

# 2018 AP Computer Science Principles Summer Assignment

## Owen J. Roberts High School

### Mrs. Houseman, Mr. Fritz

Welcome to AP Computer Science Principles (AP CSP)! We are eagerly anticipating a great year of Computer Science Principles! In order to ensure the best start for everyone next year (and to give us more time with the programming tasks) you will have to complete work this summer.

Computing has transformed our lives in so many ways. And mobile computing, where we are constantly connected to others and to the world via our mobile devices, is challenging us right now to come up with new norms about privacy, security, the ownership or openness of data and information, and other issues. Like any technology, mobile computing has both positive and negative impacts. We need to reflect on these impacts in general and we also think about the impacts we will create as we build our own mobile apps.

One way we will be addressing these issues in this course is by reading and discussing *Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion*. This book is available entirely online with a separate PDF file for each chapter. You can access the website through this link. Save it in your phone so you can access it anywhere if need be:

[http://www.bitsbook.com/wp-content/uploads/2008/12/B2B\\_3.pdf#page=19](http://www.bitsbook.com/wp-content/uploads/2008/12/B2B_3.pdf#page=19)

YOU ONLY NEED TO READ CHAPTERS 1-6. Note that throughout the year, you will be given quizzes and exams on the vocabulary and other content from this book. For this reason, while you are reading, you are required you to complete:

- 1) The attached vocabulary list (find definitions YOU understand)
- 2) The attached double entry journal sheet for each Chapter 1-6 (highlighting important points)

It is HIGHLY recommended that you spread out the reading over the summer. Please do not try to complete it all in the final week of August. CSP takes time to process and grasp at a level necessary for success in AP CSP. Remember, AP CSP is a college level course. Taking a college level course in high school is difficult, requires dedication, and is a great investment in your education so prepare yourself and arrive ready to learn.

Have a great summer and enjoy the CSP :)

If you have any questions, please feel free to email either of us at [ghouseman@ojrsd.com](mailto:ghouseman@ojrsd.com) or [mfritz@ojrsd.com](mailto:mfritz@ojrsd.com)

# *Blown to Bits Vocabulary*

## **Chapter 1:**

bit

blacklist

character

cyberspace

data center

data

data network

disk drive

intellectual property

Moore's Law

network

processor

social networking

whitelist

## **Chapter 2:**

ad hoc

database

data aggregation

data mining

data repository

data sources

digital detritus

dossier

EDR

Encode

Encryption

IP address

Metadata

Query

RFID

## **Chapter 3:**

algorithm

analog

ASCII

cloud computing

cryptography

digital

digital signal processing

download

lossless compression

lossy compression

megabyte

megapixels

modeling

OCR

pixels

raster

render

spam

steganography

upload

## **Chapter 4:**

background

binary

bot

cache

firewall

foreground

HTML

URL

## **Chapter 5:**

AES

certification authority

cipher text

DES

decryption

encryption

packet

plain text

router

## **Chapter 6:**

centralized systems

commons

DRAM

DRM

flooding

gigabyte

peer to peer architecture

piracy

sealed storage

TPM

## Double-Entry Journal (Chapter 1)

Chapter 1: Digital Explosion: Why Is It Happening, and What Is at Stake? of Blown to Bits makes the point that today everything is digital –that is, everything is represented by binary digits or bits. It provides some provocative examples of societal implications of this digital explosion.

Read Chapter 1 to learn more about how digital our world has become. As you read, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

The Text (Quote or Summary)	Page #	My Reaction to the Text

## Double-Entry Journal (Chapter 2)

Chapter 2: Naked in the Sunlight: Privacy Lost, Privacy Abandoned of Blown to Bits focuses on the issue of how the digital explosion affects our privacy. This is an especially important issue for today's mobile computing generations. Our smart phones and tablets can not only track our electronic correspondence, they can track our whereabouts, opening whole new areas of potential privacy infringements. What's especially interesting about the privacy question is that, for the most part, Americans seem to be willing to trade privacy for convenience. We don't mind letting the supermarket track our purchases if that brings us discounts. And we don't seem to mind letting mobile apps know and record our whereabouts in exchange for some service we like.

Visit the website <http://aboutmyinfo.org/> and enter your date of birth, gender, and zip code. Why might you be easily identifiable by this information? (HINT: Estimate the number of people in your zip code and the number of unique combinations of birth date and gender. See the About page of the website for more information.)

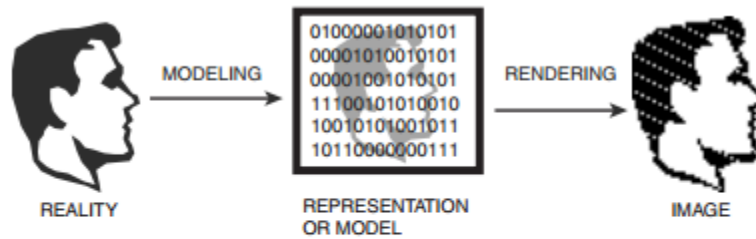
Read Chapter 2 to learn about some of the ways our electronic devices impinge on our privacy – some of the stories will surely surprise you. As you read, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

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## Double-Entry Journal (Chapter 3)

Chapter 3: Ghosts in the Machine: Secrets and Surprises of Electronic Documents of Blown to Bits describes how digital documents, including images and sounds, are represented by sequences of bits. Why do you think this chapter is called “Ghost in the Machine”?

As you learned in a previous chapter and as shown in the diagram, the first step in representing an image is to convert it into a sequence of bits. This is known as modeling. The model is an abstract representation of the original image.



**FIGURE 3.8** Reproducing an image electronically is a two-stage process. First, the scene is translated into bits, creating a digital model. Then the model is rendered as a visible image. The model can be stored indefinitely, communicated from one place to another, or computationally analyzed and enhanced to produce a different model before it is rendered. The same basic structure applies to the reproduction of video and audio.

Read Chapter 3 to discover what’s hidden in electronic documents. As you read, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

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## Double-Entry Journal (Chapter 4)

In Chapter 4: Needles in the Haystack, Google and Other Brokers in the Bits Bazaar, you will learn about how search engines control how users obtain information on the web, how search engines work and how search engines can be exploited. As you read Chapter 4, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

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## Double-Entry Journal (Chapter 5)

Read Chapter 5: Secret Bits: How Codes Became Unbreakable to learn about encryption and cryptography and how they work. As you read, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

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## Double-Entry Journal (Chapter 6)

Chapter 6: Balance Toppled: Who Owns the Bits? focuses on the question of use and ownership of digital media, including copyrighted media. It describes how file sharing algorithms should work and discusses some of the sensational cases in the battle between large media companies and users who use file sharing sites to share music and other media. Some of the topics covered include: Copyright, Peer-to-peer architecture/network, Digital Millennium Copyright Act (DMCA), and Open access and creative commons. As you read, write down four ideas from this chapter that you believe are critically important to this topic. You can quote the authors or summarize them. Include the page number. Then write your reaction to the idea.

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