PES UNIVERSITY AUGUST – DECEMBER 2022 SEMESTER 5 SOFTWARE ENGINEERING LAB TASK-5

Team X-4B

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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 role of a manager is to ensure client satisfaction, customer retention and strengthen the loyal relationship between the company and clients.

During a situation when a major bug is detected at the time of product release, the manager's first priority should be to first ask his testing team the severity of the bug. If the severity

could be resolved within a few minutes then get it done, if it takes an hour then postpone the release by a few hours with the permission of the client, only if he can guarantee that the bug will be resolved within an hour. If the severity is major then his second task is to report about the issue to higher authorities and with their permission acknowledge the client in order to keep up with the reputation of the team and not lose customers. Since mistakes can happen at times the team may be forgiven given that the bug will be resolved within a few days.In case the client does not agree with this condition or with the postponement of the event, then mention the issues in the release notes as limitations or bugs. The third task would be to find out the reason behind the occurrence of the bug and why it was detected that late, in order to take measures on how to prevent such situations from reoccurring in future.

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.
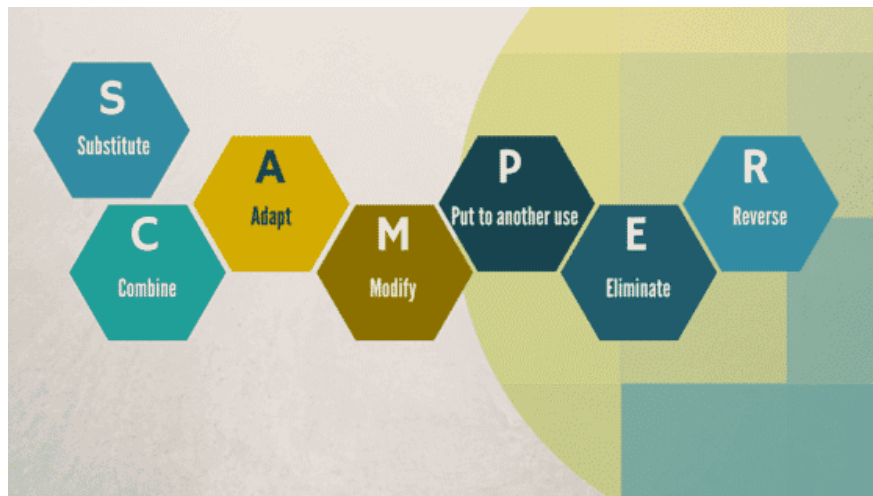
SOLUTION:
Crazy 4s:
1) Open a new text editing document.
2) Set a timer for four minutes.

3) In these four minutes each participant is required to come up with four rough ideas as solutions for the problem. You can note your ideas down as small points instead of entire sentences.
4) At the end of four minutes, you are required to discuss your ideas with your teammates to come up with the best possible solution

SCAMPER: is a method to implement creative thinking and problem solving methods to facilitate improvement

- **Substitute-** try to replace concept,process,product or service with other methods to check if it results in any improvement.
- **Combine**- combine several existing ideas, process or products to get a new efficient product
- **Adapt**- try using a solution which worked for a different problem
- **Modify**- modify the situation or problem to check if it gives any new insights or add-ons
- **Put to another use**- using an existing idea to solve a different problem than for what it was intended to.
- **Eliminate**: What would happen if I removed a feature or part of it?
- **Reverse/rearrange:** How can we rearrange the current status for an improved solution? What would happen by reversing the process?

Devops is the combination of software development and IT operations. Aims to shorten SDLC and offer high quality software.
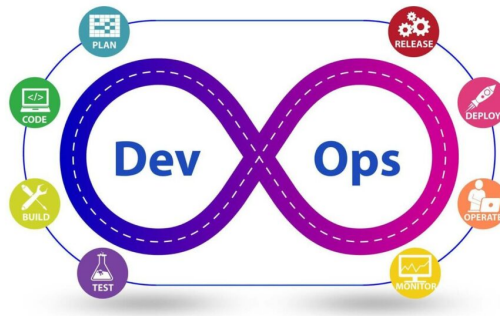
There are four pillars of effective devops:
• Collaboration
• Affinity
• Tools
• Scaling

For our topic to tackle social issues, we have chosen to manage security issues using DevOps methodologies.

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.
Your security measures can be categorized 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.

The advantages of this strategy are numerous:

- Unlike typical annual security compliance audits, you receive immediate input on compliance with our security measures and, consequently, the security posture of our organization.
- You might not need to take weeks out of your schedule to audit your security measures, and publishing this evidence to support audit processes needs almost no effort on your part. We can examine your AWS Config dashboard instead, and we can execute some straightforward procedural runbooks.
- Our developers are now given the authority to solicit early input on any solutions they are developing.
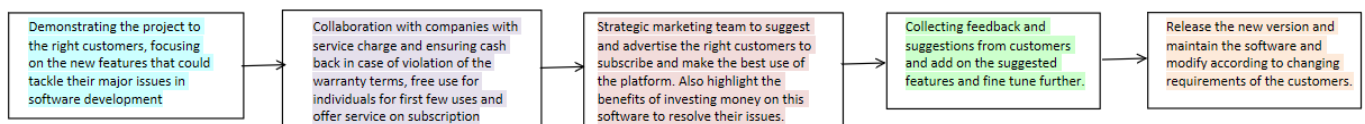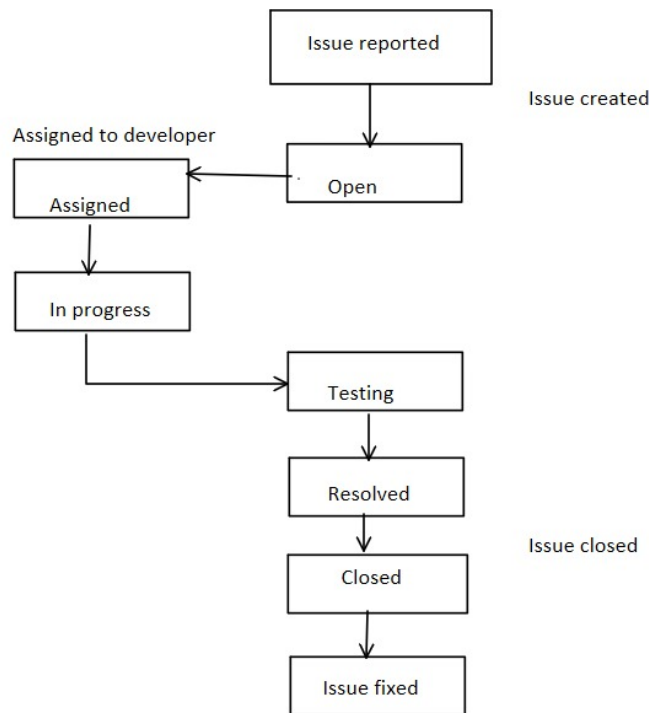 -

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

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.

ISSUE TRACKING SYSTEM: software architecture-

PROJECT BUSINESS CASE:

PROJECT NAME	Bug tracking system
PROJECT MANAGER	Adarsh Liju Abraham

Last revision date	16th November
Contribution to business strategy	Customer satisfaction is our major priority. This software ensures that the company manages all its bugs in a centralized location and resolves it to prevent loss.
Options considered	- Hiring skilled developers with knowledge of new technologies to fulfill the requirements of customers of this era. - Hiring a strategic marketing team to suggest and advertise the right customers to subscribe and make the best use of the platform. Also highlight the benefits of investing money on this software to resolve their issues. - Getting feedback from customers and fine tune to meet their requirements
BENEFITS	- Efficient way for a company to keep all its issues in a centralized location for future reference. - Available offline and cross-platform - Resolves bugs immediately to reduce loss.

TIMESCALE	According to the COCOMO model, time taken to build this model is 2.4 months with labor from 4 members with organic model class.
RISKS	● Website may be victim to DDOS attacks/ similar cyber attacks ● System must be robust enough to handle multiple routes and queries.