Explore Task: Written

2a. Provide information on your computing innovation and computational artifact. Name the computing innovation that is represented by your computational artifact. Describe the computing innovation intended purpose and function. Describe how your computational artifact illustrates, represents or explains the computing innovation intended purpose, its function or its effect. (Approximately 100 words)

My artifact includes many pictures that represent the app Snapchat. Snapchat's inteneded purpose is to send and recieve pictures, videos, and texts to anyone around the world. Unlike other messaging apps, the messages you send and recieve are not saved automatically, but will dissapear. My artifact shows Snapchat's logo and mulitple pictures showing the functions that Snapchat provides on their app. The pictures in my artifact shows many aspects of the app such as adding pictures and videos to your story. Putting pictures and videos on your story gives all your friends that you have added the ability to see that certain picture or video.

2b. Describe your development process, explicitly identifying the computing tools and techniques you used to create your artifact. Your description must be detailed enough so that a person unfamiliar with those tools and techniques will understand your process. (Approximately 100 words)

To create my artifact I used Google Drawings. I selected pictures off of the internet using Google Chrome and found images that I believe best summarize Snapchat and its functions. I dragged pictures from Google Chrome onto Google Drawings, and then rearranged the images into a fashion that looked more visually appealing by dragging them into certain places. After I rearranged the pictures, I scaled the images to fit together better. After I felt they were spaced out correctly I added the title "Snapchat" at the top of my artifact which was half yellow and half black to display the 2 main colors of the app.

2c. Explain at least one beneficial effect and at least one harmful effect the computing innovation has had, or has the potential to have, on society, economy, or culture. (Approximately 250 words)
One huge beneficial effect my computing innovation has on society is the ability to send and recieve pictures, texts, and videos to friends and family all over the world within seconds. People can share what they are doing with their friends and family all over the world with just a click of a button. Snapchat has a huge audience with over 188 million daily active users, showing how many people this app connects with one another [6]. Not only does this app let you communicate with others, but it has a Discover feature which gives news updates from companies such as

ESPN and other media channels. Snapchat's huge audience gives companies the ability to advertise to great quantities of people around the world. Although there are numerous positive effects of Snapchat there are still some downsides. Bullying and unrealistic pictures on Snapchat, lead to many negative mental impacts Many teens post unrealistic pictures with filters orienting the way they look. These pictures create unrealistic expectations for others leading to body consciousness issues and eating disorders. Bullying is also a prominent issue on Snapchat. Once you have added someone on Snapchat, it is easy to make fun of that person's pictures and comment negatively on the picutres people have posted [2]. People could also create fake accounts acting as someone they aren't, leading to extreme bullying.

2d . Using specific details, describe: The data your innovation uses. How the innovation consumes (as input), produces (as output), and/or transforms data. At least one data storage concern, data privacy concern, or data security concern directly related to the computing innovation. (Approximately 250 words)

Snapchat uses coding languages such as Bootstrap, Javascript, Python, Objective-C (IOS), Cocoa Touch, and PHP. Snapchat uses NoSQl as the main database used for processing mass amounts of structured data. To analyze the app's usage and to collect data from marketing Snapchat utilizes Google Analytics [7]. A huge part of Snapchat's success has come from their facial filters that the user can use on their photos and videos. The first step for facial filters is the recognition of the human faces within the picture that is being taken, and placing it in a bounding box with X, Y, Width, and height. Image patches, the size of 64 x 128 pixels, loop over the face with a constant step size. Each patch then identifies if it contains a face by computing the Histogram of Oriented Gradients and then passed to the Support Vector Machine for detection [3].

Many users speculate the privacy on Snapchat because of the immense amount of data it holds about its user. HTTPS and TLS are the protocols used to secure communications on this app. The encryption Snapchat uses are custom and third party modules. Snapchat CBC encrypts all of the media before caching it. Snapcaht's private API was released by Gibson Security in 2014. This resulted in 4.6 million user's getting their phone numbers exposed. These numbers were exposed because Snapchat hardcoded the encryption key that is used by every account. Using the hardcoded key, third party applications offered features not supported by Snapchat, for exmaple decrypting Snapchat images leading to many people worrying about Snapchat's data privacy [1].

2e. For each online source, include the permanent URL. Identify the author, title, source, the date you retrieved the source, and, if possible, the date the reference was written or posted. For each print source, include the author, title of excerpt/article and magazine or book, page number(s), publisher, and date of publication.

[1]Dawson, Madeleine. "Security Analysis of Snapchat."
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[2]Hung, Dennis. "The Dangers of Snapchat on Mental Health." *KNect365 - Know More, Do More, Be More.*, 8 Aug. 2017,
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[3]Le, James. "Snapchat's Filters: How Computer Vision Recognizes Your Face." *Medium.com*, Medium, 29 Jan. 2018,
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[4]"Marketing Land's Guide on How to Use Snapchat." *Marketing Land*, Marketing Land, 22 Feb. 2017,
marketingland.com/marketers-guide-snapchat-story-feature-117724.

[5]"Snapchat Is Bringing Back Its News Show to Cover Donald Trump." *Fortune*, Fortune,
Snapchat and Donald Trump: Chat Service Brings Back News Show ...

[6]"Snapchat Is the Most Searched App on App Store: Report." *The Indian Express*, The Indian Express, 28 Mar. 2017,
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[7]Veeraeswari. "How to Build a Real-Time App like SnapChat & Technical Stack of SnapChat Clone?" *Hacker Noon*, Hacker Noon, 29 May 2018,
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