Backend Python Software Engineer - Technical Challenge

Problem

In our company we have built a custom-made CRM that our sales agents use on a daily basis. That system is basically a sales pipeline where leads could convert into prospects of our company. In order to convert them into prospects, our sales agents need to run some manual checks to validate that the person is eligible to be a prospect of our company.

In order to automate those manual checks, we need to integrate with other external systems and include the functionality in the CRM to let our sales agents to trigger those validations by demand. Every lead exists in the sales lead CRM stage with basic personal information (national identification number, birthdate, first name, last name, email, etc). The criteria to turn a sales qualified lead into a prospect is to pass various validations with different systems:

- The person should exist in the national registry identification external system and their personal information should match the information stored in our local database.
- The person does not have any judicial records in the national archives' external system.
- Our internal prospect qualification system gives a satisfactory score for that person. This system outputs a random score between 0 and 100. A lead could be turned into prospect if the score is greater than 60.

The first two validations are non-dependent between each other. Therefore, it is expected to execute those validations **in parallel**. The third validation requires the output of the previous systems in order to send that data to our internal prospect qualification system to execute the third validation. If the final validation is

successful, the lead will be converted into a prospect and it will be moved from the sales lead stage into the prospect stage of the sales pipeline.

Technical considerations

- External systems should be implemented as a function that responds with a success or a failure depending on the prospect that is being consulted. Please simulate latency between our system and the external systems. Those external systems are a **fictional** implementation that could be developed using *HTTP Stubs*. However, you are free to use any technique that allows you to simulate those requests.
- We want to understand your approach to solve a simple business problem with correct separation of concerns.
- Please use Python as the programming language. You are free to use functional paradigm or object-oriented programming. You are free to use libraries or frameworks that you consider relevant for the implementation.
- **We expect** automated tests that proves the correctness of the developed solution.
- **We expect** a README with the decisions, assumptions or improvements that can be done on the technical challenge.
- **We do not expect** the development of a user interface neither the development of a client-server solution. A simple CLI will do the job.
- **We do not expect** that you use infrastructure components like databases or message queues.