Explore Project – Impact of Computing Innovations

80 points

Overview

Computing innovations (e.g., self-driving cars, facial recognition systems, Internet protocol) impact our lives in ways that require considerable study and reflection for us to fully understand them. In this project, you will explore a computing innovation of your choice. Your close examination of your chosen computing innovation will deepen your understanding of computer science.

General Requirements

Select and investigate a computing innovation that has had, or has the potential to have, (1) significant beneficial and harmful effects on society, economy, or culture; (2) consumes, produces, and/or transforms data; and (3) raises at least one data storage concern, data privacy concern, or data security concern.

You will develop a poster that explains and illustrates the computing innovation, and provide detailed written responses to each of the prompts below. Your poster should portray the computing innovation in a visually engaging manner, and your written responses should be in your own words and grammatically correct. You must cite at least three sources that you used to develop your understanding of the computing innovation and that support your written responses.

Deliverables

1. **Written Response #1 (max 100 words): 12 points** DUE: January 23rd at 11:45pm
   - Submit PDF document on your computing innovation to Canvas:
     a) Name the computing innovation via a creative title for your Explore Project.
     b) Describe the computing innovation’s intended purpose and function.

2. **Written Response #2 (max 750 words): 24 points** DUE: February 6th at 11:45pm
   - Submit one nicely-formatted PDF document that includes clearly labeled responses to prompts 2a-2d. Your responses must provide evidence of the knowledge you have developed about your chosen computing innovation and its impact(s). Write your responses so they are understandable to someone who is not familiar with your chosen computing innovation. Include citations, as applicable, within your written responses. **Your response to prompts a-c combined must not exceed 750 words; place total # of words for a-c on bottom of page. Place your answers in order (2a- 2d) with bolded titles below.**
     a) **EFFECTS:** Explain the beneficial and harmful effects the computing innovation has had, or has the potential to have, on society, economy, or culture (choose one). *(Approximately 300 words)*
     b) **DATA:** Using specific details, describe the data your innovation uses and how the innovation consumes (as input), produces (as output), and/or transforms data. *(Approximately 300 words)*
     c) **CONCERNS:** Describe at least one data storage concern, data privacy concern, or data security concern directly related to the computing innovation. *(Approximately 150 words)*
     d) **REFERENCES:** Provide a list of at least three online or print sources used to understand your chosen innovation and support your responses to the prompts. Use ACM’s reference format for your citations: https://www.acm.org/publications/authors/reference-formatting. **Not part of 750 words.**

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1 This project is modified from the AP Computer Science Principles course.
3. **Poster Submission: 24 points DUE: February 13th at 11:45pm**
   Submit a PDF of your poster to Canvas. Your poster (4:3 dimensions) must identify the computing innovation and provide a clear explanation, illustration, or representation of the innovation’s intended purpose or function. In addition, the poster should present the beneficial and harmful impacts of your innovation. Your poster should not repeat text from your written responses. Layout/format of your poster is critical. See tips for creating an awesome poster (last page of this document), as well as example 101 posters (presented in class). Include title/name on poster, as well as the CSCI 101 logo.

4. **Poster Pitch in Class: 20 points DUE: TBD (date will be after February 13th)**
   You will present your poster in class via a poster pitch (shoot for 80-90 seconds, with a max of 90). Your presentation should describe your computing innovation’s intended purpose and function, as well as discuss the beneficial and harmful impacts. We will display your poster submitted to Canvas on the projector (i.e., you do not need to print your poster). You have little time, so practice, practice, practice, and NAIL your poster pitch! (5 of the points are allocated to signing up for pitch date on time.)

5. **Poster Presentation at the Computing Innovation Fair: 20 points (extra credit)**
   Your Poster Pitch will be evaluated in class by your instructor and all students. The top ~10% of presentations will be invited to present in the Computing Innovation Fair for extra credit points. The entire campus will be invited to this Fair. CS@Mines will cover the cost of printing your poster.

6. **Computing Innovation Fair Attendance (if not presenting): 5 points (extra credit)**
   Even if your poster isn’t chosen for the Computing Innovation Fair, you are still encouraged to attend and visit the top posters from other sections of our class. To receive this extra credit, visit the top posters from other sections and submit a selfie to Canvas of you with your instructor OR favorite poster at the Computing Innovation Fair. Date/time of the Computing Innovation is listed on the next page.

**To do well on this project:**

**You must:**
- choose a creative title and visually appealing poster;
- support your written response #2 by using details related to the knowledge and understanding of computer science you have obtained throughout the course and your investigation;
- provide evidence to support your claims using in-text citations;
- use relevant and credible sources to gather information about your computing innovation;
- provide acknowledgments for the use of anything (e.g., image downloaded) used in the creation of your poster that is not your own; and
- allow your own interests to drive your choice of computing innovation.

**You may:**
- seek clarification via Piazza pertaining to the task, timeline, components, and scoring criteria;
- seek clarification via Piazza regarding submission requirements;
- as needed, seek assistance from your teacher or CSCI 101 teaching assistants (TAs) in defining your focus and choice of topics; and
- seek assistance from your teacher or CSCI 101 TAs to resolve technical problems that impede work.

**You may not:**
- collaborate on this Explore project with others; seek assistance/feedback on answers to prompts; or
- submit work that has been revised, amended, or corrected by another individual.
Date/Time of Computing Innovation Fair: April 29\textsuperscript{th}, 2020, at 6:30-8pm

Explore Project Posters Tips

For presentation in our classroom, you’ll want a 4:3 aspect ratio. If your poster is chosen to present at the Computing Innovation Fair, then CS@Mines will print your poster with size 48x36 (also 4:3 aspect ratio). Be sure to include your name and poster title on the poster! And try to submit a file size that is reasonable, so we can use Canvas “quick grader” feature.

10 Poster Tips

1. Important information should be readable from a distance
2. Short \textit{creative} title to draw attention
3. Include your name on the poster
4. Effective use of graphics
5. Avoid crowding, leave some breathing room (though not tons of white space; it’s a balance)
6. Consistent and clean layout
7. Text is concise, to the point
8. Use of bullets, numbering, and headlines made it easy to read
9. Powerpoint is a good tool to use
10. Include sources! (typically placed at bottom right in smaller font)

Ten Commandments for a \textit{horrible} CSCI 101 Explore Project Poster and Presentation*.

1. Thou shalt not \textbf{waste space}
2. Thou shalt not \textbf{be neat}
3. Thou shalt not \textbf{covet brevity}
4. Thou shalt not \textbf{write large}
5. Thou shalt not \textbf{use color}
6. Thou shalt not \textbf{have figures}
7. Thou shalt not \textbf{use bullets}
8. Thou shalt not \textbf{make eye contact with the audience}
9. Thou shalt not \textbf{speak for 70-90 seconds}
10. Thou shalt not \textbf{practice}

To do well, do the items in bold!

* Modified from David Patterson’s “Ten Commandments to give a bad talk”.

\textbf{CS@Mines}