

April 8, 2016

To Whom It May Concern,

I have been requested to evaluate as to whether, in my professional opinion, the skills and knowledge necessary to perform the duties of a specific Software Engineer position (defined below) could be acquired during a reasonable period of on-the-job training. The company offering the Software Engineer position supplied a job description and list of position requirements. I am in no position to authenticate the documents, but am simply forming an opinion based on the assumption that the documents are accurate.

I certify under penalty of perjury that I have an earned Ph.D. in Electrical and Computer Engineering, an M.S. in Computer Science and a B.A. in Mathematics all from accredited U.S. universities. I taught for over 20 years in accredited schools in the U.S. serving on curriculum committees for both my department and the school. I am an Emeritus Professor of Computer Science and Computer Engineering at Seattle Pacific University and former Head of the Computer Engineering Program. As a university faculty member, I supervised students in internships and keep in communication with our graduates. My industry experience includes 4 years as a partner in a software consulting business and 5 years in research engineer positions at both Intermec Corporation and the NASA Space Engineering Research Center for VLSI Design. I am considered to be a recognized authority in the fields of Computer Science, Electrical Engineering, Computer Engineering, Software Engineering, Information Technology, and Information Systems according to USCIS regulations and have had over 2500 of my expert opinion letters accepted at all USCIS Service Centers since 1996. As a college level official and a recognized authority in Computer Science and related disciplines (Computer Information Systems, Computer Engineering, Electrical Engineering, Software Engineering, Information Technology, and Information Systems), I am frequently contacted by corporations, law firms, and industry experts to provide professional assessments and expert letters.

As stated previously, my opinions are limited to the information that I received and my educational and professional experience and judgment. The documents that I reviewed regarding this Software Engineer position included the following:

1. A copy of a Job Description for this Software Engineer position.
2. A copy of the list of education and knowledge/skill requirements for the position.

The duties of this Software Engineer position are:

1. Design and develop large scale customized web applications on Unix/Linux platform
2. Translate customers' requirements into system requirement specifications
3. Perform unit, integration, and system testing on web application to ensure that the application modules are working properly
4. Troubleshoot applications problems and provide technical solutions to the problems
5. Implement new functionalities and features to improve existing web application modules
6. Document system infrastructure and schema

The stated education requirement for this position is: "BS in Computer Science, Information Technology, or Engineering related field".

The stated knowledge/skill requirements are: "Solid knowledge/skills in PHP, Java, HTML, CSS, JavaScript, MySQL, Oracle".

The duties of this position are very typical for a Software Engineer working in the area of web application development. Likewise, both the education requirement and the knowledge/skill requirements are standard for a Software Engineer in the area of web application development.

I have been asked to discuss the amount of training time needed for someone to gain the skills s/he lacks in order to successfully complete the duties of this position. I will assume that the person meets the education requirement, that is, they have earned a Bachelor of Science degree with a major in Computer Science, Information Technology, or Engineering related field.

The knowledge/skills necessary to complete the duties of this position are listed as "Solid knowledge/skills in PHP, Java, HTML, CSS, JavaScript, MySQL, Oracle" and a careful study of the duties of this Software Engineer position verify that these are the essential skills. The listed skills are also the usual requirements for a Software Engineer in the area of web development and are not out of the ordinary in any sense. These skills can be broken into three distinct categories of knowledge/skills: 1) Java programming, 2) PHP, HTML, CSS, and JavaScript programming, and 3) MySQL and Oracle. I will discuss each in turn:

1) Java programming:

To become proficient in the Java programming language to the level required for this position would require more than a month of focused study even if the person had a background in another object-oriented programming language (such as C++ or Python). Pointer handling (memory references), built-in procedures, data calls, coding flexibility, and module design (to name just a few things) are unique to Java with respect to other object-oriented languages. On the other hand, a person without a background in object-oriented programming would take many months to become proficient in Java. Large fundamental differences and concepts such as data structures, data handling techniques, and module development within Java are very different from procedural languages (such as C, Fortran, or Basic) and requires an entire change of mindset.

2) PHP, HTML, CSS, and JavaScript programming:

These are standard scripting languages used extensively in web programming. If an applicant has knowledge of 3 of the 4 languages, or even 2 of the 4, then we can conclude that they have

experience with web programming and the missing skills should be able to be learned and developed relatively quickly. Missing 3 or all of the 4 skills is an indication that it would require a major learning curve for the applicant to learn the missing skills. It would take much longer than a month of focused effort to pick up any 3 of the skills and many months of work and study if all 4 are missing.

3) MySQL and Oracle:

These are database systems each with their own particular languages, data storage scheme, and procedure handling. MySQL is the world's most used open source (free in the public domain) database while Oracle is one of the world's largest and most complex database systems. Universities will typically offer a semester-long or year-long database course using one of these two database management systems and students interested in database development will often use it as part of their senior project. Not surprisingly, MySQL is used more often than Oracle because it is free. Database classes are normally electives so not all university students study the topic. Without any database background, it would take many months of work and study to become proficient in each of them to the point of being able to perform the duties of this position. Missing knowledge of one of either MySQL or Oracle, means that the person would have a database background using a similar RDBMS (Relational DataBase Management System). Even with this similar background, it would take more than a month of focused study to learn the nuances of the missing database system necessary to perform the duties of this position; much more than a month if it is Oracle that is missing.

In summary, an applicant for this particular Software Engineer position, with the required educational background, must also have all of the necessary knowledge/skills to successfully complete the duties of the position. It should be noted that, in the IT industry, most employers do not offer on-the-job training. Employees are normally hired already having the necessary specific skills related to the position. It is very common for Software Engineers to enlarge their skillset and expand their knowledge either through self-study or through many years of work experience but they must come into a position already possessing the knowledge/skills required to perform the duties of the position.

In conclusion, it is my professional opinion that the skills and knowledge necessary to perform the duties of this specific Software Engineer position could not be acquired during a reasonable period of on-the-job training.

If you have any questions, please feel free to contact me at: (360) 568-9337 or at pprins@spu.edu.

Sincerely,

A handwritten signature in black ink, appearing to read 'Philip R. Prins', written in a cursive style.

Philip R. Prins, Ph.D.