

## CISS240: Introduction to Programming Assignment 1

### OBJECTIVES

- Output string of characters including escape characters

### INSTRUCTIONS

- Your program must be well-written. You must follow the style in your notes as closely as possible. Take note of the spaces and blank lines I used in my examples. Badly written programs will very likely result in a poor grade for this assignment. Points will be taken off for sloppy work.
- It's important to remember this: In your printouts for all assignments, there must be no wraparound.
- All outputs must match exactly the output shown. That includes every single space and every blank line.
- The format of your program must look like this (replacing “smaug” with your name of course!):

```
// File: a01q01.cpp
// Name: smaug

#include <iostream>

int main()
{
    *** YOUR WORK HERE ***

    return 0;
}
```

In particular:

- You must have your name and the name of the file at the top of each C++ source file as shown above.
- Your C++ source file must end with a blank line.
- Instructions on uploading your work will be provided in class.

Read the questions carefully before diving in!

Note that you should create a new project for each question. For easy maintenance of your assignments, I suggest you have a folder `ciiss240` somewhere in your **Documents**, and in that you have a folder `a`, and in folder `a` you have a folder `a01`, and you have solutions folders `a01q01`, `a01q02`, etc. in the folder `a01`:

```
.  
.  
.  
ciiss240  
|  
+--- a  
    |  
    +--- a01  
        |  
        +--- a01q01  
            |  
            +--- a01q02
```

Note that the name for the C++ source file for question 1 (i.e. the `cpp` file in project `a01q01`) must be `a01q01.cpp`, etc.

Q1. Write a C++ program that produces the following output.

```
1  tic-tac-toe
2  by GameWorld
3
4      0 1 2
5      +-----+
6  0| | |0|0
7    |--+--+|
8  1|X| | |1
9    |--+--+|
10 2| | | |2
11  +-----+
12      0 1 2
13
14 X's turn. Please enter row and column:
15
```

You must use only one print statement (i.e., there must be only one `std::cout`). You can use as many C-strings and newline characters as you like.

For your convenience, line numbers are included in the above output. These line numbers are not part of your program output.

Note that the 0 in the tic-tac-toe board is the letter O. The 0 along the border is the number 0.

Q2. Write a C++ program that produces the following output:

```
1  Table of cubes
2  =====
3
4  n          n^3
5  ---      ---
6  0          0
7  1          1
8  2          8
9  3          27
10 4          64
11
```

You must use only one `std::cout` in your code. Do not use the tab character. Make sure you count the spaces in the above output correctly.

For your convenience, line numbers are included in the above output. These line numbers are not part of your program output.

Q3. Write a program that produces the following output:

```
1  d    4    3
2  -- 3x  = 12x
3  dx
4
```

You must use only one `std::cout` in your code. Do not use the tab character.

For your convenience, line numbers are included in the above output. These line numbers are not part of your program output.

Q4. Write a program that produces the following output:

```
1 "Prediction is very difficult,  
2 especially about the future."  
3     Niels Bohr  
4     Danish physicist (1885 - 1962)  
5
```

You must use only one `std::cout` in your code. Do not use the tab character.

For your convenience, line numbers are included in the above output. These line numbers are not part of your program output.

Q5. Write a program that produces the following output:

```
1  #include <iostream>
2
3  int main()
4  {
5      std::cout << "Hello, world!\n";
6
7      return 0;
8  }
9
```

You must use only one `std::cout` in your code. Do not use the tab character.

For your convenience, line numbers are included in this document. These line numbers are not part of your program output.