Ap CSP Summer Assignment

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Contents

1 Chapter 1: Digital Explosion

1.1 Vocabulary

1. Word: bit

   Definition: (n) **bit** (a unit of measurement of information (from binary + digit); the amount of information in a system having two equiprobable states) "there are 8 bits in a byte"

   Ref: WordNet Search - 3.1. `http://wordnetweb.princeton.edu/perl/webwn?s=bit&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=`. Accessed 18 July 2021.

2. Word: koan

   Definition: (n) **koan** (a paradoxical anecdote or a riddle that has no solution; used in Zen Buddhism to show the inadequacy of logical reasoning)

   Ref: WordNet Search - 3.1. `http://wordnetweb.princeton.edu/perl/webwn?s=koan&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=`. Accessed 18 July 2021.

3. Word: ping

Definition: (v) **ping** (send a message from one computer to another to check whether it is reachable and active) "ping your machine in the office"

Ref: WordNet Search - 3.1. http://wordnetweb.princeton.edu/perl/webwn?s=Ping&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=. Accessed 23 July 2021.

4. Word: benign

   Definition: (adj) **benign** (not dangerous to health; not recurrent or progressive (especially of a tumor))

   Ref: WordNet Search - 3.1. http://wordnetweb.princeton.edu/perl/webwn?s=benign&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000. Accessed 23 July 2021.

5. Word: utopian

   Definition: (n) **utopian** (an idealistic (but usually impractical) social reformer) "a Utopian believes in the ultimate perfectibility of man"

   Ref: WordNet Search - 3.1. http://wordnetweb.princeton.edu/perl/webwn?s=utopian&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000. Accessed 23 July 2021.

6. Word: err

   Definition: (v) **err**, mistake, slip (to make a mistake or be incorrect)

   Ref: WordNet Search - 3.1. http://wordnetweb.princeton.edu/perl/webwn?s=err&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000. Accessed 23 July 2021.

7. Word: paradoxically

   Definition: (adv) **paradoxically** (in a paradoxical manner) "paradoxically, ice ages seem to occur when the sun gets hotter"

   (adj) **paradoxical**, self-contradictory (seemingly contradictory but nonetheless possibly true) "it is paradoxical that standing is more tiring than walking"

   Ref: WordNet Search - 3.1. http://wordnetweb.princeton.edu/perl/webwn?s=paradoxically&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000. Accessed 23 July 2021.

8. Word: expunge

   Definition: (v) **expunge** (remove by erasing or crossing out or as if by drawing a line)

   Ref: WordNet Search - 3.1. `http://wordnetweb.princeton.edu/perl/webwn?s=expunge&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000`. Accessed 23 July 2021.

9. Word: database

   Definition: (n) database (an organized body of related information)

   Ref: WordNet Search - 3.1. `http://wordnetweb.princeton.edu/perl/webwn?s=database&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000`. Accessed 23 July 2021.

10. Word: blacklist

    Definition: (v) **blacklist** (put on a blacklist so as to banish or cause to be boycotted) "many books were blacklisted by the Nazis"

    Ref: WordNet Search - 3.1. `http://wordnetweb.princeton.edu/perl/webwn?s=blacklist&sub=Search+WordNet&o2=&o0=1&o8=1&o1=1&o7=&o5=&o9=&o6=&o3=&o4=&h=0000000`. Accessed 23 July 2021.

1.2 Ideas:

1. Companies keep records of cellphone locations (Page 1)
2. "Its all just bits" (Page 5)
3. "In fact, processors have hardly grown faster at all" (Page 8)
4. "By 2011, we may be producing more bits than we can store" (Page 10)

1.3 Journal Entry

1. I support the idea of companies keeping track of cellphone locations, as long as that information is kept private and in the hands of only the government. Cellular locations are incredibly useful for finding missing people, and quickly reacting to emergencies, such as in Tanya's case.

   However, the key term is *as long as that information is kept private and in the hands of the government.* Private companies shouldn't be able to get the locations of users. These locations are often sold to advertising

firms. Companies like Cuebiq make money by collecting location data from smartphone users who agree to share their locations for weather or maps, then analyse and sell that data to advertisers and marketers. Location data shouldn't be used to target people, and should be used as a last resort

2. While technically it is all just bits, personally I believe we shouldn't think of it as such. Thinking of computers in terms of bits is like thinking of writing in terms of atoms on a piece of paper. While all handwritten work is technically just graphite on paper, we interpret it as much more than that. We think of writing in terms of words, phrases, paragraphs, and should think of the computer experience in terms of experiences. Similarly, copyright law is based on text, and so laws pertaining to computers should be based on the end user's experience, not what delivers that experience

3. Considering the next sentence is talking about "multiple processors on the same chip" I assume this statement is talking about the processor cores themselves. However, data shows that the fastest processors today are about 80 times faster in terms of single core performance with the same efficiency. Still, its true that processor cores have increased over the years (from single core chips to server chips with over 128 cores in the span of just 20 years).

   In my opinion we should focus more on processor efficiency and less on raw processor speed. Processor's these days, even budget ones, are more than fast enough for the majority of use cases. The market for large, high end HEDT processors is extremely small compared to the market share of their lower end counterparts. The future is about switching to arm-based processors in laptops, which should give much more performance at the same wattage.

4. I found this statement the most interesting in this chapter. We've made leaps and bounds in storage technology since then, nowadays you can buy tens of terabytes of storage for quite cheap, compared to the expensive "high end" 80gb drives you could get in 2008, back when this textbook released.

   Similar my opinion on processor speed, instead of focusing on storage size and how much data we can store, we should talk about how we store data. Companies are moving to cloud-based centralized storage, and as of 2020 50% of all corporate data is stored in the cloud, up from

30% just 5 years earlier. As more and more people start using cloud services (e.g. OneDrive, iCloud, Google Drive), we should focus on make data transfer to and from those drives quicker and more secure.