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Software Engineering

Assignment 1

1.2. Provide a number of examples (both positive and negative) that indicate the impact of software on our society.

In 1.2 they used the example of how webpages have developed over the years. The examples provided can equally apply to many other aspects of technology as well. For example, technology solves many problems for us such as: wider range of communication, greater performance, increased access, availability and immediacy. I am a believer that we create for the better. If we apply this to software, I believe that software evolves and changes for the better. So, in regards to the negative impacts on society, I believe that the only real negative impact is the need to educate society on the new technology (this is often for elderly people or people who live in rural areas). For example, the integration of touch screen hubs in airports to check bags or get your plane ticket. If this was the only way for customers to do those things, many customers may find it hard if they are not tech savvy. The best way to avoid the tech divide from negatively impacting society to much is by slowly replacing instead of immediate replacing. This allows people who only know older methods to have time to adapt to the newer methods.

1.4. Many modern applications change frequently—before they are presented to the end user and then after the first version has been put into use. Suggest a few ways to build software to stop deterioration due to change.

The best way to address the deterioration of software is to create software that has updatable, changeable parts. One of the best methods that has been used to support idea is with the creation of object oriented programming (i.e. Java). Programs in the past had to be completely remade when they wanted something new. Now with the development of high-level languages, the increase use of program libraries and the use of high level programming IDE’s, we are able to re use code which saves everyone so much time. It saves the programmer time for obvious reasons such as debugging and updating but it also saves the end-user time by allowing the programmer to focus more on efficiency than on reconstructing the foundation program.

1.5. Consider the seven software categories presented in Section 1.1.2. Do you think that the same approach to software engineering can be applied for each? Explain your answer.

The reason that there are seven categories is because there should be different approaches to each of them. For example, a software engineer’s approach to creating a WebApp might begin by talking to the employer about the specifications of the website and listing the important details that are expected to be included in the websites design. WebApps are often content specific and requires more attention to the aesthetics and end-user experience. The approach to creating application software is likely to be completely different. When you are developing application software, you are focusing on solving a specific function like creating text files. Practicality is more important in software applications than with WebApps. This doesn’t meant that it doesn’t matter. As many of the different approaches are important aspects in other categories as well. It just might not be the priority in regards the an engineers approach to developing that system.

1.6. Figure 1.3 places the three software engineering layers on top of a layer entitled “a quality focus.” This implies an organizational quality program such as total quality management. Do a bit of research and develop an outline of the key tenets of a total quality management program.

* description of the project managers job and responsibilities
* description of the team personnel’s job and responsibilities
* describes relationships between personnel
* describes the plan content
* describes the plan methodology

1.7. Is software engineering applicable when WebApps are built? If so, how might it be modified to accommodate the unique characteristics of WebApps?

Yes! As the textbook states, “although […] WebApps have unique features and requirements, they are software nonetheless.” Therefore the same general approach can be had as with other software.

1.8. As software becomes more pervasive, risks to the public (due to faulty programs) become an increasingly significant concern. Develop a doomsday but realistic scenario in which the failure of a computer program could do great harm (either economic or human).

It is imperative for certain systems to function properly without fail as they meet important needs of the public. Systems as such include a country’s defense systems, software that controls nuclear power plants, and software the controls cellular towers. Software that controls emergency notifications from the government need to function properly. It would be extremely dangerous if an emergency notification was accidentally sent out.

1.9. Describe a process framework in your own words. 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.

The framework establishes the way something is to be approached. It is the basic underlying structure of a system or concept. Therefore a process framework establishes the way a software process is approached. Process frameworks include all umbrella activities. Saying that framework activities are applicable to all projects does not necessarily mean that the tasks can be applied in the exact same way. Frameworks are important for understanding the relationships between processes. If the same mission is accomplished, then the way that is accomplished can be different. This idea takes in account for scaling systems.

1.10. 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.

Yes, according to the textbook “communication, planning, modeling, construction, and deployment are applied repeatedly through a number of project iterations. Each project iteration produces a software increment that provides stakeholders with a subset of overall software features and functionality.”