Quantigo AI

Case Study

Purpose

The purpose of this test is to evaluate your analytical abilities. A case study is integral when selecting candidates for an engineering post. It allows the candidates to experience situations that they might actually face in the current world. When responding to the questions, add the source code you used to derive the answer.

Scenario:

1. Suppose You have a JSON file: pos_0.png.json. Your job is to write a python script that will read JSON from a folder and convert this format into a standard format: **formatted_pos_0.png.json**

   ****note:** object attribute (presence) will depend on whether the class(vehicle or license plate) is present on the raw JSON. If both the categories are missing look at the example **formatted_pos_10492.png.json**

   You may test out your code with the following jsons:
   Pos_0.png.json
   Pos_10010.png.json
   Pos_10492.png.json

   Answer:

```
import json
import os

def convert_json(input_file, output_file):
    with open(input_file, 'r') as f:
        data = json.load(f)

    formatted_data = {
        "file_name": os.path.basename(input_file),
        "objects": []
    }

    if "objects" in data:
        for obj in data["objects"]:
            obj_class = obj.get("class")
            presence = obj.get("presence", False)
            formatted_data["objects"].append({
                "class": obj_class,
                "presence": presence
```

```
            })

        with open(output_file, 'w') as f:
            json.dump(formatted_data, f, indent=4)

    folder_path = "QuantigoAI"

    json_files = [f for f in os.listdir(folder_path) if f.endswith(".json")]

    for json_file in json_files:
        input_file = os.path.join(folder_path, json_file)
        output_file = os.path.join(folder_path, "formatted_" + json_file)
        convert_json(input_file, output_file)
```

2. Write a python that can read json from a folder and combine the test jsons (Pos_0.png.json,Pos_10010.png.json, Pos_10492.png.json) into a single json file and then change the class names into vehicle>car, license plate >number

Answer:

```
import json
import os

def combine_and_transform_json(folder_path, output_file):
    combined_data = {
        "objects": []
    }

    # List all JSON files in the folder
    json_files = [f for f in os.listdir(folder_path) if f.endswith(".json")]

    for json_file in json_files:
        with open(os.path.join(folder_path, json_file), 'r') as f:
            data = json.load(f)

        if "objects" in data:
            for obj in data["objects"]:
                obj_class = obj.get("class")
                presence = obj.get("presence", False)

                if obj_class == "vehicle":
                    obj_class = "car"
```

```
            elif obj_class == "license plate":
                obj_class = "number"

            combined_data["objects"].append({
                "class": obj_class,
                "presence": presence
            })

    with open(output_file, 'w') as f:
        json.dump(combined_data, f, indent=4)

folder_path = "QuantigoAI/Json"

output_file = "combined_json.json"

combine_and_transform_json(folder_path, output_file)
```

NO 2 is mandatory to finish.

Sample Jsons link:

https://drive.google.com/file/d/1OztzUGW3iemKgFLNdatYA69FwqCtA5Tx/view?usp=sh aring

Thank you for showing your interest in Quantigo AI.