

CptS 322 Software Engineering Principles I

Spring 2023

Homework 1

(Due January 31, 2023 on Canvas)

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, these processes include project tracking and control, risk management, quality, configuration and documenting. Umbrella activities aren't focused on any particular framework but can be applied across the entire software process. It is true that some umbrella activities may be more heavily emphasized during particular framework activities. An example of this could be risk management, it is a more critical during the design phase while, documentation may be more important during the testing phases. Also, the level of emphasis on each umbrella activity may vary depending on the specific software development process currently being worked on. Lastly, while umbrella activities are applied throughout the software process, the level of emphasis and focus on each activity may vary depending on the specific part of the project and methodology being worked on.

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? Please explain.

When it is said that framework activities are applicable to all software projects, some framework activities include, communication, planning, modeling, construction, deployment and maintenance. With this in mind, specific work tasks that are associated with each framework activity may differ depending on the size and complexity of the project. For example, a project with not much systems or not as complex systems may require less planning and or modeling than a larger project. The same framework activities are applicable to all projects, the specific work tasks associated with each activity may vary depending on the size, context and complexity of the entire project.

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 differences between software, and the products of other engineering disciplines is that software is intangible, meaning it cannot be seen or touched, whereas other engineering products are tangible which means they can be touched, seen or manipulated. The intangibility of software makes it different from other products. Software is created from ideas and concepts but is not physical wood, steel or metal. Software can be updated or modified more flexibly than other engineering products. Also, another difference between the two is that software can lead to a greater uncertainty and risk than with other engineering products. Overall, the nature of software means that its flexible and adaptable combined with its uncertainties and complexity make it different than other engineering disciplines.

4. (10 points) Fill out the following table to document the problems you encountered, and the web searches you used for answering the above two questions. Fill out the four columns shown below. List at least 5 search phrases that you have used for this homework. Give a simple yes/no in the fourth column to indicate whether the search phrase led you to helpful results. If you have not encountered any problems or used any web searches, then you may just answer so.

The following is an example for your reference.

Question/Issue You Needed to Resolve	Search Engine or Site Used	Search Query Used	Were Results Helpful? (Yes/No)
What are examples of framework activities ?	Bing.com	Framework activities	Yes
What are some examples of umbrella activities during software process	Bing.com	Umbrella activities during software	Yes
Principle differences between software and hardware engineering	Bing.com	Software vs hardware	No
What are some common engineering principles?	Bing.com	Engineering principles diagram	Yes
What are some engineering disciplines that are not software related?	google	What is black-box testing	Yes