

Activity No. 2.1

Data Types and Arithmetic Operations

Course Code: CPE010

Program: Computer Engineering

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6. Output

No. 1

```
1 #include<iostream>
2
3 using namespace std;
4
5 int main()
6
7
8 {
9
10 cout<<"The value of seven is: ";
11
12 cout<<"The value of eight and a half is: ", <<8.5;
13
14 return 0;
15
16 }
```

In this example the errors that are in this code are as follow:

- The first error is in line 10 seven should be written as “**cout<<”The value of seven is: “ << 7 << endl;”** this allows the output to show the value and allows the next line of code to be printed under the first one.
- The second error is in line eight where after the text that will be outputted there is a “,” which would show an error as it has no purpose in being in the code

When fixed the code should be like this:

```
#include<iostream>

using namespace std;

int main()
{
cout << "The value of seven is: " << 7 << endl;

cout << "The value of eight and a half is: " << 8.5;

return 0;
}
```

The value of seven is: 7
The value of eight and a half is: 8.5

=== Code Execution Successful ===

No. 2

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main()
6
7 {
8
9 cout<<"The value of seven is: "<< 7 0;
10
11 cout<<"The value of eight and a half is: "<<8.5;
12
13 return 0;
14
15 }
```

In this example the errors that are in this code are as follow:

- The first error is in line 9 where there is no "." in between the numbers 7 and 0 which will output as an error.

When fixed the code should be like this:

<pre>1 #include <iostream> 2 3 int main() 4 5 { 6 7 std::cout<<"The value of seven is: "<< 7.0 << std::endl; 8 9 std::cout<<"The value of eight and a half is: "<<8.5; 10 11 return 0; 12 13 }</pre>	<pre>The value of seven is: 7 The value of eight and a half is: 8.5 === Code Execution Successful ===</pre>
--	--

No. 3

```
1  #include <iostream>
2
3  int main()
4
5  {
6
7  float halfValue = 0.6;
8
9  float piValue = 3.141 592 65;
10
11 cout<<"The value of half is: "<< half Value;
12
13 cout<<"The value of Pi is: "<< pi_Value;
14
15 return 0;
16
17 }
```

In this example the errors that are in this code are as follow:

- Line 9 has spaces between numbers 141 519 65. when it should be written as 3.14159265.
- Both lines 11 and 13 are going to output as errors as the namespace of the code was not initiated.
To fix this I wrote **std::** behind cout to allow the compiler to find the proper library that the predefined object is from.
- on lines 11 and 13 their float values at the end are written wrong and should be written as "halfValue" and "piValue" respectively.
- as stated previously the end of line 11 should end in "**std::endl;**" to allow it to send the next line that will be printed to be shown under it.

When fixed the code should be like this:

<pre>1 #include <iostream> 2 3 int main() 4 5 { 6 7 float halfValue = 0.6; 8 9 float piValue = 3.14159265; 10 11 std::cout<<"The value of half is: "<< halfValue << std::endl; 12 13 std::cout<<"The value of Pi is: "<< piValue; 14 15 return 0; 16 17 }</pre>	<pre>The value of half is: 0.6 The value of Pi is: 3.14159 === Code Execution Successful ===</pre>
--	---

No.4

```
1 #include <iostream>
2
3 int main()
4 {
5 {
6
7 int integer1, integer2, sum; /*declaration */
8
9 cout<<"Enter first integer: \n" ; /* prompt */
10
11 cin>>integer1 ; /* read an integer */
12
13 cout<<"Enter second integer: \n" ; /* prompt */
14
15 cin<<integer2; /* read an integer */
16
17 sum = integer1 + integer2; /* assignment of sum */
18
19 cout<<"Sum is : "<<sum; /* print sum */
20
21
22
23 return 0; /* indicate that program ended successfully */
24
25 }
```

In this example there are multiple errors which are:

- as stated in the previous example the namespace of the compiler was not initiated so majority of the code in this program will show an error
- in line 9, 13, and the first quotation mark of 19 are not quotation marks so it outputs as an error as it is a symbol the compiler does not recognize
- in line 15 the arrows are pointing the wrong direction as it should be ">>"

When fixed the code should be like this:

<pre>1 #include <iostream> 2 3 int main() 4 { 5 { 6 7 int integer1, integer2, sum; /*declaration */ 8 9 std::cout<<"Enter first integer: \n" ; /* prompt */ 10 11 std::cin>>integer1 ; /* read an integer */ 12 13 std::cout<<"Enter second integer: \n" ; /* prompt */ 14 15 std::cin>>integer2; /* read an integer */ 16 17 sum = integer1 + integer2; /* assignment of sum */ 18 19 std::cout<<"Sum is : "<<sum; /* print sum */ 20 21 22 23 return 0; /* indicate that program ended successfully */ 24 25 }</pre>	<pre>Enter first integer: 45 Enter second integer: 72 Sum is : 117 --- Code Execution Successful ---</pre>
--	---

7. Supplementary Activity

No.1

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main(void) {
6
7     int xValue=5;
8     int yValue=9;
9     int result;
10    int bigResult;
11
12    //increment xValue by 3
13    xValue=xValue+3;
14
15    //decrement yValue by xValue
16    yValue=yValue-xValue;
17
18    //multiply xValue times yValue giving result
19    result=xValue*yValue;
20
21    //increment result by result
22    result=result+result;
23
24    //decrement result by 1
25    result = result - 1;
26
27    //assign result modulo result to yValue
28    yValue = result % result;
29
30    //increment result by result added to xValue
31    result = result + result + xValue;
32
33    //assign result times result times result to bigResult
34    bigResult = result * result * result;
35
36    //assign result times result times result to bigResult increment result by xValue times yValue
37    result = result + xValue * yValue;
38
39    cout<<"result: "<< result << endl;
40
41    cout<<"big result: "<< bigResult << endl;
42
43    return 0;
44 }
45
```

result: 38
big result: 54872

=== Code Execution Successful ===

No. 2

```
1 #include <iostream>
2 #include <iomanip>
3
4 using namespace std;
5
6 int main()
7 {
8
9
10    float startValue = 100;
11    float interestRate = 0.015;
12    float firstYearValue;
13    float secondYearValue;
14    float thirdYearValue;
15
16
17    firstYearValue = startValue*(1+interestRate);
18    secondYearValue = firstYearValue*(1+interestRate);
19    thirdYearValue = secondYearValue*(1+interestRate);
20
21
22    cout<<"After first year: "<< setprecision(9) <<firstYearValue << endl;
23    cout<<"After second year: "<< setprecision(9) << secondYearValue << endl;
24    cout<<"After third year: "<< setprecision(9) << thirdYearValue <<endl;
25
26    return 0;
27 }
28
```

After first year: 101.5
After second year: 103.022499
After third year: 104.567833

=== Code Execution Successful ===

8. Conclusion

In this activity I learned how to find possible compilation errors and logic errors, and complete programs applying data types and arithmetic operations.

9. Assessment Rubric