culturemonkey

Job Market Analysis System

OBJECTIVE

Design and implement a job market analysis system using the provided dataset.

REQUIREMENT

Part 1: Data Analysis

Click here to download the dataset and analyze the job postings dataset to uncover skill requirement patterns:

- Compare the skill differences between entry-level and senior roles.
- Identify the top 3 in-demand skills across all positions.
- Discover one interesting pattern in the data that stands out to you.

Present your findings with supporting visuals using any preferred method.

Part 2: Data Visualization

Create visualizations using the dataset. Below are a few examples

- A chart comparing required skills across different seniority levels (Entry vs. Mid-Senior positions)
- A visual showing geographic distribution or salary patterns for ML job positions.

Include brief explanations of your findings.

Part 3: Skill Trend Detector

Build a computational model that:

- Extracts technical skills from job descriptions
- Classifies each skill as either "new/emerging" or "common/established" based on frequency patterns and contextual clues

Part 4: Deployment

Create a simple REST API that deploys the model:

Skill Trend Detector Endpoint:

Sample Request Payload:

```
{
  "job_description": "Experience with PyTorch, TensorFlow, and
diffusion models required..."
}
```

Sample Response Payload:

```
{
  "detected_skills": [
    {"skill": "PyTorch", "category": "established", "trend_score":
0.82},
    {"skill": "TensorFlow", "category": "established", "trend_score":
0.91},
    {"skill": "diffusion models", "category": "emerging",
"trend_score": 0.67}
  ]
}
```

Include setup instructions and basic API documentation.

EXPECTATION

- Tech stack of your choice that best highlights your skills.
- Ensure robust validations and error handling throughout the application.
- Additional features or enhancements beyond the requirements will be highly regarded.
- Please share the final code via a **Git** repository, along with a concise **documentation** of the application's functionality, **Google Colab** with analysis and visualizations, **model files** and a **video demo**.

- **Timeline:** Target completion within **1 day**.

NOTE: *Your code submission will be evaluated to determine if it was **AI-generated**. Ensure that your work is original and aligns with the assignment requirements.*