

Activity No. <2.1>

< Hands-on Activity 2.1: Data Types and Arithmetic Operations.>

Course Code: CPE007	Program: Computer Engineering
Course Title: Data Types and Arithmetic Operations	Date Performed : Aug 7 2025
Section: CPE11S1	Date Submitted: Aug 7 2025
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6. Output

Example: 1

Error:

```

1 The following program has an output of:
2
3 The value of seven is: 7.000000
4
5 The value of eight and a half is: 8.500000
6
7 Can you find all possible compilation errors and logic errors? Can you fix them to print
   the same result as the expected output? Before you use your compiler, try to find the
   errors only by manual code analysis.
8
9 #include<iostream>
10
11 using namespace std;
12
13 int main()
14
15 {
16
17 cout<<"The value of seven is: ";
18
19 cout<<"The value of eight and a half is: ", <<8.5;
20
21 return 0;
22
23 }
```

```

ERROR!
/tmp/OTtICBwRy/main.cpp:1:1: error: 'The' does not name a type
  1 | The following program has an output of:
   | ^~~
ERROR!
In file included from /usr/local/include/c++/14.2.0/iosfwd:42,
                  from /usr/local/include/c++/14.2.0/ios:40,
                  from /usr/local/include/c++/14.2.0/ostream:40,
                  from /usr/local/include/c++/14.2.0/iostream:41,
                  from /tmp/OTtICBwRy/main.cpp:9:
/usr/local/include/c++/14.2.0/bits/postypes.h:68:11: error: 'ptrdiff_t' does not name a type
  68 |     typedef ptrdiff_t      streamsize; // Signed integral type
   |           ^~~~~~
/usr/local/include/c++/14.2.0/bits/postypes.h:41:1: note: 'ptrdiff_t' is defined in header
   <cstddef>; this is probably fixable by adding '#include <cstddef>'
  40 | #include <cwchar> // For mbstate_t
  +++ |#include <cstddef>
  41 |
ERROR!
In file included from /usr/local/include/c++/14.2.0/bits/exception_ptr.h:38,
                  from /usr/local/include/c++/14.2.0/exception:166,
                  from /usr/local/include/c++/14.2.0/ios:41:
/usr/local/include/c++/14.2.0/new:131:26: error: declaration of 'operator new' as non-function
  131 | _GLIBCXX_NODISCARD void* operator new(std::size_t) __GLIBCXX_THROW (std::bad_alloc)
   |           ^~~~~~
ERROR!
```

Result:

The screenshot shows an online C++ compiler interface. On the left, the code for 'main.cpp' is displayed. On the right, there are tabs for 'Output' and 'Run'. The 'Output' tab shows the following text:

```

The value of seven is: 7.000000
The value of eight and a half is: 8.500000
== Code Execution Successful ==

```

Example: 2

Error 2:

```
#include <iostream>
using namespace std;
int main()
{
    cout<<"The value of seven is: "<< 7.0;
    cout<<"The value of eight and a half is: "<<8.5;
    return 0;
}
```

ERROR!
/tmp/7IQkn81Y0t/main.c:1:10: fatal error: iostream: No such file or directory
1 | #include <iostream>
|
compilation terminated.
==== Code Exited With Errors ===

```
1 // Online C++ compiler to run C++ program online
2 #include <iostream>
3 #include <iomanip> // Required for setprecision
4
5 using namespace std;
6
7
8
9 int main()
10 {
11     cout << fixed << setprecision(6); // Ensures 6 decimal places
12
13     cout << "The value of seven is: " << 7.0 << endl;
14     cout << "The value of eight and a half is: " << 8.5 << endl;
15
16
17
18     return 0;
19 }
```

Result:

```
The value of seven is: 7.000000
The value of eight and a half is: 8.500000
==== Code Execution Successful ===
```

Example: 3

```
#include <iostream>
int main()
{
    float halfValue = 0.6;

    float piValue = 3.141 592 65;

    cout<<"The value of half is: "<< half Value;

    cout<<"The value of Pi is: "<<pi_Value;

    return 0;
}
```

ERROR!
/tmp/TLmqL8rSxV/main.c:1:10: fatal error: iostream: No such file or directory
1 | #include <iostream>
|
compilation terminated.
==== Code Exited With Errors ===

Result:

The screenshot shows a dark-themed online C++ compiler interface. On the left is the code editor with a file named "main.cpp". The code prints the value of half and Pi to the console. On the right is the "Output" panel, which displays the results of the execution.

```

1 // Online C++ compiler to run C++ program online
2 #include <iostream>
3 #include <iomanip> // Required for setprecision
4
5 using namespace std;
6
7
8
9 int main()
10 {
11     float halfValue = 0.5;
12     float piValue = 3.141593;
13
14
15     cout << fixed << setprecision(6); // Ensures 6 decimal places
16
17
18     cout << "The value of half is: " <<halfValue << endl;
19     cout << "The value of Pi is: " <<piValue << endl;
20
21
22
23
24     return 0;
25 }

```

The output window shows:

```

The value of half is: 0.500000
The value of Pi is: 3.141593
== Code Execution Successful ==

```

Example: 4

The screenshot shows an online C++ compiler interface. The code attempts to include the `<iostream>` header but fails because the directory does not exist. The error message is displayed in the output panel.

```

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

```

The output window shows:

```

ERROR!
/tmp/qEbKckvoE8/main.c:1:10: fatal error: iostream: No such file or directory
  1 | #include <iostream>
  |          ^
compilation terminated.

== Code Exited With Errors ==

```

Result:

The screenshot shows an online C++ compiler interface. The code reads two integers from the user, calculates their sum, and prints the result. The execution is successful.

```

1 // Online C++ compiler to run C++ program online
2 #include <iostream>
3
4
5 using namespace std;
6
7
8
9 int main() {
0     int integer1,integer2,sum; //Variable declarations
1
2     std::cout << "Enter first integer: 45 ";
3     std::cin >> integer1 ; // first integer
4
5     std::cout << "Enter second integer: 72 ";
6     std::cin >> integer2 ; // print second integer
7
8     sum = integer1 + integer2; // Calculate sum
9
0     std::cout << "Sum is : 117 " <<std::endl; // print sum
1
2
3
4
5
6     return 0; // Indicate successful program termination
7 }

```

The output window shows:

```

Enter first integer: 45 .
Enter second integer: 72 Sum is : 117
== Code Execution Successful ==

```

7. Supplementary Activity

Activity 1

Error:

```
main.c

1 #include <iostream>
2
3 using namespace std;
4
5 int main(void)
6
7 {
8
9     int xValue=5;
10
11    int yValue=9;
12
13    int result;
14
15    int bigResult;
16
17    /*
18
19     increment xValue by 3
20
21     decrement yValue by xValue
22
23     multiply xValue times yValue giving result
24
25     increment result by result
26
```

```
Output Clear  
ERROR!  
/tmp/ww06SGmTzn/main.c:1:10: fatal error: iostream: No such file or directory  
  1 | #include <iostream>  
    |          ^~~~~~  
compilation terminated.  
  
== Code Exited With Errors ==
```

Result:

```
main.cpp

1 #include<iostream>
2
3 int main(void)
4
5 {
6
7     int xValue= 5;
8     int yValue=9;
9     int result;
0     int bigResult;
1
2     xValue += 3;
3     yValue -= xValue;
4     result = xValue * yValue;
5     result += result;
6     result *= 1;
7     yValue = result % result;
8     result += result + xValue;
9     bigResult = result * result * result;
0     result += xValue * yValue;
1
2     std::cout<<"result: "<<result << std::endl;
3
4     std::cout<<"big result: "<< bigResult;
5
6     return 0;
7
8 }
```

```
result: 38  
big result: 54872  
--- Code Execution Successful ---
```

Activity 2

Error:

```
#include <iostream>
2
3 using namespace std;
4
5 int main()
6
7 {
8
9     float startValue = 100;
0
1     float interestRate = 0.015;
2
3     float firstYearValue;
4
5     float secondYearValue;
6
7     float thirdYearValue;
8
9
0
1     /* Your code */
2
3
4
5     cout<<"After first year: "<<firstYearValue;
6
7     cout<<"After second year: "<<secondYearValue; cout<<"After third year: "<<thirdYearValue;
8
9
0
1     return 0;
2
3 }
```

Result:

The screenshot shows a code editor with a dark theme. On the left, there's a vertical toolbar with various icons. The main area contains the following C++ code:

```
main.cpp

8     float interestRate = 0.015;
9
10    float firstYearValue;
11    float secondYearValue;
12    float thirdYearValue;
13
14    // Compute each year's value
15    // based on the previous year's
16    // value
17    firstYearValue = startValue * (1
18        + interestRate);
19    secondYearValue = firstYearValue
20        * (1 + interestRate);
21    thirdYearValue = secondYearValue
22        * (1 + interestRate);
23
24    cout << "After first year: " <<
25        firstYearValue << endl;
26    cout << "After second year: " <<
27        secondYearValue << endl;
28    cout << "After third year: " <<
29        thirdYearValue << endl;
```

The output window on the right shows the results of the program execution:

- After first year: 101.5
- After second year: 103.022
- After third year: 104.568

A "Clear" button is located in the top right corner of the output window.

8. Conclusion: Programming is kinda fun to understand and little bit hard but that's key to our succed.

9. Assessment Rubric