Interview Paper on ████████████ (Transcript attached to the end)

The person I interviewed is ████████████ who works at the Johns Hopkins University Applied Physics Laboratory (JHU/APL). JHU/APL is a not-for-profit applied research and development laboratory that is sponsored by organizations including NASA, the Department of Defense, and the Department of Homeland Security. ██████████ has been working at JHU/APL for six years. JHU/APL's departments include the Air and Missile Defense Department which works on air defense-related systems and technologies, the Space Department which develops spacecraft systems and instruments for NASA, and the Applied Information Sciences Department, which she is a part of and works to protect the nation's information assets.

██████████ current position is a software technical lead. Her teams for the most part create proof-of-concept prototypes. These are not for widespread use, but to demonstrate research capability.

In her field of work, ██████████ usually is a part of one of two different categories of teams generally. A project team normally ranges from five to ten total team members. A development team though is relatively smaller and typically consists of two to five total team members. These numbers though are not absolute obviously. Projects that are more complex and are of a greater magnitude may demand more involvement and human resources. For these larger and more complex projects, teams are definitely larger and many more team members participate.

Development projects are typically done in Java, but she has also worked with other languages including Matlab, C, C++, Perl, and assembly. When working with java, she uses

Eclipse integrated development environment (IDE).   Development teams use CVS or

Subversion for version control to prevent code conflicts. As for the operating system she

typically works in, she uses Microsoft Windows or Linux-based operating systems. For writing

and running tests, she has used Jade (Java development framework for software agents), XML

parsers like dom4j and Woodstox, and Junit. ▮▮▮▮▮▮▮ also uses database management

systems like MySQL, HSQLDB, Oracle, and Hibernate. She uses virtualization technology like

Vmware and Xen. She uses servlet engines like Apache Tomcat and web service engines like

Apache Axis2.

A typical day of work for ▮▮▮▮▮▮▮ varies based on how far the project has progressed

from the start. A typical work day when the project has just started may consist of creating a

project plan and schedule, gathering requirements, and performing code design. Later on ▮▮▮

▮▮▮ may spend the day implementing the previously mentioned steps and writing and running

unit tests. Once she has performed these unit tests, she may spend her day performing

debugging, integration testing, and writing code documentation. At the end of the project, she

may spend her day packaging up code and documentation for a software release and providing

technical support. No matter how far the project has progressed though, there are many team

meetings to discuss the status of the project, any issues that arise, and how the team can resolve

these issues. On top of all of these tasks, since she is the software quality representative for her

group and she is responsible for distributing information about the software quality process to the

team.

▮▮▮▮▮▮▮ says to be a successful technical lead, it is important to have strong technical

and communication skills. Both skills are necessary for multiple reasons. The technical lead

must have strong technical skills so he or she has the general knowledge of how all the main

components in a software system work together. Strong communication skills are necessary to know what the sponsor's needs are and to clearly communicate proposed solutions to the sponsor so that the sponsor can understand them. Once the requirements are agreed upon, the technical lead must have the management and technical skills to create an overall strategy for dividing the tasks among the team members effectively and in such a way that each team member's contribution can come together to become a working product. Management skill are also important because she must ensure that team members are assigned tasks that are challenging and interesting to them to ensure that workers are content and stimulated. The technical lead must have the awareness to constantly determine whether there are any issues that may threaten the schedule or the quality of the deliverable and work with the team to ensure that they are addressed. Also, the technical lead must be able to develop close and trusting relationships with the team members, which encourages them to take initiative and pursue innovative ideas and improvements.

Evaluating her job, ▮▮▮▮▮▮▮ is generally really happy with her job and work environment at JHU/APL. She feels that the other JHU/APL employees are both competent in a technical sense and easy to work with. Because JHU/APL is an applied research laboratory, the work she does is not too theoretical. Rather, the work she does is aimed at solving real problems faced by the government. JHU/APL is not-for-profit though, meaning the reason for its existence is not to generate profits for shareholders, but to advance the nation's research and technological capabilities. The only negative about her job is that sometimes it can be stressful being a technical lead because she has to cater to both the needs of the sponsor and her team members, and there are many different things she has to stay on top of at the same time.

Overall, I think ███████ interview reaffirms what I already knew about software engineering and also reaffirms that this is the correct field for me. Because she is the technical lead, she has a lot of responsibilities involving the management of her team and communication with the sponsor. Non-technical leads would probably have fewer responsibilities in those areas. The fact that she has used so many different technologies and software emphasizes that being a good problem solver with good communication skills is much more important than being a good programmer. The fact that she works in a lot of teams that vary in size also reaffirms that software engineering is a process that is team based, which demands good communication skills. When ███████ describes the different tasks she may do, she shows that having many different skills are important and it is important to know the entire software engineering process.

1. What is your name, email address, and what city do you live/work in?

Laurel, MD

2. What is the name of the company that you work for? What does the company do? and how long have you been employed there?

The Johns Hopkins University Applied Physics Laboratory

JHU/APL is a not-for-profit applied research and development laboratory that is affiliated with The Johns Hopkins University and focuses on meeting critical technological challenges faced by our government agencies. Most of our sponsors are with the Department of Defense, the Department of Homeland Security, and NASA. Our departments include the Air and Missile Defense Department (which works on air defense-related systems and technologies), the Space Department (which develops spacecraft systems and instruments for NASA), and my own department, the Applied Information Sciences Department, which works to protect our nation's information assets.

I have been at JHU/APL for 6 years.

3. Describe your position and the types of projects that you work on.

I am a software technical lead and work primarily on software development projects. For most of my projects, we create proof-of-concept prototypes. Therefore these prototypes are not intended for widespread use, but to demonstrate a research capability.

4. How large is your project team? Is that a typical team size?

My project team has ranged from 5 to 10 people. Typically, a development team will have between 2-5 people, but if the project is large and/or complex, many more people can be involved.

5. What types of languages, technologies and tools do you use?

Usually I work on Java development projects, but I've also worked with Matlab, C, C++, Perl, and assembly. For Java projects, I usually do development using the Eclipse integrated development environment (IDE). Because all my projects are team-based, we must use version control to prevent code conflicts. We usually use CVS or Subversion for version control. I typically work with Microsoft Windows and Linux-based operating systems. The tools that I've used include Jade (Java development framework for software agents), XML parsers like dom4j and Woodstox, JUnit for writing and running unit tests, database management systems (DBMS) like MySQL, HSQLDB, and Oracle, Hibernate (Java-based library that maps Java objects to a relational database), virtualization technology like Vmware and Xen, servlet engines like Apache Tomcat, and web service engines like Apache Axis2.

6. Describe a typical work day.

Depending on where in the project schedule we are, a typical work day may be spent coming up with a project plan and schedule, gathering requirements, performing code design and implementation, writing and running unit tests, performing debugging, performing integration testing, writing code documentation, packaging up code and documentation for a software release, and providing technical support. We often have team meetings to discuss status, any issues that we are aware of, and how we can resolve them. I am also the software quality representative for our group, so I am responsible for distributing information about our software quality process to our group.

7. What skills are important for your job?

For a software technical lead, it is important to have strong technical and communication skills. The technical lead must have at least general knowledge of how all the main components in a software system work together and be organized enough to know what the sponsor's needs are and be able to clearly communicate proposed solutions to the sponsor to meet their needs. Once the requirements have been agreed upon, the technical lead must have an overall strategy for dividing the tasks among team members in such a way that each team member's contribution can come together to become a working product. The technical lead must ensure that team members are assigned tasks that are challenging and interesting to them, and that they have everything they need to successfully complete their task. The technical lead must constantly determine whether there are any issues that may threaten the schedule or the quality of the deliverable and work with the team to ensure that they are addressed. The technical lead must be able to develop a close and trusting relationship with the team in a way that encourages team members to take initiative and pursue innovative ideas and improvements.

8. What do you like most about your job? like least about your job?

I really enjoy my work environment. JHU/APL has an incredible pool of people who are both smart and great to work with. We are an applied research laboratory, which means that our work isn't too theoretical, but aimed at solving real problems faced by our government. We are not-for-profit, meaning our reason for existence is not to generate profits for shareholders, but to advance the nation's research and technological capabilities. In comparison, there are few things I dislike about my job. Sometimes it can be stressful being a technical lead because you have to juggle the needs of the sponsor and your team members, and usually there are at least ten different things you need to stay on top of at a time. But for the most part I enjoy my job a lot.