

Interview Questions

Jeremiah Mahler

<jmmahler@gmail.com>

October 13, 2015

1 Introduction

This is a collection of questions that I have been asked, or have asked, during job interviews. The technical questions are related to Electrical Engineering and Programming. And included are notes describing how I would answer a question as well as what I am looking for in an answer.

2 Questions For Managers

In general I am looking for a manager who leads has employees and gives them the freedom to do their best work.

1. If I was hired for this position what would be the first project that I would work on?
2. What are your favorite books that have influenced your management style?
 - Peopleware by Tom DeMarco
 - Getting Things Done by David Allen
 - Drive by Daniel Pink
 - The Mythical Man Month by Frederick P. Brooks
3. Tell me about a time when there was a disagreement among your employees.
 - Was he able to convince them without asserting his authority?
4. Tell me about a time when one of your employees disagreed with you.
 - Was he able to convince them without asserting his authority?
5. (similar) Have you ever had to tell an employee to do something that they disagreed with you about?
6. If an employee did something different than what you told them to do, how would you respond?
 - Does he trust his employees?
 - Or is he threatened by a loss of control?
7. (follow up) What if the solution they came up with was significantly better?
8. If you had no authority over your employees would they still do what you ask?
 - A boss or a leader?

- A boss leverages his authority to force employees to do what he wants.
- People will follow a leader even if they have no authority.

3 Questions From Managers

1. Where do you see yourself in 5 years?
 - Should have a specific goal that they are trying to achieve. And the position being sought should align with that goal.
2. Do you have any questions for me?
 - Should have lots of questions which shows an interest in the company and the position. (see "Questions For Managers" section)
3. Why would you be a good candidate?
 - There are many reasons why I would be a good candidate. But there are probably only a few that you are interested in. Describe to me your ideal candidate and I will tell you if I have anything in common.

4 Questions From Electrical Engineers and Programmers

1. What is your favorite programming language?
 - My favorite language is Lisp because it changed the way I think about programming. Things such as: Prefix notation, anonymous functions, tail recursion, functional programming, macros, linked lists, etc.
2. What is a memory leak?
 - A memory leak occurs when memory is allocated but is not freed. If this leak occurs inside a loop it can quickly consume all the memory in the system.

Most often this occurs in C when a malloc is performed without a corresponding free. There are also functions which internally allocate memory and return a pointer. These must be freed to avoid a leak.

A good tool for finding memory leaks when using Gcc is Valgrind.
3. Tell me about a challenging problem that kept you up at night.
4. Why did you choose Electrical Engineering?
 - I considered several degrees which were of interest to me: Computer Science, Computer Engineering and Electrical Engineering. I already had a lot of experience programming so Computer Science would have been the least challenging. However, the low level circuits and electronics were interesting to me as well. I chose EE because it was the most challenging degree that was of interest to me.
5. Plot the magnitude of a 16-bit signed and unsigned number.
 - Magnitude of Signed/Unsigned 16-bit

5 Questions For Electrical Engineers and Programmers

1. Have you ever written good quality C code that used a goto statement?
 - The general rule is to never use goto statements. But in Linux device drivers they are used to undo allocated resources during module insertion. This is the one place where a goto is acceptable.
2. If your manager had no authority to fire you would you still do what he asks?
 - A boss or a leader?
3. Tell me about a time when you disagreed with your manager.
 - Did his manager assert his authority to get him to do something he did not agree with?

6 Questions For Others, General

1. What is a typical day for you like?
2. What surprised you the most about working here that you did not anticipate before you were hired?
3. Are you allowed any time to work on your own ideas?
 - Google 20% time. A great way to keep employees enthusiastic about the projects they are working on. And the company often benefits from their good ideas.
4. Tell me about some of the projects you have worked on here.

7 Questions From Recruiters

1. Why do you want to work for this company? Why not competitor X or Y?
 - (Tesla) The benefits of the electric car on our society is obvious (cleaner air, reduced dependence on foreign oil, more efficient, etc). And yet most manufacturers choose not to develop an electric car even though they have more than enough resources to do so. I don't want to work for any manufacturer where profit is the primary goal and the long term health of our society is secondary.
2. Why do you think you would be a good candidate at this company?