Create — Applications from Ideas
Written Response Submission Template

Submission Requirements

2. Written Responses

Submit one PDF document in which you respond directly to each prompt. **Clearly label your responses 2a – 2d in order. Your response to all prompts combined must not exceed 750 words, exclusive of the Program Code.**

Program Purpose and Development

2a. Provide a written response or audio narration in your video that:

- identifies the programming language;
- identifies the purpose of your program; and
- explains what the video illustrates.

(Approximately 150 words)

Insert response for 2a in the text box below.

The video illistrates the way the program runs. It first prompts the user to input a string into the terminal, then it goes through the encryption process (nothing too impressive like AES or SHA-256, its Ceasars Cypher), and then prints it back out. The way the program is written, it can take in any length of string and return it encrypted. It will however avoid certain characters due to the way I limited it to only alphanumeric characters.

2b. Describe the incremental and iterative development process of your program, focusing on two distinct points in that process. Describe the difficulties and/or opportunities you encountered and how they were resolved or incorporated. In your description clearly indicate whether the development described was collaborative or independent. At least one of these points must refer to independent program development. *(Approximately 200 words)*

Insert response for 2b in the text box below.

Firstly I iterated through the string by using the strings length and a for loop. Once I began to iterate through it I also make sure that I am checking to see if the character that the iteration is currently on is a alphanummerical, if it is then the character is changed to a higher or lower value, depending on what the key is. Here in this program the key is hardcoded so it will be the same no matter what for testing purposes, I could have made it sudo-random using the C++ random functions and limit it between 1 and 25. The only problem I encountered was the way that the C++ standard library handles strings, it doesnt properly story them with spaces sometimes, so I had to use the C getlin() function and push it back into the string that was allocated for it. This program was entirley independent other than getting some references online from StackOverflow and Reddit (/r/learnprogramming).

2c. Capture and paste an image or images of the program code segment that implements an algorithm (marked with an **oval** in **section 3**) that is fundamental for your program to achieve its intended purpose.

Click here and either: Paste (if you've copied your image to the clipboard), or retrieve the saved image by clicking on the INSERT tab on the Ribbon, clicking the PICTURE button (browse to locate your file and select it), then click on the INSERT button in the dialog box to bring in the program code segment requested above.

Your code segment must include an algorithm that integrates other algorithms and integrates mathematical and/or logical concepts. Describe how each algorithm within your selected algorithm functions independently, as well as in combination with others, to form a new algorithm that helps to achieve the intended purpose of the program. *(Approximately 200 words)*

Insert text response for 2c in the plain box below.

The algorithm that my program uses just iterates through the entire string, only if it is alphanumeric, and then increments it to a different value depending on the key. This falls back because you cannot increment the special characters (!, ?, *, ect..) these will stay the same. I used only one algorithm, but I did attempt to reverse it and make a decryption function, but I ran out of time to finish it. The same algorithm could be used to do it, but use the oppisite value of the key (positive is negative and negative is positive).

2d. Capture and paste an image or images of the program code segment that contains an abstraction you developed (marked with a **rectangle** in **section 3**)

Click here and either: Paste (if you've copied your image to the clipboard), or retrieve the saved image by clicking on the INSERT tab on the Ribbon, clicking the PICTURE button (browse to locate your file and select it), then click on the INSERT button in the dialog box to bring in the program code segment requested above.

Your abstraction should integrate mathematical and logical concepts.
Explain how your abstraction helped manage the complexity of your program.
(Approximately 200 words)

Insert text response for 2d in the plain box below.

The abstraction helped because it was simple to read and understand. Anybody could read it and understand what the program is doing, if they at least understand a little bit of programming knowledge in thier background. I also tried to comment the code to leave little clues to exaclty how my code was working, as any programmer should, so that others can get a grasp on it. The code was also very short and to the point, so there was not any unesciarry code that didnt need to be in there, and if there was then it was commented out and put a warning next to it (this can be seen in the main function).