CS453: Application Lifecycle Management
Section 2
Homework 4

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1. How Covid-19 has affected the life of software developers? Discuss both negative and positive impacts? What measures are taken by software companies to combat these negative effects?

COVID-19 virus has drastically impacted almost every field all over the world. Similar to that, COVID has also impacted the life of software developers. Some of the major positive impacts have been freedom to work in terms of location and timings, better learning opportunities promoted during lockdowns including the privilege to attend seminars/ conferences online without the hassle and complication of travelling, the boom of IT sector resulting in more freelance development opportunities, and finally more efficient teams focusing on team collaboration tools like Jira for product planning and communication instead of the conventional and verbose human communication. Talking about the negative impacts, COVID lockdowns have resulted in a slightly more unnatural mode of communication between team members. So, although communication is more electronic and efficient, the happiness and satisfaction index of the developers has definitely gone down. COVID has made it harder for software developers to get access to corporate level equipment and resources during Work From Home (WFH) and hence, making it harder for the developers. And finally, another major negative impact has been rapidly restructuring of teams during COVID due to layoffs and illness. This team restructuring results in the project's pace getting targeted and even if just one member of the team in replaced, the entire team suffers negatively.

To cater these changes, companies has started relying on better team collaboration tools like Microsoft Teams or Zoom to promote natural Scrum-like standup meetings. Teams have also started relying on Project Management tools like Jira and other online code management platforms to ensure that team collaboration and productivity remains prime. Furthermore, companies are relying on cloud based development solutions and providing developers packages to arrange relevant development equipment. Finally, companies are also looking into hiring remote, and cheaper developers to continue the team remotely during the COVID times even with limited revenue generation. Also, companies are promoting ease and care packages for employees to compensate for the lack of social interaction and prevent any possibilities of an employee getting COVID.

2. What is the relationship between the developer's satisfaction & perceived productivity? Is it just to improve engineering outcomes? What are the factors which influence the relationship between developer's satisfaction and perceived productivity in software engineering?

Developer satisfaction and perceived productivity are closely related but pivoted on a certain number of factors. Developer satisfaction enables companies to keep the current

developers happy and attract better performing developers. On the other hand, perceived productivity enables developers to evaluate their performance better and acts as a major gear towards a higher job satisfaction. Although both of them turn the gears for the other factor, in some cases, there are factors like the nature of work, the team composition, Job characteristics, Job security, Personal technical skills of the employee, ease of availability of training and documentation etc.

3. What are the technical and social factors that have an effect on developers' satisfaction and perceived productivity? Identify these factors and whether they positively or negatively affect satisfaction & productivity. State the most impactful factor for both developer's satisfaction and perceived productivity.

Some factors that effect a developer's satisfaction and productivity are availability of appreciation and rewards, Impactful work and the feeling of being an important contributor to the teams. To begin with, appreciation and awards impacts the developer satisfaction and perceived productivity of employees at all levels. Impactful work increases the perceived productivity and developer satisfaction as well and so does the feeling of being an important contributor to the project. But there are cases like the availability of better engineering systems that only increases the perceived productivity of the application and not the developer satisfaction.

4. What are the dimensions in which the productivity of the developers can be measured? Why is it important to pull the productivity of developers from multiple dimensions?

The productivity of developers can be measured in terms of their performance on a task against some rubrics, their amount of activity, their communication and collaboration capabilities, their efficiency in their day to day work operations with minimal interruptions. We need to pull several metrics to judge a developer's productivity because all teams are different and there is no universal metric to evaluate a performing develop in any given team. Having several metrics gives a more rounded off idea about the productivity of a developer.

5. What is incident management? How is an incident different from a bug? Why do we need incident management during software development?

An incident occurs when a service is down or when a service is not performing according to the SLAs agreed upon. Since an incident may not be cause of any internal code issues that could've been handled by the develop in the first place, it is different that a bug. An incident is hence a shortcoming of the interconnected elements in a system (could be the main service too). IM (Incident Management) is the process of mitigating the incidents according to their priorities (assigned during the mitigation process too). We need IM during software development to ensure that the development productivity is not compromised and to know that there is a more uniform way to control the shortcomings of an application.