

Activity 2

Comp 11 - Summer Session — Working with Data

With a partner(or two), discuss the following code sample and answer the questions below. The instructor and teaching assistants will let you discuss and then be around to answer questions. ¹

2.1 Description

Computers need to know what type of data they are working with. Use the following listing below to guide you in your analysis.

```
1 #include <string>
2 // String data type (can access when we #include <string>)
3 std::string a = "hello";
4 // integer
5 int b = 7;
6 // long integer data
7 long c = 34543332;
8 // single precision float
9 float d = 3.141592;
10 // double (i.e. more) precision float
11 double g = 3.141592653589;
12 // Single character storage
13 char e = 'y';
14 // true or false value storage
15 bool f = true;
```

Listing 2.1: Data types

¹Activities do not need to be returned to instructors, they are for your benefit.

2.2 Questions

1. What is the difference between mutable and immutable data?
2. When should we use `const`? When should we not use `const`? Show an example of when you may want to use `const`.
3. What do you think happens if a variable is not initialized with a value? That is, we do not use the '=' sign to assign a value when we initialize it?
4. Initialize a variable called **fiveFactorial** as an integer. Manually compute a factorial and store its result. Note: In c++, the * is the multiply operator. (1*2*3...)
5. Circle which assignments are legal in C++:
 - (a) `int a = 7;`
 - (b) `char b = "hello world";`
 - (c) `long c = -23432.23423`
 - (d) `float d = 5.2334;`
 - (e) `bool e = 0;`
 - (f) `bool f = false;`
6. Will the following code below work?

```
1 #include <iostream>
2
3 int main() {
4     int a = 7;
5     float b = 9.3;
6     float c = a + b;
7
8     // Note \n is actually one character
9     // so we can use single quotes.
10    std::cout << "c = " << c << '\n';
11
12    return 0;
13 }
```

Listing 2.2: Casting