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Cosc 120

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Lab 4

4.1

1.

```
D:\downloads\Lab_export\Lab4\initialize.exe
Please enter an integer
5
num1 = 5 and num2 = 5
Hey, that's a coincidence!

Process returned 0 (0x0)    execution time : 3.455 s
Press any key to continue.
```

```
D:\downloads\Lab_export\Lab4\initialize.exe
Please enter an integer
12
num1 = 12 and num2 = 5
Hey, that's a coincidence!

Process returned 0 (0x0)    execution time : 5.621 s
Press any key to continue.
```

```
D:\downloads\Lab_export\Lab4\initialize.exe
Please enter an integer
25
num1 = 25 and num2 = 5
Hey, that's a coincidence!

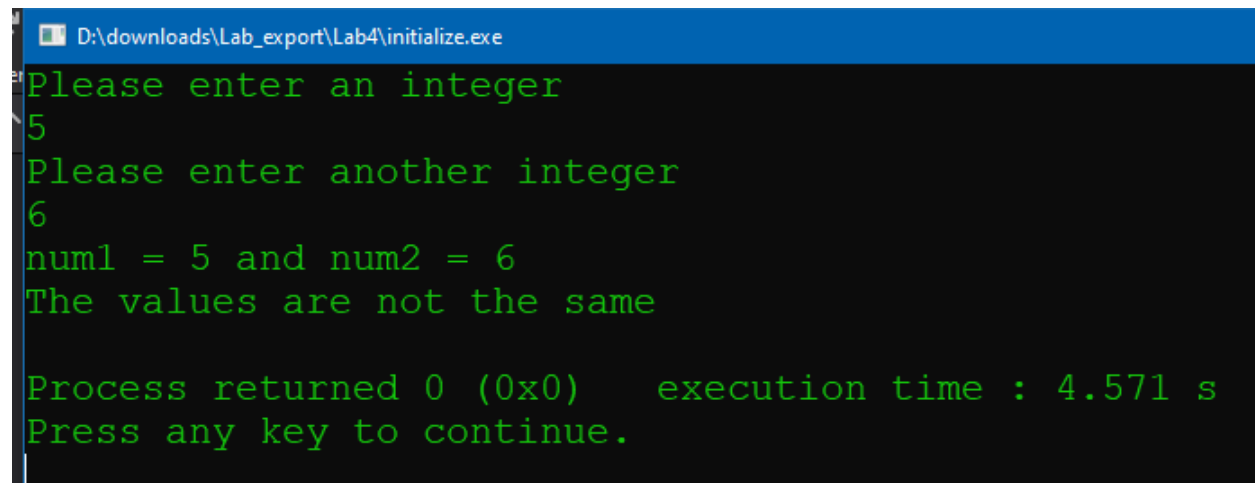
Process returned 0 (0x0)    execution time : 11.403 s
Press any key to continue.
```

Num 2 is defined as a literal and there is a print formatting issue as well in the line below it

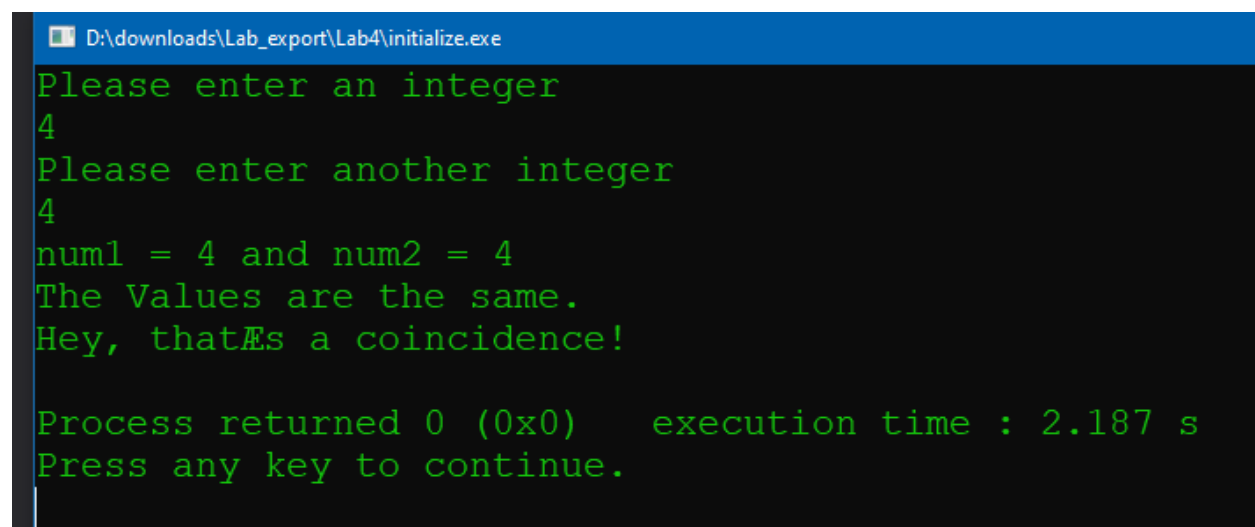
```
cout << "Please enter an integer" << endl;  
cin >> num1;  
  
cout << "Please enter another integer" << endl;  
cin >> num2;
```

2.

3.

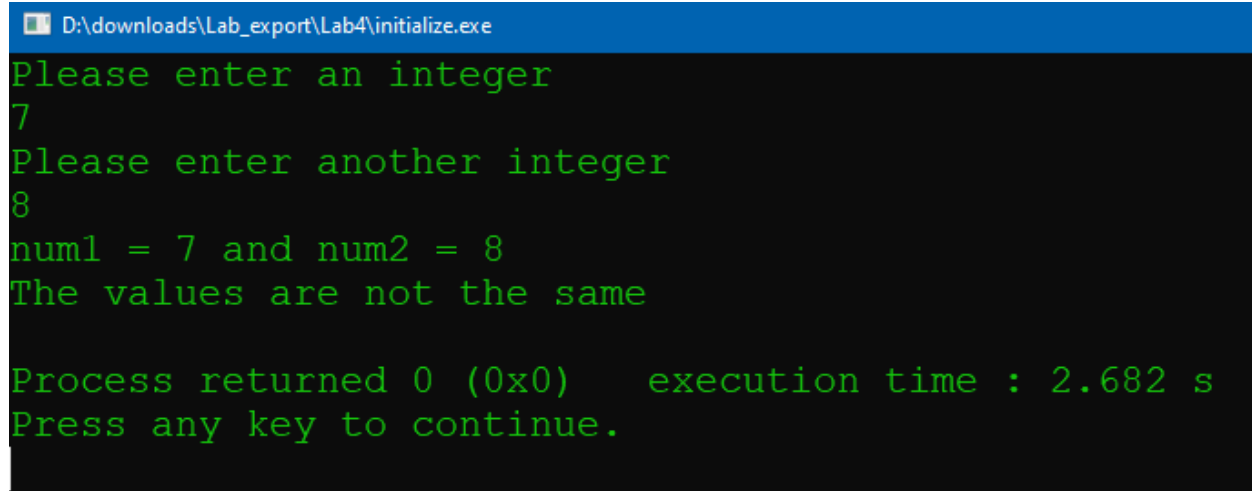


```
D:\downloads\Lab_export\Lab4\initialize.exe  
Please enter an integer  
5  
Please enter another integer  
6  
num1 = 5 and num2 = 6  
The values are not the same  
  
Process returned 0 (0x0)    execution time : 4.571 s  
Press any key to continue.
```



```
D:\downloads\Lab_export\Lab4\initialize.exe  
Please enter an integer  
4  
Please enter another integer  
4  
num1 = 4 and num2 = 4  
The Values are the same.  
Hey, thatÆs a coincidence!  
  
Process returned 0 (0x0)    execution time : 2.187 s  
Press any key to continue.
```

4.



```
D:\downloads\Lab_export\Lab4\initialize.exe
Please enter an integer
7
Please enter another integer
8
num1 = 7 and num2 = 8
The values are not the same

Process returned 0 (0x0)    execution time : 2.682 s
Press any key to continue.
```

Source code

```
// This program tests whether or not an initialized value
```

```
// is equal to a value input by the user
```

```
// PLACE YOUR NAME HERE
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int num1,num2;    // num1 is not initialized
```

```
    cout << "Please enter an integer" << endl;
```

```
    cin >> num1;
```

```
cout << "Please enter another integer" << endl;

cin >> num2;

cout << "num1 = " << num1 << " and num2 = " << num2 << endl;

if (num1 == num2)

    cout << "The Values are the same.\nHey, that's a coincidence!" << endl;

else

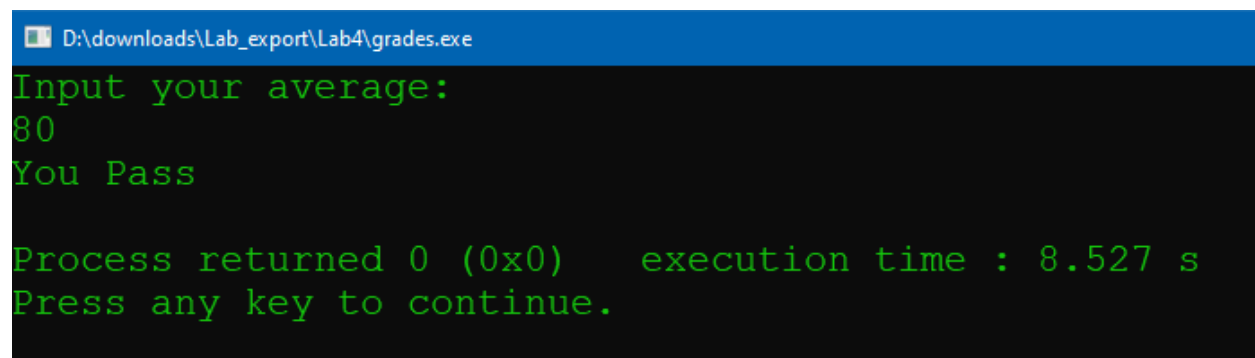
    cout << "The values are not the same" << endl;

return 0;

}
```

4.2

1.



```
D:\downloads\Lab_export\Lab4\grades.exe
Input your average:
80
You Pass

Process returned 0 (0x0)    execution time : 8.527 s
Press any key to continue.
```

```
D:\downloads\Lab_export\Lab4\grades.exe
Input your average:
55
You Fail

Process returned 0 (0x0)    execution time : 1.618 s
Press any key to continue.
```

```
D:\downloads\Lab_export\Lab4\grades.exe
Input your average:
60
You Pass

Process returned 0 (0x0)    execution time : 1.944 s
Press any key to continue.
```

2.

```
if (average >= 60)
    cout << "You Pass" << endl;

else
    cout << "You Fail" << endl;
```

3.

```
D:\downloads\Lab_export\Lab4\grades.exe
Input your average:
101
Invalid Input

Process returned 0 (0x0)    execution time : 7.918 s
Press any key to continue.
```

D:\downloads\Lab_export\Lab4\grades.exe

Input your average:

99

You got an A

Process returned 0 (0x0) execution time : 6.172 s

Press any key to continue.

D:\downloads\Lab_export\Lab4\grades.exe

Input your average:

85

You got a B

Process returned 0 (0x0) execution time : 5.165 s

Press any key to continue.

D:\downloads\Lab_export\Lab4\grades.exe

Input your average:

70

You Pass

Process returned 0 (0x0) execution time : 5.048 s

Press any key to continue.

D:\downloads\Lab_export\Lab4\grades.exe

Input your average:

50

You Fail

Process returned 0 (0x0) execution time : 3.867 s

Press any key to continue.

```
D:\downloads\Lab_export\Lab4\grades.exe
Input your average:
-12

Process returned 0 (0x0)    execution time : 2.758 s
Press any key to continue.
```

-12 returns nothing, could put it into error check

Source Code

```
// This program prints "You Pass" if a student's average is
```

```
// 60 or higher and prints "You Fail" otherwise
```

```
// PLACE YOUR NAME HERE
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    float average;    // holds the grade average
```

```
    cout << "Input your average:" << endl;
```

```
    cin >> average;
```

```
    if (average > 100)
```

```
        cout << "Invalid Input" << endl;
```

```
    else if (average >= 90 && average <= 100)
```

```
cout << "You got an A" << endl;
```

```
else if (average >= 80 && average<=99)
```

```
    cout << "You got a B" << endl;
```

```
else if (average >= 60 && average<=79)
```

```
    cout << "You Pass" << endl;
```

```
else if (average >= 0 && average<=59)
```

```
    cout << "You Fail" << endl;
```

```
return 0;
```

```
}
```

4.3

1.

```
if (!(gpa <= 2.0) && year == '4')  
    cout << "It is time to graduate soon" << endl;
```

2. You could with a else if because you can check for all other values , however it is easiest to just use the !=4 so you only have to check for that value

3.4 year students or students wit higher than or equal to a 2.0 will graduate

Else if

They haven't been there for 4 years (even if it's a 5th year) and their gpa is less than 2.0 they need more schooling

4. No because that would work for all other values

Source COde

```
// This program illustrates the use of logical operators
```

```
// PLACE YOUR NAME HERE
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    char year;
```

```
    float gpa;
```

```
    cout << "What year student are you ?" << endl;
```

```
    cout << "Enter 1 (freshman), 2 (sophomore), 3 (junior), or 4 (senior)"
```

```
    << endl << endl;
```

```
    cin >> year;
```

```
    cout << "Now enter your GPA" << endl;
```

```
    cin >> gpa;
```

```
    if (!(gpa <= 2.0) && year == '4')
```

```
cout << "It is time to graduate soon" << endl;
```

```
else if (year != '4' || gpa < 2.0)
```

```
cout << "You need more schooling" << endl;
```

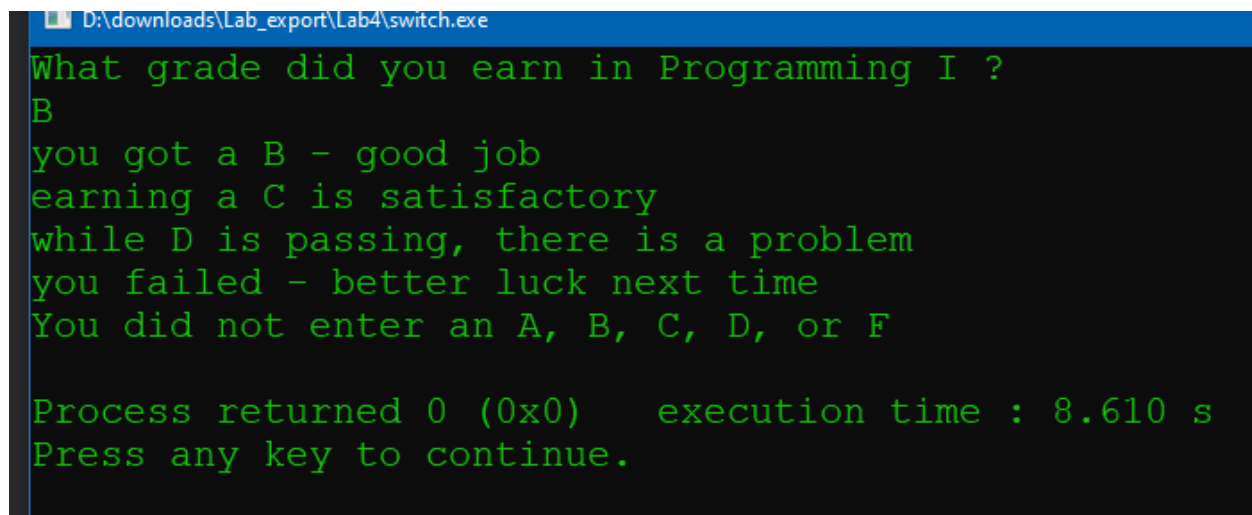
```
return 0;
```

```
}
```

4.4

```
case 'A': cout << "an  
           // break;  
case 'B': cout << "yo  
           // break;  
case 'C': cout << "ea  
           // break;  
case 'D': cout << "wh  
           // break;  
case 'F': cout << "yo  
           // break;
```

1.



```
D:\downloads\Lab_export\Lab4\switch.exe
What grade did you earn in Programming I ?
B
you got a B - good job
earning a C is satisfactory
while D is passing, there is a problem
you failed - better luck next time
You did not enter an A, B, C, D, or F

Process returned 0 (0x0)   execution time : 8.610 s
Press any key to continue.
```

It will execute through multiple cases instead of just the one

2.

```

{
case 'A':
    cout << "YOU PASSED!\nan A -
    break;
case 'B':
    cout << "YOU PASSED!\nyou got
    break;
case 'C':
    cout << "YOU PASSED!\nearning
    break;
case 'D':
    cout << "YOU PASSED!\nwhile
    break;
case 'F':
    cout << "you failed - better
    break;

```

```

D:\downloads\Lab_export\Lab4\switch.exe
What grade did you earn in Programming I ?
D
YOU PASSED!
while D is passing, there is a problem

Process returned 0 (0x0)   execution time : 1.514 s
Press any key to continue.

```

3. trailing else corresponds with the default statements

Pre change source code switch

```

switch (grade)    // This is where the switch statement begins
{
case 'A':
    cout << "YOU PASSED!\nan A - excellent work !" << endl;
    break;
case 'B':
    cout << "YOU PASSED!\nyou got a B - good job" << endl;

```

```

        break;

    case 'C':

        cout << "YOU PASSED!\nearning a C is satisfactory" << endl;

        break;

    case 'D':

        cout << "YOU PASSED!\nwhile D is passing, there is a problem" << endl;

        break;

    case 'F':

        cout << "you failed - better luck next time" << endl;

        break;

    default:

        cout << "You did not enter an A, B, C, D, or F" << endl;

```

Fully changed source code

```
// This program illustrates the use of the switch statement.
```

```
// PLACE YOUR NAME HERE
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    char grade;
```

```

cout << "What grade did you earn in Programming I ?" << endl;

cin >> grade;

if (grade=='A')

    cout << "YOU PASSED!\nan A - excellent work !" << endl;

else if(grade=='B')

    cout << "YOU PASSED!\nyou got a B - good job" << endl;

else if(grade=='C')

    cout << "YOU PASSED!\nearning a C is satisfactory" << endl;

else if(grade=='D')

    cout << "YOU PASSED!\nwhile D is passing, there is a problem" << endl;

else if(grade=='F')

    cout << "you failed - better luck next time" << endl;

else

    cout << "You did not enter an A, B, C, D, or F" << endl;

return 0;

}

```

4.5

Option 1

```
D:\Documents\Programming\lab_4.5.exe
Please input your water bill for quarter 1:
400
Please input your water bill for quarter 2:
400
Please input your water bill for quarter 3:
400
Please input your water bill for quarter 4:
400
Your average monthly bill is $133.00. You are using excessive amounts of water
Process returned 0 (0x0)    execution time : 5.825 s
Press any key to continue.
```

```
D:\Documents\Programming\lab_4.5.exe
Please input your water bill for quarter 1:
100
Please input your water bill for quarter 2:
100
Please input your water bill for quarter 3:
100
Please input your water bill for quarter 4:
100
Your average monthly bill is $33.00. You are using typical amounts of water
Process returned 0 (0x0)    execution time : 6.230 s
Press any key to continue.
```

```
D:\Documents\Programming\lab_4.5.exe
Please input your water bill for quarter 1:
50
Please input your water bill for quarter 2:
50
Please input your water bill for quarter 3:
50
Please input your water bill for quarter 4:
50
Your average monthly bill is $16.00. You are conserving water GOOD FOR YOU!
Process returned 0 (0x0)    execution time : 3.470 s
Press any key to continue.
```

Source Code

```
#include <iostream>
```

```
#include <iomanip>
```

```
using namespace std;
```

```
int main()

{

    int bill_1,bill_2,bill_3,bill_4;

    double average;


    cout <<"Please input your water bill for quarter 1:"<<endl;

    cin >>bill_1;

    cout <<"Please input your water bill for quarter 2:"<<endl;

    cin >>bill_2;

    cout <<"Please input your water bill for quarter 3:"<<endl;

    cin >>bill_3;

    cout <<"Please input your water bill for quarter 4:"<<endl;

    cin >>bill_4;


    average = (bill_1+bill_2+bill_3+bill_4)/12;


    cout <<"Your average monthly bill is $"<<fixed<<setprecision(2)<<average;

    if (average >75)

        cout<<" . You are using excessive amounts of water";

    else if(average>=25 && average <=75)

        cout<<" . You are using typical amounts of water";

    else if(average <=25)
```

```
cout<<" . You are conserving water GOOD FOR YOU!"
```

```
}
```