

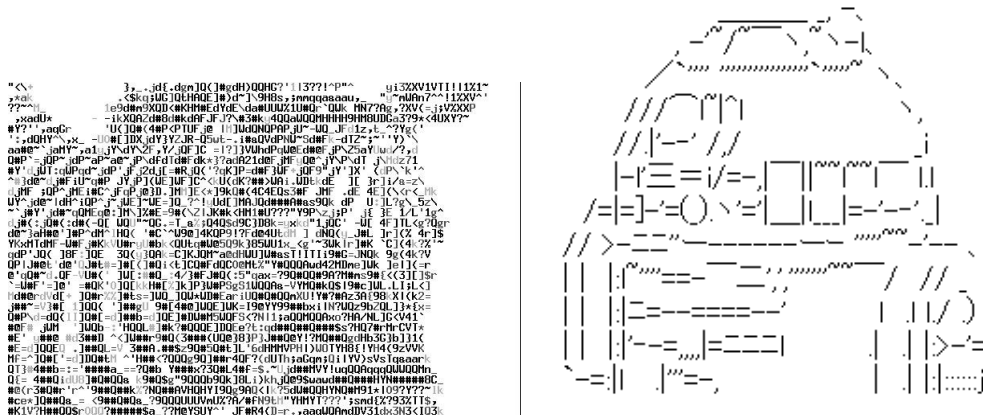
# GSET - Programming with Mr. Hill - Summer 2021

## Introduction to C++ - Challenge 8 - ASCII Art

### Overview:

We are going to participate in the annual GSET ASCII art looping challenge!

ASCII art: What is it? Awesome.



### System Requirements:

- **Computer:** A computer is required to complete this tutorial. Any OS should work.
- **MCU or PC:** This exercise can be completed with MCU or a desktop programming environment. If you use an MCU, print the art to the *serial monitor* or other serial terminal. If you use a desktop programming environment, print the art to the available terminal.
- **C++:** You can use the online C++ compiler ([OnlineGDB](#)) or a C++ compiler of your choice.

### Problem Statement:

Complete as many levels as possible by writing a C++ program to generate each of the images shown. If you complete all levels create your own level and challenge yourself or one of your peers.

Note: Complete the levels in any order. If get stuck, move on to a different level. Also, each page contains a new type of challenges. If you are bored or stuck, you can move to the next page of levels.

**The Levels:**

- Level 0: The Line

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oo

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- Level 1: The Dotted Line

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o o

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- Level 2: The Dash-Dotted Line

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o--o--o--o--o--o--o--o--o--o--o--o--o--o--o--o--o--o--o--

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- Level 2: The Dash-Dotted-Asterisk Line

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\*o-o-o\*o-o-o\*o-o-o\*o-o-o\*o-o-o\*o-o-o\*o-o-o\*o-o-o\*o

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- Level 2: The Rectangle

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- Level 2: The Stripes

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- Level 3: The Grid

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## Mode 2: Decryption

- Given: An encrypted secret message to decrypt with the Caesar Cipher and the cipher key
- Find: The ndecrypted message in a readable format

**Program Minimum Requirements:**

The program should accomplish the following tasks.

- The ASCII art should be printed to the terminal window using a C++ program.
- The use of while loops or for loops is encouraged. Hardcoding the images into the program is discouraged.

**Program Additional Requirements:**

The program should accomplish the following tasks.

- The source of the image should be an .png file. Use OpenCV or other to load a .png file into your program.
- An ASCII art version of the image should be printed to the terminal window using the C++ program.

**Part 3 - Testing:**

1. Complete the C++ code to solve the problem described.
2. Test your code with different inputs. Is the answer correct? How do you know? Are there certain inputs that do not work?
3. Save your code with the download button or use copy and paste. You can view and edit the code in any text editor. Also, save a copy of the program output for your tutorial summary.

**Solution Code:**

**Tutorial Summary:**

Write a brief summary of what you accomplished and what you struggled with the most.

Include the following items in the summary:

- a copy of the output of your program
- a description of what the program does and how to use it