



JOB INTERVIEW CLOUD NATIVE DEVELOPER

Preparation Exercise

The following project description and the attached user stories describe a typical situation in the daily life of a developer. Please prepare all 4 tasks in advance of the job interview. During the job interview you will have the opportunity to share your solutions and to discuss them with us.

Please prepare an architecture sketch for task 1 before the interview. The interview is completely done with the Codility live interview. Please be prepared to paste your prepared content into a white board.

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Project Description

One of our customers, a company operating a large wastewater network, has problems with overflowing combined sewers (wastewater and rainwater in the same sewer) into surface waters. The aim is to predict when combined sewers are likely to overflow, especially if the rain is not heavy, leading to a high concentration of wastewater in surface waters, caused by the overflow. The network and sewers are known, the assets as well as the instrumentation (pump power consumption, flow, rainfall, etc.) are widely distributed in the area and not connected to a central control system.

The product owner of the software development team has defined a backlog of user stories. The user stories describe the requirements that our application shall address.

Product Backlog

Sample of representative user stories from the backlog

ID	User Story
1	As an operator I want to have an indication, which sewers are likely to overflow in case of heavy rain. I want to have information on the location of the sewers and the possible cause of the problem, that I can send a technician to the check the sewer.
2	As an operator, I want to calculate what sewers are likely to overflow before the event happens.
3	As the CEO of my company, I want the application running in the cloud to lower my total cost of ownership. All data transfers must be secure.
4	As an operator I want to visualize three different KPIs in one diagram (x-axis time, y-axis KPI) so that I can identify trends for KPIs. Which KPI is to be shown should be configurable.

Task Description

ID	Task
1	The team architect is unfortunately ill, and the product owner has asked you to create a high-level architecture to realize user stories 1-4. The other day he wanted you to sketch your proposal on the whiteboard to discuss with him how the requirements might be realized.
2	Before the refinement meeting, you have been asked to refine user story 2 by so called developer tasks. In our project a developer task can be completed within 8-16 hours including the necessary activities to ensure the required quality. Please refine user story 2.
3	Your chief security officer asked you about the progress of user story 3 and what it would mean to transmit and store data with a public cloud provider. In particular Amazon Web Services is her favorite. Since she does not have the relevant information about the security of a cloud provider you start to explain her the principles.
4	Due to the high-pressure of the project it is required to make use of 3 rd party components for user story 4. The visualization is considered as one of the topics that has high complexity. Therefore, you volunteer to identify one visualization framework and describe why it is useful for the given application.

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