Chapter 9 HW

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1. Write a brief summary of all the nine (9) steps listed in Figure 9.16 of our text, i.e. Feasibility study, problem specification, etc.

1. Feasibility study - Evaluation of a proposed project to see if it's worth the time or money. A business needs to make money and if something doesn't make money make money they'll do it and the opposite of that is true, as well.
2. Problem specification - Finding a clear and exact problem to find an exact reason, also known as business rules in database design.
3. Program design – Planning how to write the code and segmenting the work so it isn't overwhelming by using a design document of a sort.
4. Algorithm selection or development, and analysis – Using pseudocode to write the logic of a program and finding the most appropriate algorithm for the situation, if there is one,
5. Coding – Producing or reusing source code to solve a problem.
6. Debugging – The process of finding out what is wrong with the code in the syntax, logic errors, or runtime errors, then fixing them with good documentation.
7. Testing, verification, and benchmarking – Using a data set that passes having certain conditions, that is similar to a real data, to test the program on. Also involves Unit testing, integration testing, and regression testing. Benchmarking is all about making sure the program has the proper performance and speed.
8. Documentation – Important to fixing and preventing problem, though the Agile discipline says working code is the most important. Documentation can also be used as a manual for a program.
9. Maintenance – Working on a program add new features or to repeat any of the previous steps, like debugging.

2. Briefly discuss software program maintenance and the importance of continuing upkeep on the software.

Longtime use can uncover bugs, hardware and system software needs may change, user needs fluctuate, and the program may be repurposed or modified to fit into the marketplace.

3. Explain the major differences between the Waterfall and the Agile software development life cycles.

The Waterfall process goes from the first problem to the last problem in strict sequence, where the Agile methodology is all about flexibility, as the problem or solution need can change.

4. As discussed in class, explain why the cost of change increases exponentially from program specification to maintenance in the Waterfall model.

As needs change or problems arise and since the Waterfall has a strict sequence, it is prone to needing to start the project all over essentially because it is very difficult to change, the process is a very uncertain one, and it has a chance of failure, being that a working application is not produced until the very end of the process.