Computer Science Principles
Performance Task: Explore — Impact of Computing Innovations

Computing innovations have had considerable impact on the social, economic and cultural areas of our lives. To focus your work on this task, select a computing innovation that has significant impact, or the potential for significant impact on our society, economy, or culture, and that possesses the potential for both beneficial and harmful effects.

You will be provided 8 hours of class time to complete this Performance Task.

A. General Requirements

For this performance task, you are required to:
- work alone while completing the task.
- choose an innovation that has a significant effect on some population. The effect could be a small effect on more than a hundred people, or a very large effect on a smaller number of people.

B. Written Requirements

You will write responses to specific prompts associated with content requirements. Your responses should convey a deep level of understanding about your innovation and its impacts. Your responses must also include information learned from your references.

Innovation

Written responses must include:
- the innovation name and a description of the intended purpose of the innovation. (100 words max)
- an explanation of the technical details of this innovation in terms that someone completely unfamiliar with the innovation would understand. (100 words max)
- a description of the role computing plays in implementing the functionality associated with the innovation. (100 words max)
- a description of the relationship between data and the innovation. For example, you could describe the data used or produced by the innovation or any privacy issues associated with the innovation data. (100 words max)

Impacted Population

Written responses must include:
- a description of the population that is impacted by the innovation, including population characteristics such as approximate size, socioeconomic status, geographic location, health, age, gender, ethnicity, race, sexual orientation, and disability. (100 words max)

Social, Economic, or Cultural Impact

Written responses must include:

- a description of the long-term and short-term impacts (100 words max)
- a description of the beneficial and harmful effects of the innovation (100 words max)

C. Visual Artifact

Choose one of the potential beneficial or harmful effects of the innovation you described in your previous response and use a computer to create a visual artifact related to it.

- The visual artifact must be a visualization, graphic, or movie that provides additional insight to explain, clarify, or depict the beneficial or harmful effect of the innovation you selected.
- Provide a written summary to describe how the visual artifact you created illustrates the benefit or harm of the innovation. (50 words max)

D. References

Include at least two – and no more than five – references/citations to sources used to formulate your responses to this performance task.

- Each source must be a reliable newspaper/magazine article, book, news, or online source that anyone can access.
- For each reference, provide the full citation identifying the author, title, and source. For online references, include the permanent URL and the date on which you accessed the reference.
- At least two of the sources must have been created within the last two years.

E. Submissions

Submit your responses to the prompts described above adhering to the word length restrictions provided with each prompt. Upload your visual artifact using the upload option. If your visual artifact is a video, *its length cannot exceed one minute*. Your teacher will share submission guidelines with you that include suggestions on video tools.

F. Learning Objectives

1.1.1 Apply a creative development process when creating computational artifacts. [P2]
1.2.1 Create a computational artifact for creative expression. [P2]
1.2.2 Create a computational artifact using computing tools and techniques to solve a problem. [P2]
1.2.3 Create a new computational artifact by combining or modifying existing artifacts. [P2]
1.2.5 Analyze the correctness, usability, functionality, and suitability of computational artifacts. [P4]
3.3.1 Analyze how data representation, storage, security, and transmission of data involve computational manipulation of information. [P4]
7.1.1 Explain how computing innovations affect communication, interaction, and cognition. [P4]
7.3.1 Analyze the beneficial and harmful effects of computing. [P4]
7.4.1 Explain the connections between computing and economic, social, and cultural contexts. [P1]