Technical challenge for Senior Backend Engineer

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Version	0.1

About

We have chosen a task to allow you to display your skills while hopefully not being too time consuming. We hope you find it realistic and it gives you an opportunity to demonstrate your professional quality and technical ability.

Requirements

- Use the Python Django framework to create the application
- Runs on docker and the application can be started with a single command `docker-compose up`
- The running application can be reached in the browser at [docker host]:8080
- Make commits regularly and with messages typical of your git commit style
- Deliver the test a Github repository

The Challenge

We would like you to show us your application design and development ability. It is an opportunity for you to display your software engineering best practices and expertise and a strong focus on the security, performance and maintainability of the application.

Task

We would like you to create a simple Django application and implement the user story described below. It assumes the starting point to be a simple Django application and a Postgres database (feel free to add other databases if you see fit).

You will create a simple TODO application, allowing users to create a TODO list, add, edit, delete and mark tasks as done and then implement the following story.

The focus of this task is on the backend solution. Any work done on the front end should be kept to a minimum (for example, no need to invest time in styles or front end frameworks) but we think it is important that you are aware of how the data/information is manipulated on the front end and used by the end user.

Story:

A user chooses the location of the task when creating/updating a task and, using the location data, the system retrieves the current weather (using Weather API) and changes the background colour of the task. Blue for “cold” or “rain”, Yellow-Orange for “warm” or “cloudy” and Red for “hot” or “sunny” (the product owner did not specify the exact parameters for temperature and colour).

Description:

AS A user of the TODO list application

I WANT TO choose the location of my tasks

SO THAT I have access to the local weather in real time

Acceptance Criteria:

GIVEN I am on the TODO list application

WHEN I click on the add tasks button

THEN I should be presented with an add tasks form

GIVEN I am on the TODO list application

WHEN I click on an specific task

AND click edit this task

THEN I should be presented with an edit tasks form

GIVEN I am on the add or edit tasks form

WHEN I click on the location drop-down list

THEN I should be presented with a list of possible locations

GIVEN I select a location from the drop-down list

WHEN I view the add/edit tasks form

THEN I should see the background colour changing

GIVEN I select a location from the drop-down list

WHEN I view the add/edit tasks form

THEN I should see the current temperature

GIVEN I am on the TODO list application

WHEN I view all of my tasks

THEN I should see the tasks displayed with respective colours to their local weather

Bonus features:

- When I mark a task as done, the task records the latest temperature but no longer updates it in real time.
- When I am presented with options to select a location, add a link to “get my current location” as a second option

Time:

There is not a time limit to complete the test although we recommend you return the test to us within 1 week and don’t spend more than a few hours on it.

Technical workshop

After you complete the test, you may be invited to a technical workshop. These are the topics we may cover:

- If you had more time, what are the optimisations and further refinements you would implement and why?
- Looking back at your test, what would you have done differently and why?
- What are the steps you would take to turn this prototype into an end product (eg, working with product managers and other software engineers)?
- What software engineering best practices and principles you believe are fundamental and relevant when developing commercial applications?

Your submission will be assessed using the following criteria:

- Technical competence
  - Code clarity
  - Product fitness to meet the purpose required
  - Clarity of thinking and ability to support your decisions in the task
- Communication skills:
  - Clearly written code comments
  - Ability to communicate clearly both in oral and written format demonstrating a clear grasp of the English language and the ability to express yourself clearly on both technical and open questions