

## AP CSP – Summer Work 2020

Read chapters 1 – 4 of the book Blown to Bits, available as a free pdf at

<http://www.bitsbook.com>

Please answer the following questions using a digital format of your choice. In the first week of school we will copy and paste your answers into a google doc and upload it to your website for the course.

Chapter 1:

1. What is a bit and what does it mean to say that "it's all just bits"? (Koan 1) Give examples of the things today that are stored in bits?

**Answer**

2. Describe, in your own words, Moore's Law.

**Answer**

3. Give an example of how the digital explosion is "neither good nor bad" but has both positive and negative implications.

**Answer**

4. Find and summarize a news article that talks about the positive or negative impacts of a computing innovation. Is the technology itself positive or negative? Or have people used the technology in positive and/or negative ways?

**Answer**

## Chapter 2:

1. Is it possible to identify someone, perhaps a patient, knowing just the gender, birth date, and zip code? Why or why not?

**Answer**

2. Are electronic documents like paper documents? Write 2-3 sentences comparing and contrasting them.

**Answer**

  

3. Is the Privacy Act effective? Explain why or why not.

**Answer**

4. Are you willing to trade some of your privacy for the convenience of having a computer or a company recommend products to you? Why or why not? Under what circumstances?

**Answer**

5. How do we leave digital "footprints and fingerprints?" Do you think this is important for everyone to know? Why or why not?

**Answer**

6. How have social media platforms such as Twitter, Instagram, Snapchat, etc. affected our privacy?

**Answer**

7. In this course, you are building apps that collect data from users, the device, and its sensors. What responsibilities do we have as app developers for the data we collect?

**Answer**

8. Search the web for a recent news story that deals with privacy. Write a paragraph summarizing the article, including any beneficial or harmful impacts on privacy.

**Answer**

Chapter 3:

1. What is metadata? Give an example of how a piece of metadata could be used to increase the usefulness of an image or document.

2. What is a model?

3. What's the difference between a raster image and an ASCII representation of a text document?

4. What are filename extensions? What are they used for?

5. What is lossless representation? What is lossy representation? What are the trade-offs in using each representation?

6. What is steganography and what is it used for? Describe in your own words the steganography algorithm used in the activity.

7. What would you have to do to delete a document from your computer so that it could not possibly be read by anyone else?

8. What is free and open source software? Provide an example.

**Free Response:**

9. How has retouching become a controversial issue? Give an example.

10. Would you rather own a camera (or camera phone) with a higher number of megapixels or lower? Explain.

11. Other than digital images, what might be an example of a computer model? Explain your answer based on the definition of a model.

12. The code that implements App Inventor is open source and its impact on education is obvious. Find another example of open source software and describe its positive impact on education, business or society.

**Chapter 4:**

1. How do web search tools make it more efficient to find information?

2. When you type a word or phrase into the Google search engine, what is the search algorithm that is being used? Explain in your own words the process used by Google's search engine.

3. What is a captcha? How has the collective efforts of Internet users contributed to analyzing images through captchas?

4. "The architecture of human knowledge has changed as a result of search." Do you agree? Explain your reasoning.

5. What are the differences between Figures 4.10 and Figure 4.11 in the book? Why are there differences even though they are both a Google search results page?

6. How do you think mobile computing might have influenced web searches?

7. Would you retain your search history or delete it? Why?

8. Should a researcher place absolute trust in a search engine? Why or why not?

9. The authors claim "search is a new form of control over information" (p. 111) and "search is power" (p. 145). Why might it be important to talk about the social implications of searching on the Internet?

10. How have search trends been used to predict information? What are the positive and negative impacts of using trends to make predictions?

11. Find and read an article about web searches or algorithms. Write a 3-4 paragraph summary of the article. Include the author's name, the title of the article, the date it was published, and a link to the article.