AP Computer Science

Reading Blown to Bits is not required summer reading but it will help with your work load during the school year. Reading the chapters now and answering the questions will allow you more time to focus on the programming assignments. You will basically be getting some homework assignments done ahead of time.

Directions: Read Blown to Bits and answer the following questions on a Google Doc to be shared with Mr. Veseskis.

Create a page called ***Blown to Bits Chapter 1*** under the *Homework* category of your Portfolio (If you are using the Mobile CSP Student portfolio template, this page has already been created for you) and post brief answers using complete sentences to the following questions on that page.

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?
2. Describe, in your own words, Moore's Law.
3. Someone offers you a summer job and offers you two pay rates: (1) $10 per hour for 40 hours per week for 30 days or (2) One cent on day 1, two cents and day two, four cents on day three and on (doubling each day) for 30 days. If you were trying to make as much money as possible in 30 days, which pay rate would you choose? What does this illustrate?
4. Give an example of how the digital explosion is "neither good nor bad" but has both positive and negative implications.
5. **"Advances in computing have generated and increased creativity in other fields."** Comment on this statement. Do you agree? Can you give an example to support (or contradict) it?

Create a page called ***Blown to Bits Chapter 2*** under the *Homework* category of your Portfolio and write answers using complete sentences to the following questions on that page. Create a page called Blown to Bits Chapter 2 under the Homework category on your Portfolio and post your answers to these questions on that page. You can revise your answers after we discuss this reading in class or in the forum.

Questions for pages 19-55

Short answer

1. What is an RFID tag and what does it do?
2. What is an EDR and what does it do?
3. Is it possible to identify someone, perhaps a patient, knowing just his or her gender, birth date, and zip code? Explain.
4. What is the difference between "big brotherism" and "little brotherism"?

Free Response

5. How do you feel about “Big Brother” watching you? Do you think having security cameras everywhere is good or bad?
6. Is the Privacy Act effective? Explain.
7. “The digital explosion has scattered the bits of our lives everywhere: records of the clothes we wear, the soaps we wash with, the streets we walk, and the cars we drive and where we drive them.” (pg 20) Marketing companies use these data to build models of our preferences and use these models to recommend products to us.. In 1 or 2 paragraphs, address the question 'Am I willing to trade some of my privacy for the convenience of having a computer or a company recommend products to me? Why or Why not?’

Bonus Questions (may require additional reading)

8. How do “we leave digital footprints and fingerprints?” Do you think this is important for everyone to know? Why or why not?
9. How has the social evolution affected privacy? Consider social networking.
10. What are our responsibilities as app developers with data that is gathered from the apps we create?
11. 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.

Create a page called ***Blown to Bits Chapter 3*** under the *Homework* category of your Portfolio and write answers using complete sentences to the following questions on that page.

Short answer:

1. What is metadata? Give an example of how a piece of metadata could 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 steganographic 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.

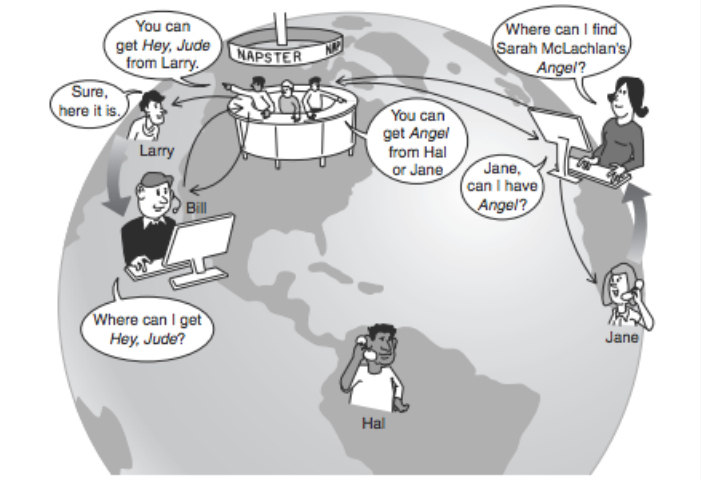
Keep these questions in mind as you read Chapter 4. For each question, write a short answer and post your answers on a page called *Blown to Bits, Chapter 4* on your portfolio. Don't worry if you think you don't know the right answer. Just give it your best shot.

1. Is Wikipedia considered Web 1.0 or Web 2.0? Explain.
2. Should a researcher place absolute trust in a search engine? Why or why not?
3. "The architecture of human knowledge has changed as a result of search." What does this claim mean?
4. When you type a word or phrase into the Google search engine, what is the search algorithm that is being used? Does Google's search engine search the web? Explain
5. What does it mean to "empty the cache"?
6. Think of a number between 1 and 100. If you tell me "too high" or "too low", I can guess the number in 7 guesses. How come? What algorithm makes this possible?
7. What is the PageRank algorithm? How does it work?
8. What is a captcha and why are captchas important?

Free Response:

9. "The architecture of human knowledge has changed as a result of search." Do you agree?
10. "Google emerged -- from this dilemma at least -- with its pocketbooks overflowing and its principles intact." Do you agree?
11. What do you think about the differences between Figure 4.10 and Figure 4.11?
12. Would you retain your search history or delete it? Why?

Read Chapter 6: Balance Toppled - Who Owns the Bits? of Blown to Bits.



Reading Questions

Keep these questions in mind as you read chapter 6. For each question, write a short answer and post your answers on a page called *Blown to Bits, Chapter 6* on your portfolio. Don't worry if you think you don't know the right answer. Just give it your best shot.

1. Why should all Internet users be aware of copyrighted material?
2. What is a GB? How many bytes are in GB?
3. What is the NET Act and what is its significance in the history of copyright?
4. What is a peer-to-peer architecture? Provide an example of at least one well-known peer-to-peer network.
5. What is the DMCA and why is it significant to copyright?
6. What are Open Access and Creative Commons? How have they impacted the sharing of digital information?

   Free Response Questions
7. Before reading this chapter, were you aware of copyright infringement? When you put digital content (e.g. images, videos) in your apps, where did you get it from? Is it possible that you violated any copyright terms? Has the reading raised your awareness of how you use content found on the Internet?
8. In your opinion, are YouTube users violating copyright terms when they make lyric videos? Why or why not?
9. In your opinion, are computers that use DRAM violating copyright terms? Why or why not?
10. Select one of the technical innovations described in the chapter and write an explanation of the technical details of this innovation. Try to use terms that someone unfamiliar with the innovation would understand.
11. **Bonus:** Visit Lumen (formerly known as Chilling Effects) and read about digital copyright issues. Write a paragraph describing your findings.

Reading Questions

Keep these questions in mind as you do the assigned readings and **provide 1 sentence answers** to these questions on a page called *Blown to Bits, Chapter 5* under the *Homework* category on your portfolio.

1. What does it mean to say that the government would like to have a ***back door*** to the encrypted data on Apple's iPhone or Google's Android phone?
2. What is the main argument ***for*** letting the government have a back door?
3. What is the main argument ***against*** letting the government have a back door?
4. Where do you come down on this issue -- i.e., what is your opinion?