SOFTWARE ENGINEERING

GROUP NUMBER – 7

Team Details:

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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.

- The manager should explain the situation to the client and request for time in order to fix the bug.
- Enquire with the test team on what caused the issue and thereby reduce the risk of it happening again.
- When a serious bug is discovered just before product release, then team has found a high severity defect, so they have to report the bug and inform to the manager.
- To focus on building relationships with clients so as to ensure that their needs are met, they are satisfied with the services and products provided by the company and any challenges are overcome.
- Normally, the project manager will grant the customer access to the software used for tracking and describing tasks.

- A good relationship between Client and Manager has to be Proactive rather than Reactive, i.e to share ideas, educate the client for further development.
- Given the limited timeframes, it is the manager's responsibility to make sure that everyone who needs to know about it does so, so they have the knowledge they need to choose their best course of action as quickly as possible.
- The manager must never hold off from reporting an issue, at least to your local management structure.
- There are many reasons why this situation could arise - test preparation could've been too light, could' have mis-prioritised some work.

~ Credits: Pradhyumna, PES2UG20CS533

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.

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.

NOTE: This can be extended to Crazy 6s or Crazy 8s with six minutes for six ideas or eight minutes for eight ideas depending on team size.

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

In order to further improve your ideas ideated using Crazy 4s, use this technique. Answer these following questions as a team to improve your idea.

Substitute: What can I substitute to make an improvement?

Combine: What ideas, features, processes, or components can I combine?

Adapt: What processes, features, or components should I adapt?

Modify: What can I make larger or make smaller?

Put to another use: What else can it be used for? Who else could use it?

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?

There are four pillars of effective DevOps:

1. Collaboration

2. Affinity

3. Tools

4. Scaling

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

We can use spreadsheets to reduce number of business risks, and there will be annual review to analyse the suitability of their controls.

It's possible for businesses to not only define their security controls in a less ambiguous way, but also to automate security audits, allowing for more rapid innovation.

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.

Among these are a few: Firewalls, antivirus and anti-malware software Encryption. Each of these tools contributes to a decrease in security-related problems. There are numerous benefits to this approach:

- You get immediate feedback on compliance to our security controls.

- You may not have to take weeks out of your schedule to audit your security controls. Instead, we can check your AWS Config dashboard and run some simple procedural runbooks.
- Our developers are now empowered to get early feedback on any solutions they're designing

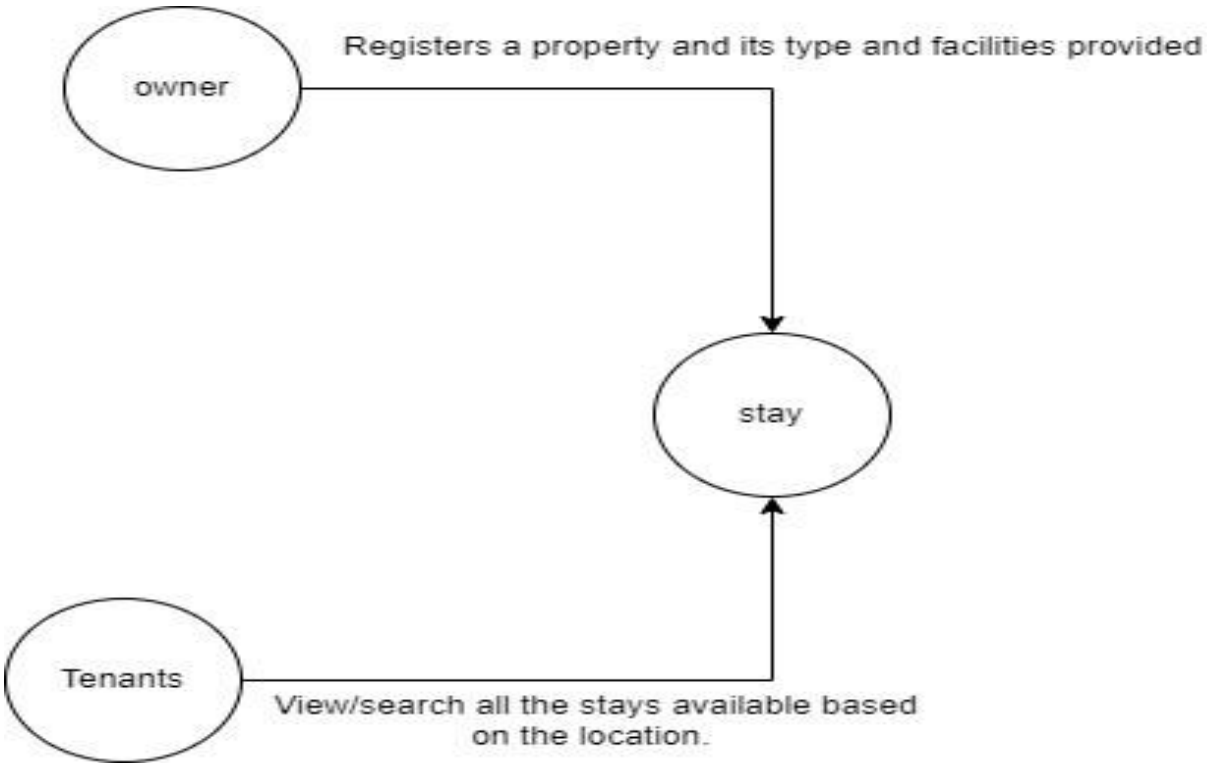
~ Credits: Manik, PES2UG20CS576

~ Credits: Shreepathi, PES2UG20CS553

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.

BUSINESS ROADMAP FOR HOMELY (Search for stays):



- Advertising our applications so that it reaches our target audience.
- Comparing our software with competitive software's.
- Collecting feedback and review from clients and to restructure the software accordingly.

Service strategy:

- It gives the owner **a platform to advertise their stay options**.
- Our application **reduces the time and effort spent on searching places** manually and automate the process for the user.
- It gives the user a fair idea of stays available their prices, services offered to compare with.
- The benefits of this software are being appreciated exclusively by the beneficiary from a service.
- Provides insights on the stay prices for that locality so as to avoid the chances of being cheated.
- The updates in the software will be made accordingly through feedback from the clients.

~ Credits: Nilkant, PES2UG20CS530