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CS 2450

1. Describe the major phases in the SDLC.
   1. The Systems Development Life Cycle or, SDLC’s major phases are Planning, Analysis, Design, and Implementation.
2. Describe the principal steps in the planning phase. What are the major deliverables?
   1. The principal steps in the planning phase are project initiation and project management. Project initiation takes the and identifies the system’s business value for the organization. Also during that period an approval committee gets together and decides to approve the project or not. Some things that are delivered are a system request, a feasibility analysis, and a work plan.
3. Describe the principal steps in the analysis phase. What are the major deliverables?
   1. During the analysis stage, you develop a strategy, gather requirements, and develop a system proposal. The major deliverable in this phase is the system proposal which outlines what business requirements the new software should meet.
4. Describe the principal steps in the design phase. What are the major deliverables?
   1. In the design state you typically create a design strategy which is what decides who maintains the software whether it be 3rd party or in house programmers. You then construct the frameworks for your software program. This involves creating a design interface, planning out file and database types, and the program design is constructed. All of these things put together are called the “System Specification” that is used by the programming team.
5. Describe the principal steps in the implementation phase. What are the major deliverables?
   1. The implementation stage is where the software is actually built. During System construction, in addition to being built, a heavy emphasis is put on testing. It’s noted that bugs can ruin a system, so it’s critical to get these addressed. Once this has been done an Installation period takes place where the old software is turned off and transitioned into the new software. A support plan is then delivered to the end user that details a systematic way to identify changes that need to be made and how to implement them.
6. What are the roles of a project sponsor and the approval committee?
   1. The project sponsor is the person that actually generates the software request. The approval committee is in charge of taking the request, deciding if it’s not only feasible but if it’s something that will benefit the company.
7. What does gradual refinement mean in the context of SDLC?
   1. Gradual refinement in this application, takes a very broad set of ideas and documents from the first planning stage and refines them as each step is visited in the process.
8. Compare and contrast extreme programming and throwaway prototyping.
   1. Extreme Programming, or XP and throwaway prototyping are similar in the fact that they eventually deliver the end user with software to use. Other than that they are very different. Throwaway prototyping is focused on developing a series of mock – ups or prototypes that are used to help
9. Describe the major elements in and issues with waterfall development.
   1. Waterfall development is done in stages. One has to be finished before another is started. This can be good, because all of the program requirements are figured out before the programming has started. Downsides to this, is the program structure has to be completely finished before actual programming is done on it.
10. Describe the major elements in and issues with parallel development.
    1. Parallel development is good because it tries to solve the time issue that comes between analysis and delivery of the system. It breaks the overall project up into sub projects that can each be worked on in parallel. A good thing that comes from this being quicker, is there is a smaller chance that the requirements of the program can change before it’s completed. A downside, is some of these may be dependent on each other no matter how hard they try to separate them.
11. Describe the major elements in and issues with phased development.
    1. Phased development is where you break the end goal into different versions. The first one is typically a barebones working version of the system. After that, additional versions are created and added that provide new features. This can be bad, because you are putting an intentionally incomplete version of the system into the end user’s hands.
12. Describe the major elements in and issues with prototyping.
    1. Prototyping is similar to phased development, but moves at a faster rate. A working prototype is the goal. This is good because it puts something in the end user’s hands and it shows them that you are working and making progress. The downside to this, is because you are moving at such a quick rate, things are going to be missed and need to be addressed at a later point.
13. Describe the major elements in and issues with throw-away prototyping.
    1. Throw-away prototyping is similar to normal prototyping, but things are done at different points in the design process. An emphasis is put on giving the end user a design prototype, aka something that looks like the end goal but really does nothing. This can be very confusing for the end user, because things that they don’t yet understand will need to be addressed. It does take a little bit longer than normal prototyping, but it’s usually worth the extra time.
14. Describe the major elements in and issues with XP.
    1. XP is where code is developed and tested on a daily basis. It is intended for small groups of highly motivated people working on small projects. When implemented correctly, it’s a great idea. An issue with it would be unmotivated people or groups that are too big.
15. Describe the major elements in and issues with Scrum.
    1. Scrum is one of the more chaotic styles. Small self-directed groups take on a list of objectives and go on what’s called a “sprint” to finish these items so that they can be shown off to the end user. While in a “sprint” new items are not considered for development, but are kept on a list to address at a later time. A SCRUM meeting is held every morning to get everyone on the same page with what’s going on and also so that problems can be brainstormed. A downside to this, is that it doesn’t work well with large scale projects.
16. What are the key factors in selecting a methodology?
    1. When selecting a methodology to follow you need to consider many things. Scale of project, size of programming team, time frame for completion, type of end user. These are all things that can help determine which of the styles would be best.
17. What is the Unified Modeling Language (UML)?
    1. UML is a standard set of diagramming techniques. It was created by 3 industry leaders, Grady Booch, Ivar Jacobson, and James Rumbaugh. It is broken into two major sections, structure diagrams and behavioral diagrams. Different stages along the production process use UML.
18. Why is it important for an OOSAD approach to be architecture-centric?
    1. If this is done, it’s easier for the project to be broken into more manageable parts. The manageable parts, if implemented correctly, can be reused in other aspects of the system.