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Backend - Software Engineering Skills Task - API Building

Welcome to our Back-End coding exercise! I'd like to thank you for your interest in annalise.ai. This exercise is intended to allow you to demonstrate your abilities in building APIs and if successful will provide us some talking points for your Round 1 Q&A interview with us. The team has been able to provide me with some info below regarding some of the expectations for this exercise. If there are any Q's or bits of feedback you'd like to provide (either positive or constructive), please feel free to share.

Description

Annalise.ai is designing an image tagging system that will help add tags to images that will be used for training a model. You are to create an API to manage images and their tags. Your API needs to support the ability to persist and modify data.

We will be assessing the following areas:

1. How well you can structure your project;
2. How well you can model your application and its domain types;
3. How data flows within your application;
4. Your understanding of your chosen language (TypeScript or Python);
5. Your ability to write clear, concise, and maintainable code; and
6. Your ability to verify the correctness of your solution.

The requirements are split into:

- **Essential:** Aspects of your submission we expect to be included – does your solution:
    - have an API written in TypeScript or Python
    - have endpoints for images and tags
    - persist data and/or metadata to a database
    - be secure against anonymous access
    - contain unit tests

- **Nice to Have:** Things we don't expect to see but would like to see – does your solution:
    - track which user/client has interacted with the API
    - support searching for tagged images by date

You are encouraged to treat this as a microcosm of a real project. The use of either Python 3 (with type annotations) or TypeScript is required. However, other technologies and libraries are at your discretion and are welcomed.

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Your submission is expected to include a README that describes how to run the project, your design approach, and a brief section on how you might deploy this into a Cloud environment such as AWS or GCP. You are not required to deploy this. Some questions you might want to answer:

- What would your ideal environment look like and how does this fit into it?
- How are subsequent deployments made?
- How could you avoid downtime during deployments?
- Assuming a stateless application, what does immutable infrastructure look like?
- What was missed in this implementation?
- What would you have liked to have added?
- One thing to also keep in mind is to ensure that your commit messages are meaningful and consistent!
- … so on

Once you're happy with your work, please push your code to a hosted upstream (e.g. GitHub, Bitbucket) and send us a link to your repository.

If there's anything I can do to help, please feel free to get in touch and I'll do my best to assist.

Thanks,
Calyph
Annalise-AI Recruitment Team