ERIC WEBB

*Nova Southeastern University*

*CISC 680 - Software Engineering - CRN – 21741*

Due Oct 13 by 11:59pm

Assignment 1 (Question set 1)

1. How does software differ from the artifacts produced by other engineering disciplines? Give examples.

The artifact produced different from other engineering principals is the most important product of our time, information. Typically other engineering disciplines are thought to be ore physical in nature, where software engineering provides a product that is more digital in nature. Software offers a dual role of being a product and the vehicle for delivering a product. As a product, it provides computing potential and is an information transformer. Transforming data that could be binary or multimedia in nature. As a vehicle it acts as a control, creation, and communication of a computer.

1. Explain what is wrong with the notion that computer software does not need to evolve over time?

In software engineering change is natural so we should not try to fight it. Not only should software evolve to meet the needs of new computing environments, but it should also be enhanced to implement new business requirements. It is said that the goal of modern software engineering is to devise methodologies that are founded on the notion of evolution.

1. Why has the Personal Software Process not been widely adopted by industry?

The personal software process has not been widely adopted by the industry because the process for one project might be significantly different than a process adopted for another project. This could be such topics as the overall flow of activities, actions, and tasks. Such as how project tracking and control activities are applied. As well as the degree in which quality assurance activities are applied.19

1. Why are evolutionary models considered by many to be the best approach to software development in a modern context? 45

- Evolutionary models provided high-quality software in an iterative and incremental manner. This provides a balance between the actual critical project, the product parameters and customer satisfaction. Once concept of this is prototyping, this allows for a basic working product to be developed from and built upon effectively evolving over time. Another evolutionary model would be a the Spiral model which effectively designs, builds, deploys, communicates, and repeats for constant communication, feedback, and improvements sent from stakeholders and end users. Another evolutionary model is concurrent modeling. This allows for the modeling to be in a number different of states such as under development or awaiting changes. Allowing different process to evolve into different states. Ultimately evolutionary models are beneficial because they allow for software to improve over time.

1. What are the benefits of using analysis patterns during the analysis modeling process?117,157

* One benefits of analysis patterns are that it provides reusable analysis models that capture the main requirements of concrete problems. This reusability speeds up the development of abstract analysis models. Another example is how analysis patterns facilitate transformations of the analysis models into design models by suggesting design patterns and reliable solutions for common problems. Analysis patterns are stored in analysis designs pattern repositories so requirement engineers can search them.

1. Describe the contents of the WebApp content, functional, interaction, and configuration models?

- The WebApp requirements models vary depending on the nature of the application. The Content model identifies all the content to be provided by the application such as media, text, and audio. The Interaction model describes how the user will interact with the application and in what manner. The Functional model is what defines the operations that will be used to describe processing functions and manipulate content. It also provides the functions that are necessary for the end user. Lastly, the configuration model will describe the infrastructure and environment where the application resides.

7. Explain how a process specification (PSPEC) differs from a control specification

(CSPEC)?

- A control specification (CSPEC) is used to indicate how software behaves when a specific event occurs. This invokes the process trigged from this event. When a control signal is sent a specific functional process will be initiated. This is different from a process specification (PSPEC) because A PSPEC will actually describe the process and inner workings of the input. So instead of just getting a straight control you are setting a parameters of what can potentially be the process for the input. Essentially the PSPEC describes the input algorithm, restrictions, limitations, and performance characteristics of a process.

8. How does the object-oriented view of component-level design differ from the traditional view? (247)

- With object oriented view of a component-level design, details of a component can be modeled at different levels of abstraction. A UML activity diagram can be represented using pseudocode or a diagrammatic form like a flow chart. This is in contrast the traditional view because the traditional view will fully describe each internal detail of each software component. To do this each component defines its own data structures for its local data objects. So in contrast traditional views require objects to be defined locally where with object oriented objects can be abstracted at any level.

9. List four interface design issues present in the development of most user interfaces, explain how and when they are used?

10. Describe practices that enable designers to think about using patterns?

11. What are three dimensions of software quality, how and when are they used?

12. Why is regression testing an important part of any integration testing procedure?

13. Describe object-oriented unit testing, why and when is it used and give an example?

14. List four types of systems tests, the purpose of each and how they can be applied to real world software development process?

15. What are the key differences between validation testing goals and acceptance testing goals, give an example of when one would be used over the other?