PES UNIVERSITY

PES UNIVERSITY

AUGUST – DECEMBER 2022 SEMESTER 5

SOFTWARE ENGINEERING LAB TASKS

Professor-in-charge: Dr. Jayashree R

Teaching Assistant: Apoorva B S (Sem VII)

NAME–Shafiudeen Kameel	**SRN-PES2UG20CS320**
NAME –Ram Selevaraj	**SRN-PES2UG20CS265**
NAME – S agarikh a M	**SRN-PES2UG20CS292**
NAME – Riya Hurtis	**SRN - PES2UG20C277**

Problem Statement – 1:

You are a manager at a large MNC. You and your team have been working closely with a client to develop their product. Through this project you have developed a good business relationship and friendship with the client. On the eve of the product release, your team notifies you about a major bug in the code that had been overlooked before. Your client asks you if the product is defect free.

Keeping in mind personal, business & professional ethics, how would you tackle this situation as a manager? Brainstorm ideas which would lead to a defect free product release without jeopardizing the good relationship with your client. Make use of ethical frameworks and principles in your answer.

SOLUTION :

The manager's relationship with the client should be absurd.

When done correctly, it can boost customer loyalty, increase client retention rates, and produce sales.

The goals of effective client management are to increase customer satisfaction and solidify the bond between a company and its customers.

The team has uncovered a high severity defect when a severe flaw is found right before a product release, and they notify the management about it.

Given the limited timescales, it is the manager's responsibility to make sure that everyone who needs to know about it has the knowledge they need to decide as soon as possible what their best course of action is.

The manager must never wait to disclose a problem, at the very least to your local management team.

At the very least, that would damage your team's reputation, and it might even have much worse effects.

Finding out Why was this discovered so late is the next step.

This might have happened for a number of reasons, including inadequate test preparation and improper task prioritisation.

Ask the testing team to explain the root of the problem and how to lower the likelihood that it will occur again.

Moreover, it is the responsibility of the manager to :

- escalation, promptly notifying management of detected defects (it is their job to understand client priorities and negotiate with the customer)
- do a post-mortem investigation to determine the reason why such a serious flaw was discovered so late.
- Enhance your procedure to get rid of the underlying problem.

The manager needs to brief the customer on the issue and request more time to solve the bug.

If the client is unwilling to wait, consider the implications of the defect or fault and look for workarounds before mentioning these problems as known issues, known constraints, or known defects in the release notes.

Problem Statement – 2:

In line with the four pillars of DevOps – Collaboration, Tools, Scaling and Affinity, your team has to come up with innovative solutions to tackle social issues such as child safety for example (each team is free to choose their own topic based on social issues). This will be done using techniques such as Crazy 4s and S.C.A.M.P.E.R. You are then required to provide a list of tools for an end-to-end technical solution for the best idea you generated. You are also required to provide information regarding scaling in terms of teams, Infrastructure, workload, organization and complexity.

SOLUTION:

Crazy 4s:

POLLUTION CONTROL (Social Issue)

Crazy 4s

1) Using electric vehicles rather instead of traditional fossil fuel based models
2) Eliminate harmful emissions from large companies so that only dangerous and unavoidable pollutants are allowed to enter the atmosphere.
3) Preventing the careless disposal of waste from various sources and aiding in the effective separation and handling of it.
4) Lowering CFC emissions from products like air conditioners.

S.C.A.M.P.E.R:

Use this strategy to enhance the concepts you came up with using Crazy 4. As a team, respond to the following inquiries to strengthen your concept.

Substitute: What can I replace in order to improve?

Combine: What concepts, traits, methods, or elements can I combine?

Adapt: What procedures, characteristics, or elements should I change?

Modify: What can I increase or decrease?

Put to another use: What other purposes does it have? Who else might want it?

Eliminate: What would happen if I took away some of the features?

Reverse/rearrange: How may the situation be changed for a better outcome? What would occur if the procedure was reversed?

To enable continuous delivery of value to our end consumers, DevOps brings together people, process, and products.

DevOps is a journey that, when successfully completed, will allow a company to improve productivity by eliminating as much waste from its development cycles.

There are four pillars of effective devops:

- ☐ Collaboration
- ☐ Affinity
- ☐ Tools
- ☐ Scaling

The combination of these four pillars will enable you to address both the cultural and technical aspects of your organization.

We have opted to administer security governance using DevOps approaches for our topic to tackle social challenges.

Spreadsheets are frequently used by businesses to describe and restrict business risks, and annual reviews are conducted to ensure that the controls are still effective. The master security control set, however, is frequently influenced by numerous business stakeholders.

It may lead to issues like inconsistent scopes or repeated security control definitions with varied phrasing.

Businesses can automate security assessments to promote faster innovation as well as establish their security procedures in a less unclear manner.

DevOps, according to AWS, is "the combination of cultural philosophies, procedures, and tools that increases an organization's ability to deliver applications and services at high velocity: evolving and improving products more quickly than organisations using traditional software development and infrastructure management processes."

Security Controls:

A threat modelling exercise should be the first step in the security development process. Tools exist that can create very detailed models of our solutions.

Few of those tools are:

- ☐ STRIDE
- ☐ SNORT
- ☐ OWASP Zed Attack Proxy (ZAP)
- ☐ VAST
- ☐ OCTAVE

The end consequence of each of these instruments is the publication of a risk register.

Your security measures can be categorised as being either directive, preventative, detective, or reactionary.

These techniques all adhere to the AWS Cloud adoption framework's security guidelines. To avoid ambiguity, security controls should be precisely stated. Every control normally consists of a single statement with an action or configuration need. The result of the action or configuration is that the stated risk is either completely mitigated or has some residual risk that can be further managed with other security measures as necessary by your business's risk tolerance.

There are numerous benefits to this approach:

- ☐ You receive quick feedback regarding adherence to our security rules and, consequently, the security posture of our company.
- ☐ In contrast to customary yearly security compliance checks, we have proof that you are now compliant. Additionally, publishing this material to support audit procedures needs very no work on your part.
- ☐ It might not be necessary for you to take weeks off work to audit your security controls.
- ☐ We can examine your AWS Config dashboard instead, and we can execute some straightforward procedural runbooks.

- ☐ Our developers are now empowered to get early feedback on any solutions they're designing.

According to information on team, infrastructure, workload, organisation, and complexity scaling.

DevOps specialists should be able to handle any potential network issues because they manage a huge number of servers, connections, data, and storage.

They should have the ability to handle any potential network issues. This implies that they should be familiar with concepts relating to IT networks and storage. Working with real-time systems requires knowledge of various protocols, application programming interfaces (APIs), and capacity decisions to support the required infrastructure.

Newly designed systems are capable of using the DevOps methodology. Older systems must, however, be maintained and swiftly assimilated into the DevOps environment. These systems must be configured to be safe, expandable, compliant, and well-balanced.

Three of the many DevOps automation tools available are Puppet, Kubernetes, and Jenkins; however, these three are the most popular.

The ultimate goal of DevOps is to automate as much work as is practical. Starting with the writing of the code, every process, including building, testing, and deployment, must be automated.

Problem Statement – 3:

For your SE projects, convert your software architecture into a business roadmap and devise a Service strategy by including service value definition, business case development, service assets, market analysis and service provider types.

ONLINE FOOD DELIVERY SYSTEM

STEPS FOLLOWED TO MAKE THE SOFTWARE A SUCCESS IN THE MARKET

PROJECT BUSINESS CASE

Project Name	ONLINE FOOD DELIEVERY SYSTEM
Project manager	Mr Nilesh
Last Revision date	17th November
Contribution to Business Strategy	We strive to provide the best customer conveyance service possible. This software guarantees that the business can manage food delivery in a very efficient manner. a successful approach.
Options Considered	1. Hiring of skilled computer operators and give suggestions to the customers on the food available. 2. Better interviewing procedures are needed to find qualified employees who can appreciate the significance of managing this programme and its features.

Benefits	1. It makes the delivery and tracking of Food orders of users very efficient. 2. The admin can provide the required information to the user if the user contacts for any query. 3. It is a portable software
	4. Data Privacy of the user is very well protected
Timescales	The COCOMO model estimates that it will take four members of the organic model class 2.4 months to construct this model.
Costs	Total Estimated cost = INR 5000/-
Expected Return of Investment	INR 1000 per month per user
Risks	Currently, the project is simple, but the interface will be improved and made easier to use. To create a better marketing plan and achieve a global reach, we will work closer with the sales staff. Additionally, we'll try to manage more users concurrently.