CptS 322 Software Engineering Principles I

Homework 1 – example solution

1. (10 points) Umbrella activities occur throughout the software process. Do you think they are applied evenly across the process, or are some concentrated in one or more framework activities?

Umbrella activities occur throughout the software process but they are not necessarily applied evenly across the process. For example, there is a heavy concentration on risk analysis during project planning, and risk analysis is then revisited during later framework activities, but it is not applied evenly during these activities. On the other hand, SQA (software quality assurance) is applied fairly evenly for all process activities.

The following are typical UAs:

- Software project tracking and control
- Risk management
- Software quality assurance (SQA)
- Technical reviews
- Measurement
- Software configuration management
- Reusability management
- Work product preparation and production

2. (10 points) When we say that framework activities are applicable to all projects, does this mean that the same work tasks are applied for all projects, regardless of size and complexity? Explain.

Process framework is applicable to all the projects; hence the same framework activities are applied for all projects, regardless of the project's size or complexity. A process framework involves heavy communication with the customer to gather requirements; this activity establishes a plan for the software engineering work that follows. It involves creation of models that will assist the developer and the customer to understand the requirements and design them; it thereby involves construction (code generation and error testing). It finally provides feedback based on the evaluation.

Concrete work tasks ***however*** might be more unique to each particular project. Some projects may share the same set of work tasks, yet not all projects need to follow exactly the same work tasks. For example, for developing a personal website, you might not be really going to do as many planning tasks (although the planning activity still needs to be undertaken more or less, such as outlining the timeline for the major steps to guide the

development) as if you were developing a large-scale business transaction site, for which making a full plan and producing a detailed schedule would be required.

3. (10 points) what is the major difference between software (which is the resulting product of software engineering) and the product of other engineering disciplines? Why is software different as so?

The major difference: products of other engineering disciplines typically wear out over time and decay, while software does not (wear out or decay) although it does deteriorate.

The reason that software does not wear out is that it does not have a physical form, and the reason that it does deteriorate is because of the changing nature of software.

4. (10 points) Fill out the following two tables to document the problems you encountered and the web searches you used for answering the above two questions, and assessment of the usefulness of the search results.

An example is already given in the assignment description.

It is okay if the student did not search for up to five queries or did not search at all (in which case the student would note so).