     cin>>f1;
9     cout<<"\n\n for fraction f2:\n";
10    cin>>f2;
11    Fraction a=f1;
12    Fraction b=f2;
13    cout << "\n\n overloaded& : a=&f1,b=&f2 \n\n";
14    cout << "\n\n a = " << a << endl;
15    cout << "\n\n -a = " << -a << endl;
16    cout << "\n\n b = " << b << endl;
17    cout << "\n\n -b = " << -b << endl;
18
19
20    return 0;
21 }

```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q4\Project4.exe
- Output Size: 1.85513782501221 MiB
- Compilation Time: 0.25s

```

Line: 17 Col: 25 Sel: 0 Lines: 22 Length: 460 Insert Done parsing in 0.031 seconds
Type here to search
File Edit Search View Project Execute Tools AStyle Window Help
Fraction.h Fraction.cpp main.cpp
Project Classes Debug
Project4
Fraction.h
main.cpp
16
17 Fraction::Fraction(int n, int d)
18 {
19     numerator = n; denominator = d;
20 }
21
22 ostream& operator<<(ostream& os, const Fraction& a)
23 {
24     os << a.numerator << "/" << a.denominator;
25     return os;
26 }
27
28 istream& operator>>(istream& is, Fraction& a)
29 {
30     cout << "\n enter Numerator: ";
31     is >> a.numerator;
32     cout << "\n enter Denominator: ";
33     is >> a.denominator;
34     if(a.denominator < 0)
35         a.numerator = -a.numerator,
36         a.denominator= -a.denominator;
37     return is;
38 }

```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q4\Project4.exe
- Output Size: 1.85513782501221 MiB
- Compilation Time: 0.25s

5. Write a C++ program to overload arithmetic assignment operators overloading using friend functions. Display the output by overloading << operator.

main.cpp

```
#include "Arithmetic.h"
#include <iostream>
using namespace std;
int main()
{
    Arithmetic a,b;
    cout<<"\n\n\n enter a : ";
    cin>>a;
    cout<<"\n\n\n enter b : ";
    cin>>b;
    cout << "\n\n a = " << a << endl;
    cout << "\n\n b = " << b << endl;
    a+=b;
    cout << "\n\n a += b     a= " << a << endl;
    a-=b ;
    cout << "\n\n a -= b     a= " << a << endl;
    a*=b ;
    cout << "\n\n a *= b     a= " << a << endl;
    a/=b ;
    cout << "\n\n a /= b     a= " << a << endl;
    return 0;
}
```

Arithmetic.cpp

```
#include "Arithmetic.h"
#include <iostream>
```

```
Arithmetic::Arithmetic(int n)
```

```
{
```

```
    val = n;
```

```
}
```

```
Arithmetic operator+=(Arithmetic& a, Arithmetic& b)
```

```
{
```

```
    a.val=a.val+b.val;
```

```
    return a;
```

```
}
```

```
Arithmetic operator-=(Arithmetic& a, Arithmetic& b )
```

```
{
```

```
    a.val=a.val-b.val;return a;
```

```
}
```

```
Arithmetic operator*=(Arithmetic& a, Arithmetic& b )
```

```
{
```

```
    a.val=a.val*b.val;return a;
```

```
}
```

```
Arithmetic operator/=(Arithmetic& a,Arithmetic& b )
```

```
{
```

```
    a.val=a.val/b.val;
```

```
    return a;
```

```
}
```

```
ostream& operator<<(ostream& os,Arithmetic& a)
```

```
{
```

```
os << a.val ;  
return os;  
}  
  
istream& operator>>(istream& is, Arithmetic& a)  
{  
    is >> a.val;  
    return is;  
}
```

Arithmetic.h

```
#ifndef ARITHMETIC_H
```

```
#define ARITHMETIC_H
```

```
#include <iostream>
```

```
using namespace std;
```

```
class Arithmetic
```

```
{
```

```
private:
```

```
int val;
```

```
public:
```

```
Arithmetic(int n = 0);
```

```
friend Arithmetic operator+=( Arithmetic&, Arithmetic&);

friend Arithmetic operator-=( Arithmetic&, Arithmetic&);

friend Arithmetic operator*=(Arithmetic&, Arithmetic&);

friend Arithmetic operator/=(Arithmetic&, Arithmetic&);

friend ostream& operator<< (ostream& os, Arithmetic& a);

friend istream& operator>> (istream& is, Arithmetic& a);

};

#endif
```

```
E:\DEV\cpp file\31 march\q5\Project5.exe

enter a : 10

enter b : 25

a = 10

b = 25

a += b      a= 35

a -= b      a= 10

a *= b      a= 250

a /= b      a= 10

Process exited after 6.237 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEV\cpp file\31 march\q5\Project5.exe

enter a : 75

enter b : 40

a = 75

b = 40

a += b      a= 115

a -= b      a= 75

a *= b      a= 3000

a /= b      a= 75

Process exited after 6.957 seconds with return value 0
Press any key to continue . . .
```

16:08 04-04-2021

Project5 - [Project5.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp

```

18 L }
19
20 Arithmetic operator*=(Arithmetic& a, Arithmetic& b )
21 {
22     a.val=a.val*b.val;return a;
23 }
24
25 Arithmetic operator/=(Arithmetic& a,Arithmetic& b )
26 {
27     a.val=a.val/b.val;
28     return a;
29 }
30
31 ostream& operator<<(ostream& os,Arithmetic& a)
32 {
33     os << a.val ;
34     return os;
35 }
36
37 istream& operator>>(istream& is, Arithmetic& a)
38 {
39     is >> a.val;

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 39 Col: 1 Sel: 0 Lines: 45 Length: 638 Insert Done parsing in 0.016 seconds

Type here to search

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp

```

1 #include "Arithmetic.h"
2 #include <iostream>
3
4 Arithmetic::Arithmetic(int n)
5 {
6     val = n;
7 }
8
9 Arithmetic operator+=(Arithmetic& a, Arithmetic& b)
10 {
11     a.val=a.val+b.val;
12     return a;
13 }
14
15 Arithmetic operator-=(Arithmetic& a, Arithmetic& b )
16 {
17     a.val=a.val-b.val;return a;
18 }
19
20 Arithmetic operator*=(Arithmetic& a, Arithmetic& b )
21 {
22     a.val=a.val*b.val;return a;

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 39 Col: 1 Sel: 0 Lines: 45 Length: 638 Insert Done parsing in 0.016 seconds

Type here to search

1609 04-04-2021 ENG

Project5 - [Project5.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp

```

10 public:
11 
12 Arithmetic(int n = 0);
13 
14 friend Arithmetic operator+=( Arithmetic&, Arithmetic& );
15 
16 friend Arithmetic operator-=( Arithmetic&, Arithmetic& );
17 
18 friend Arithmetic operator*=(Arithmetic&, Arithmetic& );
19 
20 friend Arithmetic operator/=(Arithmetic&, Arithmetic& );
21 
22 friend ostream& operator<< (ostream& os, Arithmetic& a);
23 
24 friend istream& operator>> (istream& is, Arithmetic& a);
25 
26 };
27 #endif
28 
29 
30 
31 
```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 11 Col: 8 Sel: 0 Lines: 33 Length: 553 Insert Done parsing in 0.016 seconds

Type here to search

Projects - [Project5.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp

```

1 ifndef ARITHMETIC_H
2 define ARITHMETIC_H
3 #include <iostream>
4 using namespace std;
5 class Arithmetic
6 {
7 private:
8 int val;
9 public:
10 Arithmetic(int n = 0);
11 /* 1/2# constructor Arithmetic::Arithmetic (int n) */
12 friend Arithmetic operator+=( Arithmetic&, Arithmetic& );
13 
14 friend Arithmetic operator-=( Arithmetic&, Arithmetic& );
15 
16 friend Arithmetic operator*=(Arithmetic&, Arithmetic& );
17 
18 friend Arithmetic operator/=(Arithmetic&, Arithmetic& );
19 
```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 13 Col: 15 Sel: 0 Lines: 33 Length: 553 Insert Done parsing in 0.016 seconds

Type here to search

```

Project5 - [Project5.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp
1 #include "Arithmetic.h"
2 #include <iostream>
3 using namespace std;
4 int main()
5 {
6     Arithmetic a,b;
7     cout<<"\n\n\n    enter a : ";
8     cin>>a;
9     cout<<"\n\n\n    enter b : ";
10    cin>>b;
11    cout << "\n\n a = " << a << endl;
12    cout << "\n\n b = " << b << endl;
13    a+=b;
14    cout << "\n\n a += b      a= " << a << endl;
15    a-=b;
16    cout << "\n\n a -= b      a= " << a << endl;
17    a*=b;
18    cout << "\n\n a *= b      a= " << a << endl;
19    a/=b;
20    cout << "\n\n a /= b |   a= " << a << endl;
21    return 0;
22 }

Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 20 Col: 22 Sel: 0 Lines: 22 Length: 491 Insert Done parsing in 0.016 seconds
Type here to search 16:08 04-04-2021 ENG

Projects - [Project5.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug main.cpp Arithmetic.h Arithmetic.cpp
24
25     Arithmetic operator/=(Arithmetic& a,Arithmetic& b )
26 {
27     a.val=a.val/b.val;
28     return a;
29 }
30
31     ostream& operator<<(ostream& os,Arithmetic& a)
32 {
33     os << a.val ;
34     return os;
35 }
36
37     istream& operator>>(istream& is, Arithmetic& a)
38 {
39     is >> a.val;
40     return is;
41 }
42
43
44
45

Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q5\Project5.exe
- Output Size: 1.85421848297119 MiB
- Compilation Time: 0.23s

Line: 39 Col: 1 Sel: 0 Lines: 45 Length: 638 Insert Done parsing in 0.016 seconds
Type here to search 16:09 04-04-2021 ENG

```

6. Write a C++ program to find out the area and volume of a Polygon by overloading the function call operator

Main.cpp

```
#include "Polygon.h"
```

```

#include <iostream>

int main()
{
    int cyr,cyh,sr,cl,ch,cb;

    cout<<"\n\n enter radius of cylinder : ";cin>>cyr;
    cout<<"\n\n enter height of cylinder : ";cin>>cyh;
    cout<<"\n\n enter radius of sphere : ";cin>>sr;
    cout<<"\n\n enter length of cuboid : ";cin>>cl;
    cout<<"\n\n enter height of cuboid: ";cin>>ch;
    cout<<"\n\n enter breadth of cuboid : ";cin>>cb;

    Polygon cylinder(0,cyr,cyh),cuboid(1,cl,ch,cb),sphere(2,sr);

    //1st parameter 0 for cylinder 1 for cuboid 2 for sphere

    float cylinder_area=cylinder(0),
          cuboid_area=cuboid(0),
          sphere_area=cuboid(0);//0 for area

    cout<<"\n\n\n areas   "
    <<"\n\n\n   cylinder   "
    <<cylinder_area<<" \n\n\n   cuboid   "
    <<cuboid_area<<" \n\n\n   sphere   "
    <<sphere_area;//0 for area

    float cylinder_volume=cylinder(1),
          cuboid_volume=cuboid(1),

```

```

sphere_volume=sphere(1); //1 for volume

cout<<"\n\n\n\n\n volumes "
<<"\n\n\n cylinder   "
<<cylinder_volume<<"\n\n\n cuboid   "
<<cuboid_volume<<"\n\n\n sphere   "
<<sphere_volume; //1 for volume
cout<<"\n\n\n\n\n";
return 0;
}

```

Polygon.cpp

```

#include "Polygon.h"
#include <iostream>

float Polygon::operator()(int op)
{ float pi = 3.14159,sur_ar=0,vol=0;
  if (op==1)//volume
  {
    switch(shape)
    {
      case 0: //cylinder
      {
        vol = pi * dim1 * dim1 * dim2;
        break;
      }
      case 1: //cuboid
      {
        vol = dim1 * dim2 * dim3;
        break;
      }
    }
  }
}

```

```
        vol = dim1 * dim2 * dim3;  
        break;  
  
    }  
  
    case 2: //sphere  
    {  
        vol = (float(4) / float(3)) * pi * dim1 * dim1 *  
dim1;  
        break;  
  
    }  
  
    default :  
    {  
        break;  
  
    }  
  
    }  
    return vol;  
  
}  
else if(op==0)//area  
{
```

```
switch(shape)
{
    case 0://cylinder
    {
        sur_ar = 2 * pi * dim1 * (dim1 + dim2);
        break;
    }

    case 1://cuboid
    {
        sur_ar= 2 * dim1 * dim2 + 2 * dim2 * dim3 + 2
        * dim1 * dim3;
        break;
    }

    case 2://sphere
    {
        sur_ar = 4 * pi * dim1 * dim1;
        break;
    }

    default :
    {
        break;
    }
}
```

```
        }

    return sur_ar;
}

}

Polygon::Polygon(int sh,int r,int h,int b)
{
    shape=sh;
    dim1=r;
    dim2=h;
    dim3=b;

}
```

Polygon.h

```
#ifndef POLYGON_H
#define POLYGON_H

#include <iostream>
using namespace std;

class Polygon
{

private:

    int shape,dim1,dim2,dim3;

//dim1= radius(in cylinder or sphere)
// or length in cuboid
```

```
//, dim2=height,dim 3=breadth

public:

Polygon(int sh=-1,int r=0,int h=0,int b=0);

float operator()(int op);

};

#endif
```

```
E:\DEV\cpp file\31 march\q6\Project6.exe
enter radius of cylinder : 6
enter height of cylinder : 5
enter radius of sphere : 8
enter length of cuboid : 7
enter height of cuboid: 4
enter breadth of cuboid : 3

areas
cylinder 414.69
cuboid 122
sphere 122

volumes
cylinder 565.486
cuboid 84
sphere 2144.66
```

```
E:\DEV\cpp file\31 march\q6\Project6.exe
enter radius of cylinder : 3
enter height of cylinder : 4
enter radius of sphere : 5
enter length of cuboid : 6
enter height of cuboid: 7
enter breadth of cuboid : 8

areas
cylinder 131.947
cuboid 292
sphere 292

volumes
cylinder 113.097
cuboid 336
sphere 523.598
```

```
E:\DEVcpp file\31 march\lab\Project6.exe
enter height of cylinder : 5

enter radius of sphere : 8

enter length of cuboid : 7

enter height of cuboid: 4

enter breadth of cuboid : 3

areas

cylinder      414.69

cuboid        122

sphere         122

volumes

cylinder      565.486

cuboid        84

sphere         2144.66

Process exited after 9.138 seconds with return value 0
Press any key to continue . . .
```

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

62     }
63
64     case 2://sphere
65     {
66         sur_ar = 4 * pi * dim1 * dim1;
67
68         break;
69     }
70
71     default :
72     {
73         break;
74     }
75
76 }
77
78 return sur_ar;
79
80 }
81
82
83 Polygon::Polygon(int sh,int r,int h,int b)

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

45 }
46 else if(op==0)//area
47 {
48     switch(shape)
49     {
50         case 0://cylinder
51         {
52             sur_ar = 2 * pi * dim1 * (dim1 + dim2);
53             break;
54         }
55
56         case 1://cuboid
57         {
58             sur_ar= 2 * dim1 * dim2 + 2 * dim2 * dim3 + 2 * dim1 * dim3;
59             break;
60         }
61
62         case 2://sphere
63         {
64             sur_ar = 4 * pi * dim1 * dim1;
65         }
66     }

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

31 |         default :
32 |     {
33 |         break;
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |     }
42 |     return vol;
43 |
44 |
45 | }
46 | else if(op==0)//area
47 | {
48 |     switch(shape)
49 |     {
50 |         case 0: //cylinder
51 |         {
52 |             sur ar = 2 * pi * dim1 * (dim1 + dim2);

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

16 |         case 1: //cuboid
17 |     {
18 |         vol = dim1 * dim2 * dim3;
19 |         break;
20 |
21 |
22 |
23 |
24 |
25 |         case 2: //sphere
26 |     {
27 |         vol = (float(4) / float(3)) * pi * dim1 * dim1 * dim1;
28 |         break;
29 |
30 |
31 |
32 |
33 |         default :
34 |         {
35 |             break;
36 |
37 |

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

1 #include "Polygon.h"
2 #include <iostream>
3
4 float Polygon::operator()(int op)
5 {
6     float pi = 3.14159, sur_ar=0, vol=0;
7     if (op==1)//volume
8     {
9         switch(shape)
10        {
11            case 0: //cylinder
12            {
13                vol = pi * dim1 * dim1 * dim2;
14                break;
15            }
16            case 1: //cuboid
17            {
18                vol = dim1 * dim2 * dim3;
19                break;
20            }
21        }
22    }

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.0533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

1 ifndef POLYGON_H
2 define POLYGON_H
3 #include <iostream>
4 using namespace std;
5 class Polygon
6 {
7     private:
8         int shape,dim1,dim2,dim3;
9     public:
10     Polygon(int sh=-1,int r=0,int h=0,int b=0);
11     float operator()(int op);
12 };

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.0533821105957 MiB
- Compilation Time: 0.24s

Line: 20 Col: 7 Sel: 0 Lines: 31 Length: 358 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

21 sphere_area=cuboid(0); //0 for area
22
23 cout<<"\n\n\n areas "
24 <<"\n\n\n cylinder "
25 <<cylinder_area<<" \n\n\n cuboid "
26 <<cuboid_area<<" \n\n\n sphere "
27 <<sphere_area; //0 for area
28
29 float cylinder_volume=cylinder(1),
30 cuboid_volume=cuboid(1),
31 sphere_volume=sphere(1); //1 for volume
32
33 cout<<"\n\n\n\n volumes "
34 <<" \n\n\n cylinder "
35 <<cylinder_volume<<" \n\n\n cuboid "
36 <<cuboid_volume<<" \n\n\n sphere "
37 <<sphere_volume; //1 for volume
38 cout<<"\n\n\n\n\n";
39 return 0;
40
41

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.0533821105957 MiB
- Compilation Time: 0.24s

Line: 38 Col: 20 Sel: 0 Lines: 41 Length: 1122 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Polygon.h Polygon.cpp

```

16 //1st parameter 0 for cylinder 1 for cuboid 2 for sphere
17
18 float cylinder_area=cylinder(0),
19 cuboid_area=cuboid(0),
20 sphere_area=cuboid(0); //0 for area
21
22 cout<<"\n\n\n areas "
23 <<"\n\n\n cylinder "
24 <<cylinder_area<<" \n\n\n cuboid "
25 <<cuboid_area<<" \n\n\n sphere "
26 <<sphere_area; //0 for area
27
28 float cylinder_volume=cylinder(1),
29 cuboid_volume=cuboid(1),
30 sphere_volume=sphere(1); //1 for volume
31
32 cout<<"\n\n\n\n volumes "
33 <<" \n\n\n cylinder "
34 <<cylinder_volume<<" \n\n\n cuboid "
35 <<cuboid_volume<<" \n\n\n sphere "
36 <<sphere_volume; //1 for volume
37

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.0533821105957 MiB
- Compilation Time: 0.24s

Line: 38 Col: 20 Sel: 0 Lines: 41 Length: 1122 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug

(globals)

```

main.cpp Polygon.h Polygon.cpp
1 #include "Polygon.h"
2 #include <iostream>
3
4 int main()
5 {
6     int cyr,cyh,sr,cl,ch,cb;
7
8     cout<<"\n\n enter radius of cylinder :  ">>cyr;
9     cout<<"\n\n enter height of cylinder :  ">>cyh;
10    cout<<"\n\n enter radius of sphere :  ">>sr;
11    cout<<"\n\n enter length of cuboid :  ">>cl;
12    cout<<"\n\n enter height of cuboid: ">>ch;
13    cout<<"\n\n enter breadth of cuboid :  ">>cb;
14
15    Polygon cylinder(0,cyr,cyh),cuboid(1,cl,ch,cb),sphere(2,sr);
16
17 //1st parameter 0 for cylinder 1 for cuboid 2 for sphere
18
19 float cylinder_area=cylinder(0),
20 cuboid_area=cuboid(0),
21 sphere_area=sphere(0); //0 for area
22

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 38 Col: 20 Sel: 0 Lines: 41 Length: 1122 Insert Done parsing in 0.015 seconds

Type here to search

Project8 - [Project6.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug

(globals)

```

main.cpp Polygon.h Polygon.cpp
70
71         default :
72     {
73         break;
74     }
75
76
77     return sur_ar;
78 }
79
80 }
81
82
83 Polygon::Polygon(int sh,int r,int h,int b)
84 {
85     shape=sh;
86     dim1=r;
87     dim2=h;
88     dim3=b;
89 }
90

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q6\Project6.exe
- Output Size: 1.8533821105957 MiB
- Compilation Time: 0.24s

Line: 78 Col: 23 Sel: 0 Lines: 90 Length: 1298 Insert Done parsing in 0.015 seconds

Type here to search

7. Write a C++ program to overload >, <, >=, !=, = operators on Strings using classes

main.cpp

```
#include "mystring.h"
```

```
#include <iostream>
#include <string>
int main()
{
    mystring msg1,msg2,msg3,msg4;

    cout<<"\n\n Enter msg1 : ";msg1.set_message();

    cout<<"\n\n Enter msg2 : "; msg2.set_message();

    cout<<"\n\n Enter msg3 : "; msg3.set_message();

    msg4 = msg1;
    cout << "\n\n\n msg4 = msg1\n\n msg4 : "; msg4.print();

    cout <<"\n\n\n 1 is true 0 is false \n\n";
    cout << "\n\n (msg1 == msg2) "<< (msg1 == msg2) << endl;
    cout << "\n\n (msg1 == msg3) "<< (msg1 == msg3) << endl;
    cout << "\n\n (msg4 < msg2) "<< (msg4 < msg2) << endl;
    cout << "\n\n (msg1 <= msg2) "<< (msg1 <= msg2) << endl;
    cout << "\n\n (msg2 > msg3) "<< (msg1 > msg2) << endl;
    cout << "\n\n (msg3 >= msg4) "<< (msg1 >= msg2) << endl;
    cout << "\n\n (msg1 != msg2) "<< (msg1 != msg2) << endl;

}
```

mystring.h

```
#ifndef MYSTRING_H
#define MYSTRING_H
#include <iostream>
#include <string>
using namespace std;

class mystring
{
    string s;

public:
    mystring(string s1="");

    void set_message();

    int operator>(const mystring& s2);

    int operator==(const mystring& s2);

    int operator<(const mystring& s2);

    int operator>=(const mystring& s2);

    int operator!=(const mystring& s2);

    int operator<=(const mystring& s2);

    mystring& operator=(const mystring& s2);
```

```
    void print();
```

```
};
```

```
#endif
```

mystring.cpp

```
#include "mystring.h"
```

```
#include <iostream>
```

```
#include <string>
```

```
using namespace std;
```

```
mystring::mystring(string s1)
```

```
{
```

```
    s=s1;
```

```
}
```

```
void mystring::set_message()
```

```
{
```

```
    string s1="";
```

```
    cin>>s1;
```

```
    s=s1;
```

```
}
```

```
int      mystring::operator>(const mystring& s2)
{
    return(s>s2.s);
```

```
}
```

```
int      mystring::operator==(const mystring& s2)
{
    return(s==s2.s);
```

```
}
```

```
int      mystring::operator<(const mystring& s2)
{
    return(s<s2.s);
```

```
}
```

```
int      mystring::operator>=(const mystring& s2)
{
    return(s>=s2.s);
```

```
}
```

```
int      mystring::operator<=(const mystring& s2)
{
    return(s<=s2.s);
```

```
}
```

```
int mystring::operator!=(const mystring& s2)
{
    return(s!=s2.s);

}

mystring& mystring::operator=(const mystring& s2)
{
    s=s2.s;
    return *(this);

}

void mystring::print()
{
    cout<<s;
}
```

```
E:\DEV\cpp file\31 march\q7\ProjectB\exe
Enter msg1 : hello
Enter msg2 : goodbye
Enter msg3 : swaminathan

msg4 = msg1
msg4 : hello

1 is true 0 is false

(msg1 == msg2)  0
(msg1 == msg3)  0
(msg4 < msg2)  0
(msg1 <= msg2)  0
(msg2 > msg3)  1
(msg3 >= msg4)  1
(msg1 != msg2)  1

-----
Process exited after 28.44 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEV\cpp file\31 march\q7\ProjectB\exe
Enter msg1 : swaminathan
Enter msg2 : navinashok
Enter msg3 : B.tech

msg4 = msg1
msg4 : swaminathan

1 is true 0 is false

(msg1 == msg2)  0
(msg1 == msg3)  0
(msg4 < msg2)  0
(msg1 <= msg2)  0
(msg2 > msg3)  1
(msg3 >= msg4)  1
(msg1 != msg2)  1

-----
Process exited after 23.6 seconds with return value 0
Press any key to continue . . .
```

17:08
04-04-2021

17:09
04-04-2021

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

1 #ifndef MYSTRING_H
2 #define MYSTRING_H
3 #include <iostream>
4 #include <string>
5 using namespace std;
6 class mystring
7 {
8     string s;
9 public:
10    mystring(string s1="");
11    void set_message();
12    int operator>(const mystring& s2);
13    int operator==(const mystring& s2);
14    int operator<(const mystring& s2);
15    int operator>=(const mystring& s2);
16
17
18
19
20
21
22

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 13 Col: 24 Sel: 0 Lines: 35 Length: 567 Insert Done parsing in 0.032 seconds

Type here to search

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

50
51    int mystring::operator!=(const mystring& s2)
52    {
53        return(s!=s2.s);
54    }
55
56
57    mystring& mystring::operator=(const mystring& s2)
58    {
59        s=s2.s;
60        return *(this);
61    }
62
63
64    void mystring::print()
65    {
66        cout<<s;
67    }
68
69
70

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 15 Col: 24 Sel: 0 Lines: 70 Length: 965 Insert Done parsing in 0.032 seconds

Type here to search

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

38     int mystring::operator>=(const mystring& s2)
39     {
40         return(s>=s2.s);
41     }
42
43
44     int mystring::operator<=(const mystring& s2)
45     {
46         return(s<=s2.s);
47     }
48
49
50     int mystring::operator!=(const mystring& s2)
51     {
52         return(s!=s2.s);
53     }
54
55
56     mystring& mystring::operator=(const mystring& s2)
57     {
58         s=s2.s;
59     }

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 15 Col: 24 Sel: 0 Lines: 70 Length: 985 Insert Done parsing in 0.032 seconds

Type here to search

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

18     }
19
20     int mystring::operator>(const mystring& s2)
21     {
22         return(s>s2.s);
23     }
24
25
26     int mystring::operator==(const mystring& s2)
27     {
28         return(s==s2.s);
29     }
30
31
32     int mystring::operator<(const mystring& s2)
33     {
34         return(s<s2.s);
35     }
36
37
38     int mystring::operator>=(const mystring& s2)
39     {

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 15 Col: 24 Sel: 0 Lines: 70 Length: 985 Insert Done parsing in 0.032 seconds

Type here to search

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

1 #include "mystring.h"
2 #include <iostream>
3 #include <string>
4 using namespace std;
5
6
7
8 mystring::mystring(string s1)
9 {
10     s=s1;
11 }
12
13 void mystring::set_message()
14 {
15     string s1="";
16     cin>>s1;
17     s=s1;
18 }
19
20 int mystring::operator>(const mystring& s2)
21 {
22     return(s>s2.s);
}

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 15 Col: 24 Sel: 0 Lines: 70 Length: 985 Insert Done parsing in 0.032 seconds

Type here to search

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug mystring.h mystring.cpp main.cpp

```

10 cout<<"\n\n Enter msg2 : "; msg2.set_message();
11 cout<<"\n\n Enter msg3 : "; msg3.set_message();
12
13
14 msg4 = msg1;
15 cout << "\n\n\n msg4 = msg1\n\n\n msg4 : " msg4.print();
16
17
18
19 cout <<"\n\n\n 1 is true 0 is false \n\n";
20 cout << "\n\n (msg1 == msg2) " << (msg1 == msg2) << endl;
21 cout << "\n\n (msg1 == msg3) " << (msg1 == msg3) << endl;
22 cout << "\n\n (msg4 < msg2) " << (msg4 < msg2) << endl;
23 cout << "\n\n (msg1 <= msg2) " << (msg1 <= msg2) << endl;
24 cout << "\n\n (msg2 > msg3) " << (msg1 > msg2) << endl;
25 cout << "\n\n (msg3 >= msg4) " << (msg1 >= msg2) << endl;
26 cout << "\n\n (msg1 != msg2) " << (msg1 != msg2) << endl;
27
28
29
30 }

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q7\Project8.exe
- Output Size: 1.88972473144531 MiB
- Compilation Time: 0.27s

Line: 8 Col: 36 Sel: 0 Lines: 30 Length: 943 Insert Done parsing in 0.032 seconds

Type here to search

```

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug mystring.h mystring.cpp main.cpp
1 #include "mystring.h"
2 #include <iostream>
3 #include <string>
4 int main()
5 {
6     mystring msg1,msg2,msg3,msg4;
7
8     cout<<"\n\n Enter msg1 : ";msg1.set_message();
9
10    cout<<"\n\n Enter msg2 : "; msg2.set_message();
11
12    cout<<"\n\n Enter msg3 : "; msg3.set_message();
13
14
15    msg4 = msg1;
16    cout << "\n\n\n msg4 = msg1\n\n\n msg4 : "; msg4.print();
17
18
19    cout <<"\n\n\n 1 is true 0 is false \n\n";
20    cout << "\n\n (msg1 == msg2) " << (msg1 == msg2) << endl;
21    cout << "\n\n (msg1 == msg3) " << (msg1 == msg3) << endl;
22    cout << "\n\n (msg4 < msg2) " << (msg4 < msg2) << endl;

```

```

Project10 - [Project8.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes Debug mystring.h mystring.cpp main.cpp
13 void set_message();
14
15     int operator>(const mystring& s2);
16
17     int operator==(const mystring& s2);
18
19     int operator<(const mystring& s2);
20
21     int operator>=(const mystring& s2);
22
23     int operator!=(const mystring& s2);
24
25     int operator<=(const mystring& s2);
26
27     mystring& operator=(const mystring& s2);
28
29
30
31     void print();
32
33 };
34

```

8. Write a C++ program to overload the array subscript operator while multiplying two matrices.

main.cpp

```
#include "Matrix.h"
```

```

#include <iostream>
using namespace std;

int main()
{
    int r1,c1,r2,c2,k,i,j;

    cout<<"\n\n\n Enter dimensions for matrix 1 :   ";cin>>r1;cout<<"  ";cin>>c1;
    cout<<"\n\n\n Enter dimensions for matrix 2 :   ";cin>>r2;cout<<"  ";cin>>c2;
    Matrix m1(r1,c1),m2(r2,c2),m3(r1,c2);

    for(i=0;i<r1;i++)
    {
        for(j=0;j<c1;j++)
        {
            cout<<" \n\n Enter m1 [ "<<i<<" ]"<<" [ "<<j<<" ] ";
            cin>>k;
            m1[i][j]=k;
        }
    }

    for(i=0;i<r2;i++)
    {
        for(j=0;j<c2;j++)
        {
            cout<<" \n\n Enter m2 [ "<<i<<" ]"<<" [ "<<j<<" ] ";
            cin>>k;
        }
    }
}

```

```

m2[i][j]=k;

}

}

cout<<" \n\n\n\n matrix m1 :\n\n "<<m1;
cout<<" \n\n\n\n matrix m2 :\n\n "<<m2;

m3=m1*m2;

cout<<" \n\n\n\n matrix m3 = m1 * m2 :\n\n "<<m3;

return 0 ;
}

```

Matrix.cpp

```

#include "Matrix.h"

#include <iostream>

Matrix::Matrix(const int &n_rows,const int &n_cols )
{
    rows=n_rows;
    cols=n_cols;
    Mat=new int* [cols];

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

```

```
{  
    Mat[i]=new int[cols];  
  
}  
for(int i=0;i<rows;i++)  
    for(int j=0;j<cols;j++)  
        Mat[i][j]=0;  
}  
  
Matrix::Matrix(const Matrix &M2)  
{  
    cols=M2.cols;  
    rows=M2.rows;  
    Mat=new int* [M2.rows];  
  
    for(int i =0;i<M2.rows;i++)  
    {  
        Mat[i]=new int[M2.cols];  
  
    }  
    for(int i=0;i<M2.rows;i++)  
        for(int j=0;j<M2.cols;j++)  
            Mat[i][j]=M2[i][j];  
}  
  
int* & Matrix::operator [](const int &index) const  
{  
    return Mat [index];  
}
```

```
void Matrix::operator=(const Matrix &M2 )  
{  
    if(Mat !=M2.Mat && cols==M2.cols && rows==M2.rows)  
    {  
        for(int i=0;i<rows;i++)  
            for(int j=0;j<cols;j++)  
                Mat[i][j]=M2.Mat[i][j];  
    }  
}
```

```
Matrix Matrix::operator *(const Matrix &M2) const  
{  
    if (cols!=M2.rows)  
    {  
        Matrix M3(cols,rows);  
        for(int i=0;i<rows;i++)  
            for(int j=0;j<cols;j++)  
                M3.Mat[i][j]=Mat[i][j];  
        return M3;  
    }  
    else  
    {  
        Matrix M3(cols,M2.rows);  
        for(int i=0;i<rows;i++)  
            for(int j=0;j<M2.cols;j++)
```

```
    for(int k =0;k<cols;k++)
        M3[i][j]+=Mat[i][k]*M2.Mat[i][j];
    return M3;
}

}
```

```
Matrix::~Matrix ()
{
    for(int i =0;i<rows;i++)
        delete [] Mat[i];
    delete [] Mat;
}

std::ostream &operator<<(std::ostream &os, const Matrix &m)
{
    for (int i=0; i < m.rows; ++i) {
        os<<"\n  ";
        for (int j=0; j < m.cols; ++j) {
            os << m.Mat[i][j] << "  ";
        }
        os << "\n";
    }
    return os;
}
```

Matrix.h

```
#ifndef MATRIX_H
#define MATRIX_H
#include <iostream>
using namespace std;

class Matrix
{
private:
    int rows;
    int cols;
    int **Mat;

public:
    Matrix (const int &rows,const int &cols);
    Matrix(const Matrix &M2) ;
    ~Matrix ();
    int* & operator[](const int &index) const ;
```

```
void operator=(const Matrix &M2 );

Matrix operator *(const Matrix &M2) const;

friend ostream &operator<<(ostream &os, const Matrix &m);

};

#endif
```

```
E:\DEVcpp file\31 march\q 8\Project7.exe

Enter dimensions for matrix 1 :      2      2

Enter dimensions for matrix 2 :      2      2

Enter m1 [ 0 ] [ 0 ]  1

Enter m1 [ 0 ] [ 1 ]  2

Enter m1 [ 1 ] [ 0 ]  3

Enter m1 [ 1 ] [ 1 ]  4

Enter m2 [ 0 ] [ 0 ]  4

Enter m2 [ 0 ] [ 1 ]  3

Enter m2 [ 1 ] [ 0 ]  2

Enter m2 [ 1 ] [ 1 ]  1

matrix m1 :

1  2
3  4

matrix m2 :

4  3
5  6
6  7
7  8
8  9

Type here to search  O  ━  VS  A  F  K  S  W  E  18:15  ENG 04-04-2021

E:\DEVcpp file\31 march\q 8\Project7.exe

Enter m2 [ 2 ] [ 2 ]  5

matrix m1 :

1  2  3
3  2  1
2  4  5

matrix m2 :

4  2  6
2  3  5
3  4  5

matrix m3 = m1 * m2 :

24  12  36
12  18  30
33  44  55
-----
Process exited after 36.22 seconds with return value 0
Press any key to continue . . .

Type here to search  O  ━  VS  A  F  K  S  W  E  18:15  ENG 04-04-2021
```

```
E:\DEV\cpp file\31 march\q 8\Project7.exe
Enter m1 [ 1 ] [ 1 ] 2
Enter m1 [ 1 ] [ 2 ] 1
Enter m1 [ 2 ] [ 0 ] 2
Enter m1 [ 2 ] [ 1 ] 4
Enter m1 [ 2 ] [ 2 ] 5
Enter m2 [ 0 ] [ 0 ] 4
Enter m2 [ 0 ] [ 1 ] 2
Enter m2 [ 0 ] [ 2 ] 6
Enter m2 [ 1 ] [ 0 ] 2
Enter m2 [ 1 ] [ 1 ] 3
Enter m2 [ 1 ] [ 2 ] 5
Enter m2 [ 2 ] [ 0 ] 3
Enter m2 [ 2 ] [ 1 ] 4
Enter m2 [ 2 ] [ 2 ] 5

matrix m1 :
1 2 3
4 5 6
7 8 9

E:\DEV\cpp file\31 march\q 8\Project7.exe
Enter dimensions for matrix 1 : 3 3
Enter dimensions for matrix 2 : 3 3
Enter m1 [ 0 ] [ 0 ] 1
Enter m1 [ 0 ] [ 1 ] 2
Enter m1 [ 0 ] [ 2 ] 3
Enter m1 [ 1 ] [ 0 ] 3
Enter m1 [ 1 ] [ 1 ] 2
Enter m1 [ 1 ] [ 2 ] 1
Enter m1 [ 2 ] [ 0 ] 2
Enter m1 [ 2 ] [ 1 ] 4
Enter m1 [ 2 ] [ 2 ] 5
Enter m2 [ 0 ] [ 0 ] 4
Enter m2 [ 0 ] [ 1 ] 2
Enter m2 [ 0 ] [ 2 ] 6
Enter m2 [ 1 ] [ 0 ] 2
Enter m2 [ 1 ] [ 1 ] 3
```

```
E:\DEV\cpp file\31 march\q 8\Project7.exe
Enter m2 [ 0 ] [ 1 ] 3
Enter m2 [ 1 ] [ 0 ] 2
Enter m2 [ 1 ] [ 1 ] 1

matrix m1 :
1 2
3 4

matrix m2 :
4 3
2 1

matrix m3 = m1 * m2 :
12 9
14 7
-----
Process exited after 15.31 seconds with return value 0
Press any key to continue . . .
```

Windows taskbar showing various pinned icons and system status.

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

1 #ifndef MATRIX_H
2 #define MATRIX_H
3 #include <iostream>
4 using namespace std;
5
6 class Matrix
7 {
8     private:
9         int rows;
10    int cols;
11    int **Mat;
12
13 public:
14     Matrix (const int &rows,const int &cols);
15     Matrix(const Matrix &M2) ;
16     ~Matrix ();

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 9 Col: 5 Sel: 0 Lines: 34 Length: 536 Insert Done parsing in 0.031 seconds

Type here to search

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

78 Matrix::~Matrix ()
79 {
80     for(int i =0;i<rows;i++)
81         delete [] Mat[i];
82     delete [] Mat;
83 }
84
85
86 std::ostream &operator<<(std::ostream &os, const Matrix &m)
87 {
88     for (int i=0; i < m.rows; ++i) {
89         os<<"\n" ;
90         for (int j=0; j < m.cols; ++j) {
91             os << m.Mat[i][j] << " " ;
92         }
93         os << "\n";
94     }
95     return os;
96 }
97
98

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

74 L }
75
76
77
78 Matrix::~Matrix () {
79 {
80     for(int i = 0; i < rows; i++)
81         delete [] Mat[i];
82     delete [] Mat;
83 }
84 }

85 std::ostream &operator<<(std::ostream &os, const Matrix &m)
86 {
87     for (int i=0; i < m.rows; ++i) {
88         os<<"\n";
89         for (int j=0; j < m.cols; ++j) {
90             os << m.Mat[i][j] << " ";
91         }
92         os << "\n";
93     }
94 }
95 return os;

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021 ENG

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

53
54 Matrix Matrix::operator * (const Matrix &M2) const
55 {
56     if (cols != M2.rows)
57     {
58         Matrix M3(cols, rows);
59         for (int i = 0; i < rows; i++)
60             for (int j = 0; j < cols; j++)
61                 M3.Mat[i][j] = Mat[i][j];
62     }
63     else
64     {
65         Matrix M3(cols, M2.rows);
66         for (int i = 0; i < rows; i++)
67             for (int j = 0; j < M2.cols; j++)
68                 for (int k = 0; k < cols; k++)
69                     M3[i][j] += Mat[i][k] * M2.Mat[i][j];
70     }
71 }
72
73
74 }

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021 ENG

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

36 int* & Matrix::operator [](const int &index) const
37 {
38     return Mat [index];
39 }
40
41
42
43 void Matrix::operator=(const Matrix &M2 )
44 {
45     if(Mat !=M2.Mat && cols==M2.cols && rows==M2.rows)
46     {
47         for(int i=0;i<rows;i++)
48             for(int j=0;j<cols;j++)
49                 Mat[i][j]=M2.Mat[1][j];
50     }
51 }
52
53
54 Matrix Matrix::operator *(const Matrix &M2) const
55 {
56     if (cols!=M2.rows)
57     {

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021 ENG

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

19
20     Matrix::Matrix(const Matrix &M2)
21 {
22     cols=M2.cols;
23     rows=M2.rows;
24     Mat=new int* [M2.rows];
25
26     for(int i = 0;i<M2.rows;i++)
27     {
28         Mat[i]=new int[M2.cols];
29
30     }
31     for(int i=0;i<M2.rows;i++)
32         for(int j=0;j<M2.cols;j++)
33             Mat[i][j]=M2[i][j];
34 }
35
36 int* & Matrix::operator [](const int &index) const
37 {
38     return Mat [index];
39 }
40

```

Compiler Resources CompileLog Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021 ENG

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

1 #include "Matrix.h"
2 #include <iostream>
3 
4 Matrix::Matrix(const int &n_rows,const int &n_cols )
5 {
6     rows=n_rows;
7     cols=n_cols;
8     Mat=new int* [cols];
9 
10    for(int i =0;i<rows;i++)
11    {
12        Mat[i]=new int[cols];
13    }
14 
15    for(int i=0;i<rows;i++)
16    {
17        for(int j=0;j<cols;j++)
18            Mat[i][j]=0;
19    }
20 
21    Matrix::Matrix(const Matrix &M2)
22    {
23        cols=M2.cols;

```

Compiler Resources Compile Log Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976969746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 1 Sel: 0 Lines: 98 Length: 1835 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

27 for(j=0;j<c2;j++)
28 {
29     cout<< endl Enter m2 [ <<i<< ]<< [ <<j<< ] <<;
30     cin>>k;
31     m2[i][j]=k;
32 }
33 
34 }
35 }
36 
37 
38 
39 cout<< endl endl endl matrix m1 :<<m1;
40 cout<< endl endl endl matrix m2 :<<m2;
41 
42 m3=m1*m2;
43 
44 cout<< endl endl endl matrix m3 = m1 * m2 :<<m3;
45 
46 return 0 ;
47 }

```

Compiler Resources Compile Log Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976969746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 21 Sel: 0 Lines: 47 Length: 953 Insert Done parsing in 0.031 seconds

Type here to search

18:16 04-04-2021

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

23 }
24
25 for(i=0;i<r2;i++)
26 {
27     for(j=0;j<c2;j++)
28     {
29         cout<<" \n\n Enter m2 [ "<<i<<" ]<<" [ "<<j<<" ] " ;
30         cin>>k;
31         m2[i][j]=k;
32     }
33 }
34
35 cout<<" \n\n\n matrix m1 :\n\n "<<m1;
36 cout<<" \n\n\n matrix m2 :\n\n "<<m2;
37
38 m3=m1*m2;
39
40 cout<<" \n\n\n matrix m3 = m1 * m2 :\n\n "<<m3;

```

Compiler Resources Compile Log Debug Find Results Close

About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 21 Sel: 0 Lines: 47 Length: 953 Insert Done parsing in 0.031 seconds 16:16 04-04-2021

Type here to search

Project9 - [Project7.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp Matrix.cpp Matrix.h

```

1 #include "Matrix.h"
2 #include <iostream>
3 using namespace std;
4
5 int main()
6 {
7     int r1,c1,r2,c2,k,i,j;
8     cout<<"\n\n\n Enter dimensions for matrix 1 : " ;cin>>r1;cout<<" " ;cin>>c1;
9     cout<<"\n\n\n Enter dimensions for matrix 2 : " ;cin>>r2;cout<<" " ;cin>>c2;
10    Matrix m1(r1,c1),m2(r2,c2),m3(r1,c2);
11
12
13    for(i=0;i<r1;i++)
14    {
15        for(j=0;j<c1;j++)
16        {
17            cout<<" \n\n Enter m1 [ "<<i<<" ]<<" [ "<<j<<" ] " ;
18            cin>>k;
19            m1[i][j]=k;
20        }
21    }
22

```

Compiler Resources Compile Log Debug Find Results Close

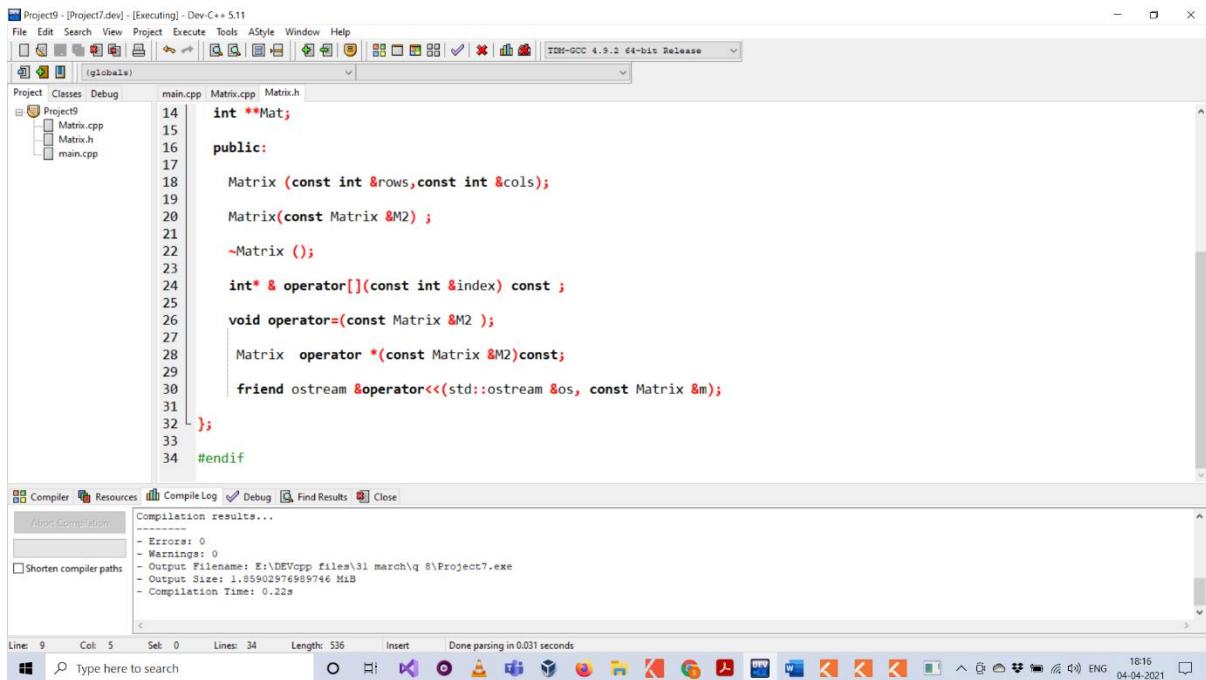
About Compilation

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q 8\Project7.exe
- Output Size: 1.85902976989746 MiB
- Compilation Time: 0.22s

Line: 3 Col: 21 Sel: 0 Lines: 47 Length: 953 Insert Done parsing in 0.031 seconds 16:15 04-04-2021

Type here to search



9. Write a C++ program to dynamically allocate an integer array. Identify the greatest and smallest element of the array using object passing and returning mechanism. Overload new and delete operators appropriately during allocation and deallocation

main.cpp

```
#include "numbers.h"
#include<iostream>
#include<cstdlib>
using namespace std;
```

```
int func(const numbers& arr,int flag)
```

```
{
    int len=arr.getlen();
    int min=arr.getele(0);
    int max=arr.getele(0);
```

```
for(int i=1;i<len;i++)
{
    if (arr.getele(i)>max)
    {
        max=arr.getele(i);
    }
    else if (arr.getele(i)<min)
    {
        min=arr.getele(i);
    }
}

return (flag>0) ? max: min;

}

int main()
{

    int size;
    cout<<"\n\n enter size: ";
    cin >> size;
    numbers arr1(size);

    cout<<"\n\n min: "<<func(arr1,0);
    cout<<"\n\n max: "<<func(arr1,1);
    cout<<"\n\n\n";

    return 0;
}
```

numbers.cpp

```
#include "numbers.h"  
  
#include<iostream>  
  
#include<cstdlib>  
  
using namespace std;  
  
  
void * operator new(size_t size)  
{  
  
    void * p = malloc(size);  
  
    return p;  
}  
  
  
void operator delete(void * p)  
{  
  
    free(p);  
}  
  
  
numbers::numbers(int size)  
{  
  
    len=size;  
  
    arr=new int[len];  
  
    for(int i=0;i<len;i++)  
    {  
  
        cout<<"\n\n enter a["<<i<<"] ";  
  
        cin>>arr[i];  
    }  
}
```

```
    }

}

numbers::~numbers()
{
    delete [] arr;
}

int numbers::getele(int i) const
{
    return arr[i];
}

int numbers::getlen() const
{
    return len;
}
```

numbers.h

```
#ifndef NUMBERS_H
#define NUMBERS_H
#include<iostream>
#include<cstdlib>
using namespace std;
class numbers
{
```

```
int len;
int *arr;
public:
    numbers(int size=0);

    ~numbers();

    int getele(int i) const;

    int getlen() const;

};

#endif
```

```
E:\DEV\cpp file\31 march\q9\Project9.exe
enter size: 5
enter a[0] 2
enter a[1] 1
enter a[2] 6
enter a[3] 8
enter a[4] 5
min: 1
max: 8

-----
Process exited after 9.524 seconds with return value 0
Press any key to continue . . .
```

```
E:\DEV\cpp file\31 march\q9\Project9.exe
enter size: 4
enter a[0] 4
enter a[1] 4
enter a[2] 5
enter a[3] 6
min: 4
max: 6

-----
Process exited after 9.56 seconds with return value 0
Press any key to continue . . .
```

Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp numbers.h numbers.cpp

```

18
19 numbers::numbers(int size)
20 {
21     len=size;
22     arr=new int[len];
23     for(int i=0;i<len;i++)
24     {
25         cout<<"\n\n    enter a["<<i<<">]"    ";
26         cin>>arr[i];
27     }
28 }
29
30
31 numbers::~numbers()
32 {
33     delete [] arr;
34 }
35
36 int numbers::getele(int i) const
37 {
38     return arr[i];
39 }
```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 11 Col: 2 Sel: 0 Lines: 45 Length: 570 Insert Done parsing in 0.031 seconds

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Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp numbers.h numbers.cpp

```

1 #include "numbers.h"
2 #include<iostream>
3 #include<cstdlib>
4 using namespace std;
5
6 void * operator new(size_t size)
7 {
8     void * p = malloc(size);
9     return p;
10 }
11
12 void operator delete(void * p)
13 {
14
15     free(p);
16 }
17
18
19 numbers::numbers(int size)
20 {
21     len=size;
22     arr=new int[len];
```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 19 Col: 27 Sel: 0 Lines: 45 Length: 570 Insert Done parsing in 0.031 seconds

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Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp numbers.h numbers.cpp

```

1 #ifndef NUMBERS_H
2 #define NUMBERS_H
3 #include<iostream>
4 #include<cstdlib>
5 using namespace std;
6 class numbers
7 {
8     int len;
9     int *arr;
10    public:
11        numbers(int size=0);
12        ~numbers();
13        int getele(int i) const;
14        int getlen() const;
15    };
16    #endif
17
18
19
20
21

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 18 Col: 1 Sel: 0 Lines: 21 Length: 267 Insert Done parsing in 0.031 seconds

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Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

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TIM-GCC 4.9.2 64-bit Release

Project Classes Debug main.cpp numbers.h numbers.cpp

```

20     | min=arr.getele(i);
21     |
22 }
23
24 return (flag>0) ? max: min;
25
26 }
27 int main()
28 {
29
30     int size;
31     cout<<"\n\n    enter size: ";
32     cin >> size;
33     numbers arr1(size);
34
35     cout<<"\n\n    min: "<<func(arr1,0);
36     cout<<"\n\n    max: "<<func(arr1,1);
37     cout<<"\n\n\n";
38
39     return 0;
40 }

```

Compiler Resources CompileLog Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 37 Col: 18 Sel: 0 Lines: 40 Length: 667 Insert Done parsing in 0.015 seconds

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Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

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TIM-GCC 4.9.2 64-bit Release

Project Classes Debug

(globals)

```

main.cpp numbers.h numbers.cpp
1 #include "numbers.h"
2 #include<iostream>
3 #include<cstdlib>
4 using namespace std;
5
6
7 int func(const numbers& arr,int flag)
8 {
9     int len=arr.getlen();
10    int min=arr.getele(0);
11    int max=arr.getele(0);
12    for(int i=1;i<len;i++)
13    {
14        if (arr.getele(i)>max)
15        {
16            | max=arr.getele(i);
17        }
18        else if (arr.getele(i)<min)
19        {
20            | min=arr.getele(i);
21        }
22    }

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 37 Col: 18 Sel: 0 Lines: 40 Length: 667 Insert Done parsing in 0.015 seconds

Type here to search

Project11 - [Project9.dev] - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TIM-GCC 4.9.2 64-bit Release

Project Classes Debug

(globals)

```

main.cpp numbers.h numbers.cpp
25 cout<<"\n\n enter a["<<i<<""] ";
26     cin>>arr[i];
27
28 }
29
30 numbers::~numbers()
31 {
32     delete [] arr;
33 }
34
35 int numbers::getele(int i) const
36 {
37     return arr[i];
38 }
39
40 int numbers::getlen() const
41 {
42     return len;
43 }
44
45

```

Compiler Resources CompileLog ✓ Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: E:\DEVcpp files\31 march\q9\Project9.exe
- Output Size: 1.85542011260986 MiB
- Compilation Time: 0.25s

Line: 11 Col: 2 Sel: 0 Lines: 45 Length: 570 Insert Done parsing in 0.031 seconds

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