

AP Computer Science Principles Summer Assignment

Your summer assignment for AP Computer Science Principles is to read, ***Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion*** by Hal Abelson, Ken Ledeen, and Harry Lewis. This book is available online as a free PDF version at <http://www.bitsbook.com>. I am also attaching a vocabulary list to assist with some unfamiliar words you may encounter as you read.

For each chapter, you are responsible for answering questions about the reading. These questions should be answered in complete sentences, typed and properly labeled on another Word or Pages document. The questions are attached. The deadline is **Friday, August 16, 2019**. This assignment must be your individual work; you may not collaborate with other students other than discussing the book or course issues in general.

A vocabulary quiz will be given sometime during the first or second week of the school year. It is recommended for you to review the vocabulary terms on the list as you read the above book, in order for you to be prepared.

Please submit your completed reading questions document via email to elizabeth.handy@acsk-12.org. You will receive a reply confirming the receipt of your document. The deadline again is **Friday, August 16, 2018**. I will accept it early, but make sure it is quality work. However, late work will not be accepted.

Blown to Bits Questions

Keep these questions in mind as you read the chapters. For each question, write a short answer but with correct spelling and grammar. Don't worry if you think you don't know the right answer. Just give it your best shot!

Type your answers to the following questions on a separate electronic document (Word or Pages).

Chapter 1 Reading Questions

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 on 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.

Chapter 2 Reading Questions

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) In 1 or 2 paragraphs, address the question 'Am I worried about my privacy? Why or Why not?'

Chapter 3 Reading Questions

1. What is metadata? Give an example.
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?
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?

Free Response:

8. How has retouching become a controversial issue? Give an example.
9. Would you rather own a camera (or camera phone) with a higher number of megapixels or lower? Explain.
10. Other than digital images, what might be an example of a computer model? Explain your answer based on the definition of a model.
11. How does highlighting in a PDF doc work? What are the computational ideas utilized?

Chapter 4 Reading Questions

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?
13. Bonus: Different algorithms can be developed to solve the same problem. For web searches, Google has its patented PageRank algorithm as part of its search algorithm. What does Yahoo! use? What does Bing use?

Chapter 5 Reading Questions

1. What is *security through obscurity* and why is it bad?
2. What is the *key agreement protocol* and why is it so important to Internet commerce?
3. What is a *certificate* and what role does it play in Internet security?

Chapter 6 Reading Questions

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:

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?
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?

Chapter 7 Reading Questions

1. What is the CDA? Why is it significant to digital censorship?
2. The Internet is often referred to as “cyberspace.” How has this impacted digital censorship?
3. What is the 2005 Violence Against Women and Department of Justice Reauthorization Act? What is its significance?
4. Is it possible for a country or government to censor what its citizens view on the World Wide Web? Why or why not? Provide an example in your answer.

Free Response:

1. Law professor Eugene Volokh wrote, “The law often demands that we sacrifice some liberty for greater security. Sometimes, though, it takes away our liberty to provide us less security.” Do you agree? Why or why not?
2. On social media sites, individuals sometimes say “This is my page; I can say what I want.” Do you agree? Do you believe that social media provides us with a form of ‘Internet Freedom’?