Last Questions

CSC230 Database Technologies for Analytics

23 November 2016

1. When you write software (including queries for a database) you should write for two audiences.

    (a) Which two audiences?

    (b) How is writing for these two audiences different?

2. Some of the creators of NoSQL database management systems argue that their tools fit better with agile methods of developing software. "Agile" is often defined in contrast to the Waterfall Model. What is the implicit assumption in the Waterfall Model that the developers of the agile discipline reject?

3. There are tens of millions of instructions in the largest computer programs. These programs might be the most complex objects that human beings have ever created.

    Much of the research in software engineering is an effort to find better ways of working with complexity. The research has produced results that apply wherever people work with complexity. People who are not writing software can learn something from people who are writing software.

    For example, software engineers have learned the value of "separating concerns" and building hierarchies of abstractions ("stacks").

    (a) We saw "separation of concerns" when we created Web pages. We used HTML to solve one part of the problem and CSS to solve another part of the problem. Which parts of the problem did we solve with each language?

    (b) In the "Internet of Things" article, we read about an infrastructure stack. Which services did each layer of the stack provide?

4. SQL is a declarative language. Our SQL queries described the data we wanted but not the sequence of steps that the computer executed to retrieve the data.

    Most other widely used programming languages are procedural. Software engineers who write with those languages compose sequence of operations

that the computer will execute. They control both the logical and physical organization of data.

In practice, SQL programmers also have to think about the order of operations and the organization of data in the computer's memory. Give an example of a SQL statement that programmers might use when they are concerned with performance?

5. (a) Education was one of the topics that Russ Roberts and Cathy O'Neil addressed in the *econtalk* podcast that I recommended to you, They spoke about efforts to evaluate teachers and universities.

    Summarize one of the arguments in a sentence.

    (b) What do you think was the most important idea that they shared with us?