ASTRONOMER

Field Engineering Technical Exercise

This exercise is given to candidates for a Field Engineering position at Astronomer. It's designed to assess the candidates technical proficiency, creativity, and ability to communicate technical topics to both technical and non-technical audiences. The exercise is composed of three parts, working with the Astronomer CLI to create DAGs, exploring the task flow API, and then a presentation portion followed by Q&A.

Part 1 - Creating DAGs

Using the Astronomer CLI (CLI Quickstart), create a dev airflow environment on your local machine. You are asked to create 3 different types of DAGs.

1. Create a DAG with at least 4 tasks that are serially dependent.
2. Create a parallel DAG with at least 4 tasks where each task is run independently.
3. Create your own *crazy* DAG that results in the most complex looking "Graph View" representation of the DAG as possible. The more lines, dependencies, etc, the better! Feel free to have fun with this one.

   For your DAG implementation, you are free to build DAGs to do anything you want! It's ok to use Dummy Operators to supplement your story, as we're not expecting the DAGs to necessarily be Production Grade. The goal is to demonstrate familiarity and comfort with Airflow while allowing creativity.

Part 2 - TaskFlow API

For this portion of the exercise, take one of your DAGs created in part 1, and implement it using Airflow's Taskflow API (If you had already used the task flow API in part 1, then instead try to write the same dag without using the TaskFlow API)

Be prepared to discuss the Task Flow API during your presentation, such as in what scenarios the Taskflow API would be useful and what user personas might be more inclined to leverage the TaskFlow API.

Part 3 - Demo & Presentation

You'll be asked to give a 25-40 minute demo & presentation on your solutions to parts 1 and 2. This can be thought of as a solutions / sales presentation to an audience considering whether or not to use Airflow for a particular situation. You are free to create the story around the problem statement and DAGs you created in Part 1 for the presentation. The audience will

be a mix of both technical and non-technical participants. **A strong presentation will clearly communicate the value and benefits for the audience to use Airflow to solve a business problem.**

1. A brief introduction of yourself, where you work/live, and one fun fact.
2. An overview of the three DAGs you created in part 1.
3. A discussion of the TaskFlow API that was leveraged for part 2. For this portion, feel free to introduce the TaskFlow API as if the audience might not be familiar with it.
4. Any obstacles or hurdles you faced along the way.