M319: AP Computer Science Principles Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explore Performance Task

Practice (2D) Template Date: \_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explore PT — Analyzing Data and Information  
Written Response Template

## 2. Written Responses

Submit one PDF document in which you respond directly to each prompt. Complete your responses to 2D and 2E. Your responses must provide evidence of the extensive knowledge you have developed about your chosen computing innovation and its impact(s). Write your responses so they would be understandable to someone who is not familiar with the computing innovation. Include citations, as applicable, within your written responses. Your responses will eventually be combined with further research and writing to create a 700 word research paper.

### Computing Innovation

2D.Using specific details, describe:

* the data your innovation uses;
* how the innovation consumes (as input), produces (as output), and/or transforms data; and
* at least one data storage concern, data privacy concern, or data security concern directly related to the computing innovation.

Your response must:

* not exceed 250 words
* explicitly name the **type** of data the innovation uses
  + Fingerprints, temperature, audio, signals, text, etc.

### References

Facial Recognition uses data given by the user to help identify someone. The recognition program inputs a given person’s face into it as a 2D image [1]. It then scans the face with infrared lights and measures the return time of the infrared to the phone using the LIDAR sensors [1]. This creates biometrics of the given faces, which is used to define 3D features of the face and transform the 2D image into a 3D image [1]. When finished with this process, the face is either added to a database of people as an image with 3D information as bytes or is checked against other people in a database to see if the person is in the database [2]. It then outputs a yes or no, using bits, depending on if the person is in the database, which can be used to identify people [1]. This has a drawback, however, as some facial recognition uses an incomplete or outdated database, which means that the software will have trouble identifying people [9]. This creates a security problem, as facial recognition is used to recognize and grant people access to information or items [9]. If a bad database is used, the data of people who are approved to see the confidential items are more likely to be misread, which makes it so the facial recognition software approves people to see items who shouldn’t be seeing it [9]. An example is facial recognition in phones. If a person who looks similar to the person on the phone’s database, they will be granted access due to their similarities.

2E.Provide a list of at least two online or print sources used to support your response to the prompt in this performance task.

* At least one source must have been created after the end of the previous academic year (May 2018).
* 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 using MLA8 guidelines. You may use [www.easybib.com](http://www.easybib.com)
* For each print source, include the author, title of excerpt/article and magazine or book, page number(s), publisher, and date of publication.
* Include citations for the sources you used, list the sources in alphabetical order, and number each source accordingly.
* Each source must be relevant, credible, and easily accessed.

*(Note: No word count limit for this answer)*

Insert response for 2E in the text box below.

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| --- |
| [1] HEINZMAN, ANDREW. “How Does Facial Recognition Work?” *Howtogeek.com*, How to Geek, 11 July 2019, howtogeek.com/427897/how-does-facial-recognition-work/  [2] Symanovich, Steve. “How Does Facial Recognition Work?” *Official Site*, Norton, us.norton.com/internetsecurity-iot-how-facial-recognition-software-works.html.  [3] <https://landofoz.ro/2019/05/13/cine-e-de-vina/>, 1/16/2020, a 3d picture of a man wearing 3d glasses.  [4] <http://mirlab.org/jang/books/dcpr/example/faceRecog/output/faceDisplay02.png>, 1/16/2020, a picture of faces in database  [5] <https://www.onlyinfotech.com/2019/07/01/whats-face-id-on-ios-and-how-do-i-use-it/>, 1/16/2020, infrared being shown on someone’s face  [6] <https://www.pinterest.com/edgefx/solar-power-and-sensor-based/>, 1/16/2020, infrared sensors sensing bounced – back infrared  [7] <https://stock.adobe.com/ee/video/access-granted-system-message-on-screen-authorization-satellite-control-center-program-interface-with-access-granted-message-system-login/183503820>, 1/16/2020, shows access granted to something  [8] Venditti, Lydia Francesca, et al. “Algorithmic Surveillance: A Hidden Danger in Recognizing Faces.” *Algorithmic Surveillance: A Hidden Danger in Recognizing Faces*, *Colby College*, Colby College, 18 May 2019, digitalcommons.colby.edu/cgi/viewcontent.cgi?article=1979&context=honorstheses.  [9] Cheng, Evelyn, and Grace Shao. “Growing Backlash in China against A.I. and Facial Recognition.” *CNBC*, CNBC, 6 Sept. 2019, 11:01PM, www.cnbc.com/2019/09/06/ai-worries-about-the-dangers-of-facial-recognition-growing-in-china.html. |