Software Engineering

Assignment 6

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Complete the following questions (learning by PDCA):

1) What do you want to learn in this SE course? (plan)

2) What have you learnt in this SE course? (do)

3) Please evaluate your performance in this course? (check)

4) Do you have some improvement actions for next other course? (action)

5) Do you have some suggestions for the course improving?

6) Which parts/points are most useful in your opinion?

Solutuion:

Software Engineering applies the knowledge and theoretical understanding gained through computer science to building high-quality software products. As a maturing discipline, software is becoming more and more important in our everyday lives.

Software is the tool that allows users to interact with computers. Through software programs and applications, users can write documents or play games, browse the web or listen to music, and do just about anything you can think of that you do on a computer. Given the ubiquitous nature of computers across the globe, software developers and engineers are in high demand. In an industry that is constantly revitalizing itself and executing new ideas, new software is always needed - and old software requires frequent updates in order to stay current.

The Plan-Do-Check-Act (PDCA) cycle, also known as the Deming wheel or the Deming cycle, is an iterative method for continual improvement of processes, products, or services and is a key element of lean management.

The Plan-do-check-act Procedure :

Plan   : To recognize an opportunity and plan a change.
Do   : The change has to be tested and have to carry out a small-scale study.
Check : Test has to be reviewed, then analyze the results, and identify what we've learnt.
Act   : Take action based on what we have learnt in the study step

1. Plan

Whenever we want to do something we have to have a plan. The planning stage is for mapping out we are going to try to solve a problem or otherwise change a process. During this step, we will identify and analyze the problem or opportunity for change. We will try to develop hypotheses for what the underlying issues or causes are, and decide on one hypothesis to test first.

Project planning is an organized and integrated management process, which focuses on activities required for successful completion of the project. It prevents obstacles that arise in the project such as changes in projects or organization's objectives, non-availability of resources.

Known as the 'software development life cycle,' six steps include planning, analysis, design, development & implementation, testing & deployment and maintenance.

SE course teaches a variety of programming languages, software design, information systems, databases and software architecture. We will also develop more general skills, such as: verbal communication, to work as part of a team. I am hoping to learn those skills and knowledge in this SE course.

Before we move to the next stage, we need to be sure that we got answered some basic concerns:

--------- What is the core problem we need to solve?

----------What resources do we need?

----------What resources do we have?

----------What is the best solution for fixing the problem with the available resources?

        In what conditions will the plan be considered successful? What are the goals?
We must Keep in mind, we may need to go through the plan a couple of times before being able to proceed.

2. Do

After we have agreed on the plan, it is time to take action. At this stage, we will apply everything that has been considered during the previous stage. We have to be aware that unpredicted problems may occur at this phase. This is why, in a perfect situation, we may first try to incorporate our plan on a small scale and in a controlled environment. Standardization is something that will definitely help our team apply the plan smoothly. We will make sure that everybody knows their roles and responsibilities.

The next step is to test our hypothesis (i.e., our proposed solution). The PDCA cycle focuses on smaller, incremental changes that help improve processes with minimal disruption. We will test our hypothesis with a small-scale project, preferably in a controlled environment, so I can evaluate the results without interrupting the rest of the operation.

I have learnt how to use different types of programming languages, software design, information systems, databases and software architecture.

3. Check

This is probably the most important stage of the PDCA cycle. If we want to clarify our plan, avoid recurring mistakes, and apply continuous improvement successfully, we need to pay enough attention to the CHECK phase.

Once we have completed our SE course, it's time to review and analyze the results. This stage is important because it allows us to evaluate our solution and revise our plans as necessary. During the check phase, the data and results gathered from the do phase are evaluated. Data is compared to the expected outcomes to see many similarities and differences.

The testing process is also evaluated to see if there were any changes from the original test created during the planning phase. If the data is placed in a chart it can make it easier to see any trends if the PDCA cycle is conducted multiple times. This helps to see what changes work better than others and if said changes can be improved as well.

4. Action

Finally, it is time to act. If all went according to plan, we can now implement our tried-and-tested plan. This new process now becomes our baseline for future PDCA iterations.

Every time we repeat a standardized plan, we ought to keep in mind to go through all steps again and try to improve carefully. The PDCA cycle is a simple but powerful framework for fixing issues on any level of your organization. It can be part of a bigger planning process.
The repetitive approach helps team find and test solutions and improve them through a waste-reducing cycle.

The PDCA process includes a mandatory commitment to continuous improvement, and it can have a positive impact on productivity and efficiency. The PDCA model requires a certain amount of time, and it may not be appropriate for solving urgent issues.

Plan-Do-Check-Act cycle is a useful tool that can help your team solve problems much more efficiently.

5) Do you have some suggestions for the course improving?

First of all, it is not easy to teach through online, which is a new concept. But our teachers are doing their best to cope with the concept. Our instructors are shouldering extremely heavy burden and their value simply can't be overstated. My little suggestions would be for instance, to utilize more variety of technology. Secondly, to discuss each topics little more elaborately. Finally, to connect little more with the students individually.

6) Which parts/points are most useful in your opinion?

It is very important to follow the class regularly. Most of the point of SE is very important. In my opinion, the analysis stage is the most crucial step in software development. A software engineer uses components of a hardware system to create the tools to develop software and tends to solve issues on a large scale.

 Finally, the most important thing every software engineer should know is that the learning process never ends.