Job interviews - preparing for a job interview

I. Assignment

- Choose 7 questions from the list provided on Moodle and formulate coherent answers to these questions. If you think you could come up with better questions related to your field, don't hesitate to do additional research or formulate your own questions. If you come up with your own questions, motivate your choice.

- Choose 4 questions related to your field and 3 general questions

- Your grade will be based on the following criteria:

  → Your ability to express yourself clearly (in terms of language use, not in terms of content): use appropriate terms, phrases and expressions, be aware of transferring elements from French, pay attention to pace and intonation.
  → Structure - prepare your answers thoroughly: don't start talking and then see where you will end up
  → Variety in terms of the selected questions
  → Natural delivery - reading or reciting will significantly impact your grade

- Record yourself (video) answering your 7 selected questions and upload your recording to Moodle: 4 to 7 minutes

A. General questions

What feedback in terms of the results you were able to produce have you been given by project or internship supervisors?

What feedback in terms of your personality have you been given by project or internship supervisors and why?

What do you get out of engineering that you couldn't get from any other kind of work?

What checks and balances do you use to make sure that you don't make mistakes?

In what instances have you demonstrated leadership skills, and how would you describe your style?

What personal characteristics do you feel are necessary to be a successful engineer?

Describe an experience with a difficult client when working as an intern. How did you handle the situation?

Describe a time when you questioned your choice of engineering as a career or major.

Describe a time when you received criticism from a supervisor or professor. How did you respond?

B. EISE5-questions

Describe the job of an embedded systems engineer in general terms

Explain what the need is for an infinite loop in embedded systems?

Discuss a couple of options for wireless communication between embedded devices.

Describe the role of a watchdog timer.

Is firmware and data embedded in microcontrollers generally safe from downloading, tampering, or hacking?

Since 32-bit and 64-bit microcontrollers exist, why are 8-bit ones still in use?

Why are C and C++ still very popular and widely supported in embedded firmware development?

Describe the pros and cons of using a generic real-time operating system (RTOS) on a mid-range microcontroller.

In platforms with significant constraints on memory size, is it more preferable to allocate memory statically or dynamically?

What are the most common errors found in embedded systems?

What is interrupt latency and how can you reduce it?

What is Java mostly used for in embedded systems?

How are macros different from inline functions?

What is RTOS and what is it used for?

What are the different types of buses used by the embedded systems?

What is the difference between mutexes and semaphores?

C. MAIN5 - questions

Can you think of a time where you experienced an unexpected problem with bringing together data from different sources? How did you eventually solve it?

How did you choose a career in data engineering?

Data engineers collaborate with data architects on a daily basis. What makes your job as a data engineer different?

Do you consider yourself database- or pipeline-centric and why?

Which ETL tools have you worked with? Do you have a favorite one? If so, why?

Which frameworks and applications are critical for data engineers, in general?

Which of these frameworks/applications have been most useful to you when working on your university projects or internships?

Have you built data systems using the Hadoop framework? If so, please describe a particular project you've worked on.

Explain the steps that need to be taken to implement a Big Data solution

How is big data analysis helpful in increasing business revenue ?

Do you have extensive experience working in a cloud computing environment? What benefits and challenges would you associate with this environment?

What is your experience level with NoSQL databases? Give me an example of a project/situation where you found building a NoSQL database to be more appropriate than a relational database.

Describe a time when you found a new use for existing data that had a positive impact on the business

What are the technical trade-offs made in the system design? (i.e. Why did you use framework X instead of other alternatives?)

What were some of the technical statistics related to your project? (e.g. What is the throughput and latency of your data pipeline?)

What's the trade-off between bias and variance?

What's your favorite algorithm, and can you explain it to me in less than a minute?

What's the difference between a Type I and Type II error?

What is deep learning, and how does it contrast with other machine learning algorithms?

Which is more important to you: model accuracy or model performance?

How would you handle an imbalanced dataset?

Do you have research experience in machine learning?

What are your thoughts on GPT-3 and OpenAI's model?

What models do you train for fun, and what GPU/hardware do you use?

How do you think quantum computing will affect machine learning?

What AI and machine learning tools are you familiar with, and how proficient are you in them?

What are some of the ethical implications of using machine learning?

Could you explain the differences between unsupervised, supervised, and reinforcement learning?

Data engineers generally work “backstage”. Do you feel comfortable with that or do you prefer being in the “spotlight”?

Have you ever proposed changes to improve data reliability and quality? Were they eventually implemented? If not, why not?