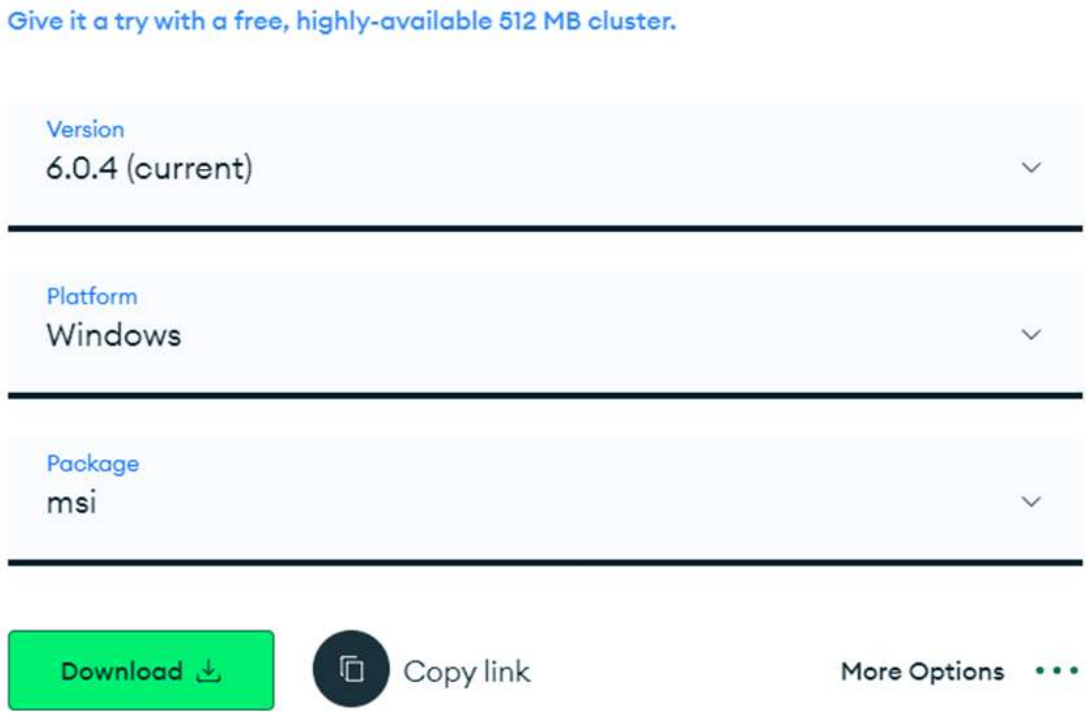
This note will only serve to test the API

- First download MongoDB Client (https://www.mongodb.com/try/download/community (https://www.mongodb.com/try/download/community))



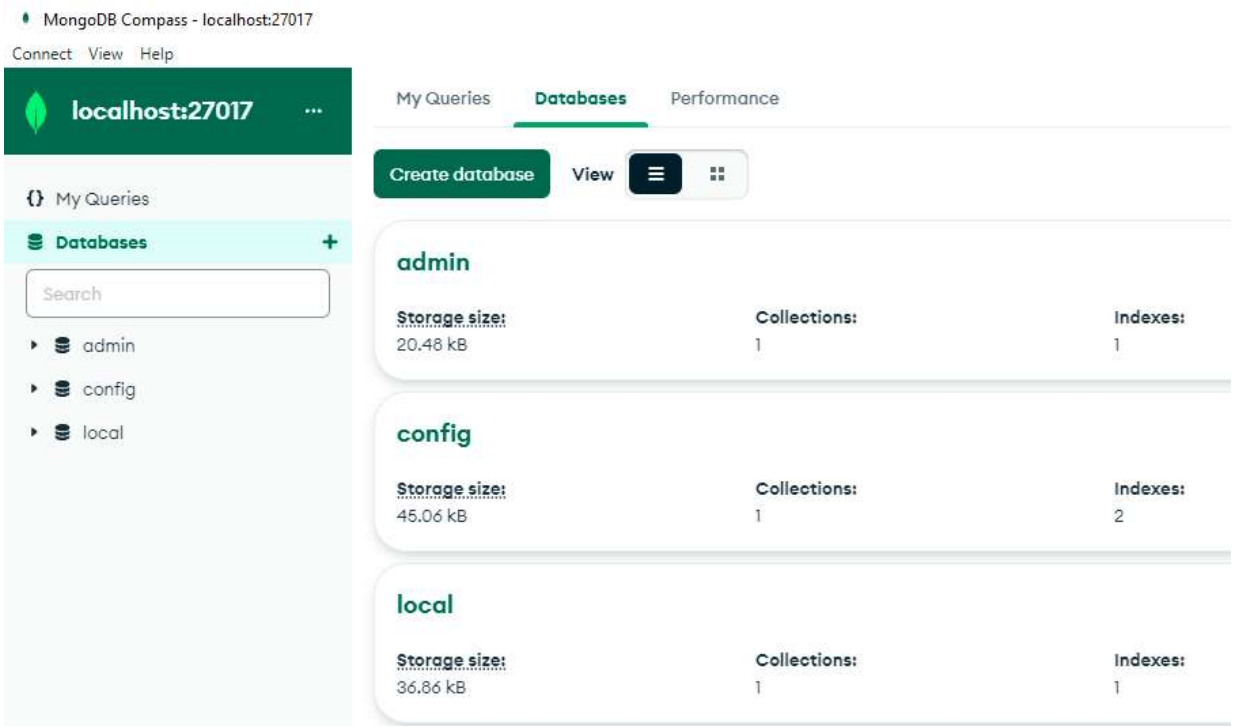
- Get Docker to deploy the API (https://www.docker.com/products/docker-desktop/ (https://www.docker.com/products/docker-desktop/))

- You must have Python 3.7 or high to execute this code
- Before executing PIP for libraries installation, make sure that you have updated PIP

- python.exe -m pip install --upgrade pip
- Install following important libararies for this project
  - fastapi
  - pydantic
  - uuid
  - pymongo
  - uvicorn
  - Other libraries are usually bydefault

My System is ready Now

- Lets check MongoDB



Now Lets Move to System Implementation

I have written different modules using classes and functions and deployed over FastAPI.

- to check those functions, check `main.py` file (attached with email)

How to execute this?

- You can execute main.py from CMD by using:-
  - uvicorn main:app --reload
- Or you can place following code at the end of main.py file. (I have done this)

```
if __name__ == "__main__":
    uvicorn.run("main:app", host="127.0.0.1", port=8000, reloa
d=True)
```

- Then simply execute `python main.py`
- You can change port number easily from above option
- You can change host to other server address

How to create Database in Mongo?

```
client = pymongo.MongoClient("mongodb://localhost:27017/")
db = client["candidate_db"]
```

Now Lets Go to main.py

-

-

-

Welcome Back

Now Docker Deployment

Here are the steps to deploy the code as a Docker-Compose application:

Create a Dockerfile for the API code:

In the same directory as the code, create a file named "Dockerfile".

Add the following code to the file:

```
FROM python:3.8-slim-buster

COPY . /app
WORKDIR /app

RUN pip install fastapi uvicorn pydantic uuid

ENV PYTHONUNBUFFERED=1

CMD ["uvicorn", "main:app", "--host", "0.0.0.0", "--port", "8000"]
```

Create a docker-compose.yml file:

In the same directory, create a file named "docker-compose.yml".

Add the following code to the file:

```yaml
version: '3'
services:
  api:
    build: .
    ports:
      - 8000:8000
```

Run the Docker Compose command:

In the terminal, navigate to the directory where the Dockerfiles are located.

Run the following command:

```bash
docker-compose up --build
```

Test the API:

Once the containers are up and running, you can test the API by accessing [http://localhost:8000 (http://localhost:8000)](http://localhost:8000) in a web browser or using a tool like curl or postman.

This will deploy the FastAPI code as a Docker-Composed application. Note that this assumes you have Docker and Docker Compose installed on your system.

Now Execute the Fast API

```
(base) D:\UPWORK\Esraa Python Developer Interview>python main.py
[32mINFO[0m:     Will watch for changes in these directories: ['D:\\UPWORK\\Esraa Python Developer Interview']
[32mINFO[0m:     Uvicorn running on [1mhttp://127.0.0.1:8000[0m (Press CTRL+C to quit)
[32mINFO[0m:     Started reloader process [[36m[1m7816[0m] using [36m[1mWatchFiles[0m
[32mINFO[0m:     Started server process [[36m3860[0m]
[32mINFO[0m:     Waiting for application startup.
[32mINFO[0m:     Application startup complete.
```

Lets Test the APIs

Initially DB is empty - No Database

Now Lets Check

simply type http://localhost:8000/ (http://localhost:8000/) in URL

If you see following, means API is working

Call API to create/ Add user

In [251]:

```python
import requests

def addUser(payload):
    url = "http://localhost:8000/user"

    headers = {
        'Content-Type': 'application/json'
    }

    response = requests.post(url, json=payload, headers=headers)

    print(str(response.text))
```

In [252]:

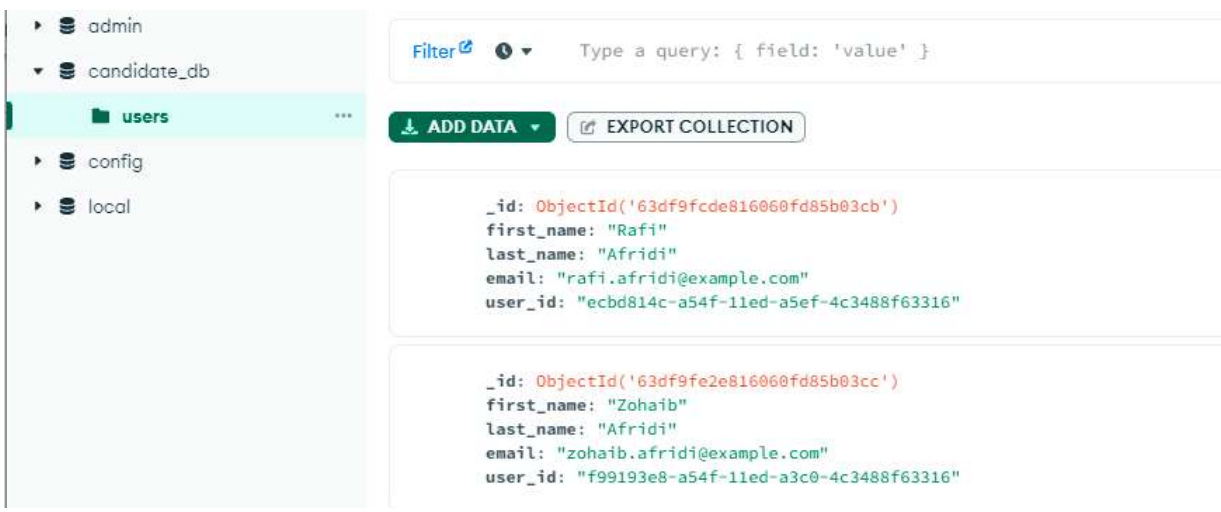
```python
payload = {"first_name":"Rafi", "last_name":"Afridi", "email":"rafi.afridi@e
addUser(payload)
```

```
{"user_id":"63df9fcde816060fd85b03cb","user":{"first_name":"Rafi","last_nam
e":"Afridi","email":"rafi.afridi@example.com"}}
```

In [253]:

```python
payload = {"first_name":"Zohaib", "last_name":"Afridi", "email":"zohaib.afri
addUser(payload)
```

```
{"user_id":"63df9fe2e816060fd85b03cc","user":{"first_name":"Zohaib","last_nam
e":"Afridi","email":"zohaib.afridi@example.com"}}
```



How to convert Str Obj value to ObjectID

In [254]:

```python
string_object_id = "63df9fcde816060fd85b03cb"
object_id = bson.ObjectId(string_object_id)
object_id
```

Out[254]:

```
ObjectId('63df9fcde816060fd85b03cb')
```

In [255]:

```python
def addCandidate(payload, user_id):

    url = "http://localhost:8000/candidate"

    headers = {
    'Content-Type': 'application/json',
    'Authorization' : user_id
    }

    response = requests.post(url, json=payload, headers=headers)

    print(response.status_code)
    print(response.json())
```

Call API to create/ Add Candidate

In [256]:

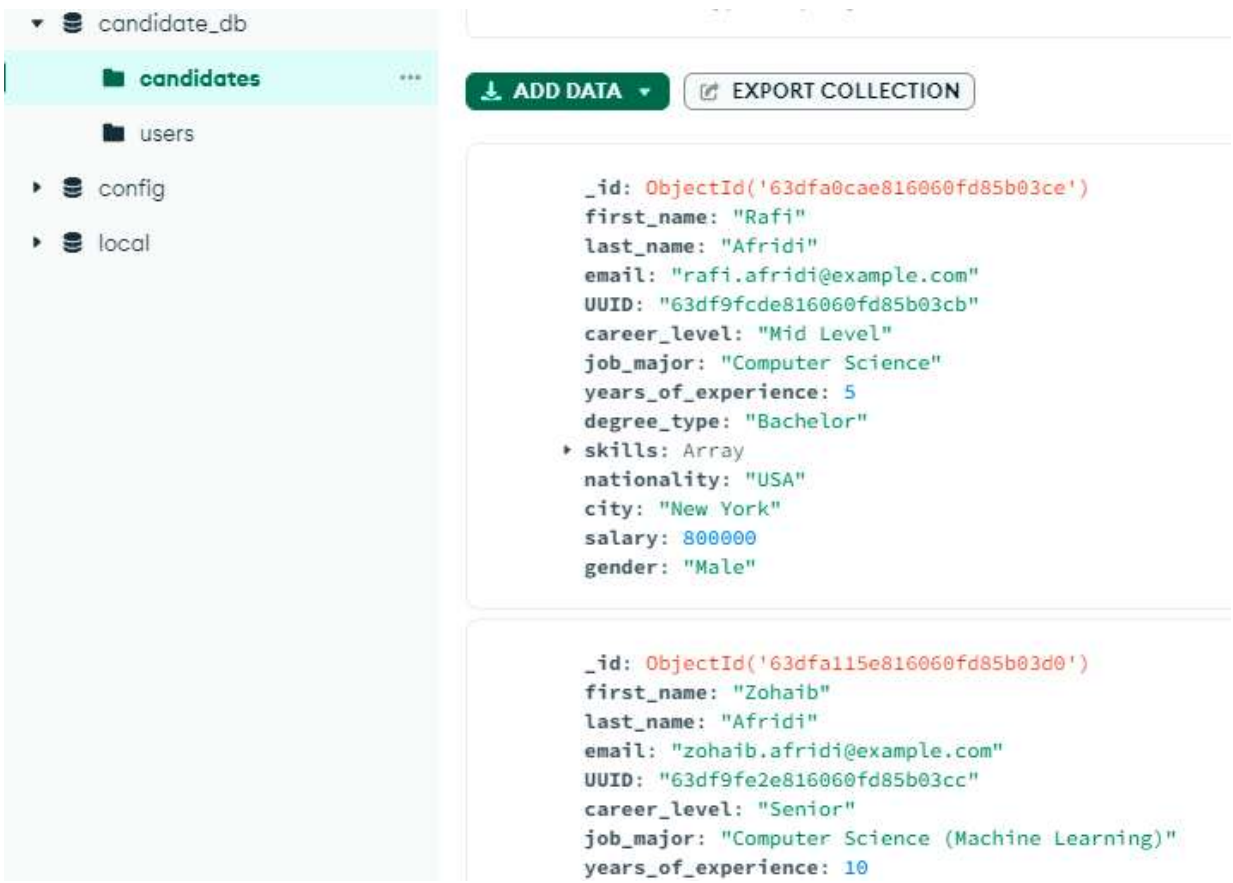
```python
payload = {
    "UUID" : '63df9fcde816060fd85b03cb',
    "first_name":"Rafi",
    "last_name":"Afridi",
    "email":"rafi.afridi@example.com",
    "career_level": "Mid Level",
    "job_major": "Computer Science",
    "years_of_experience": 5,
    "degree_type": "Bachelor",
    "skills": ["Python", "JavaScript", "SQL"],
    "nationality": "USA",
    "city": "New York",
    "salary": 800000,
    "gender": "Male"
}
user_id = "ecbd814c-a54f-11ed-a5ef-4c3488f63316"

addCandidate(payload, user_id)
```

```
200
{'message': 'Candidate created successfully'}
```

In [257]:

```python
payload = {
    "UUID" : '63df9fe2e816060fd85b03cc',
    "first_name":"Zohaib",
    "last_name":"Afridi",
    "email":"zohaib.afridi@example.com",
    "career_level": "Senior",
    "job_major": "Computer Science (Machine Learning)",
    "years_of_experience": 10,
    "degree_type": "Masters",
    "skills": ["Python", "Flask", "SQL"],
    "nationality": "Pakistan",
    "city": "New York",
    "salary": 800000,
    "gender": "Male"
}
user_id = "f99193e8-a54f-11ed-a3c0-4c3488f63316"

addCandidate(payload, user_id)
```

```
200
{'message': 'Candidate created successfully'}
```



Call API to get All Candidates

In [292]:

```python
import requests

url = "http://localhost:8000/all-candidates"


headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

response = requests.get(url, headers=headers)

response.json()
```

Out[292]:


```
{'candidates': [{'first_name': 'Rafi',
   'last_name': 'Afridi',
   'email': 'rafi.afridi@example.com',
   'UUID': '63df9fcde816060fd85b03cb',
   'career_level': 'Mid Level',
   'job_major': 'Computer Science',
   'years_of_experience': 5,
   'degree_type': 'Bachelor',
   'skills': ['Python', 'JavaScript', 'SQL'],
   'nationality': 'USA',
   'city': 'New York',
   'salary': 800000.0,
   'gender': 'Male'},
  {'first_name': 'Zohaib',
   'last_name': 'Afridi',
   'email': 'zohaib.afridi@example.com',
   'UUID': '63df9fe2e816060fd85b03cc',
   'career_level': 'Senior',
   'job_major': 'Computer Science (Machine Learning)',
   'years_of_experience': 10,
   'degree_type': 'Masters',
   'skills': ['Python', 'Flask', 'SQL'],
   'nationality': 'Pakistan',
   'city': 'New York',
   'salary': 800000.0,
   'gender': 'Male'}]}
```


If unathorized person call API, then

In [259]:

```python
import requests

url = "http://localhost:8000/all-candidates"


headers = {
    'Authorization' : "unathorized person"
}

response = requests.get(url, headers=headers)

response.json()
```

Out[259]:

```
{'detail': 'Not authorized'}
```

API Call to Extract Candidate using ID

In [261]:

```python
import requests

# Update endpoint
url = "http://localhost:8000/candidate/{candidate_id}"
# Replace `candidate_id` with the id of the candidate you want to update
url = url.format(candidate_id="63dfa0cae816060fd85b03ce")

print(url)

headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

response = requests.get(url, headers=headers)

response.json()
```

http://localhost:8000/candidate/63dfa0cae816060fd85b03ce (http://localhost:8000/candidate/63dfa0cae816060fd85b03ce)

Out[261]:

```
{'_id': '63dfa0cae816060fd85b03ce',
 'first_name': 'Rafi',
 'last_name': 'Afridi',
 'email': 'rafi.afridi@example.com',
 'UUID': '63df9fcde816060fd85b03cb',
 'career_level': 'Mid Level',
 'job_major': 'Computer Science',
 'years_of_experience': 5,
 'degree_type': 'Bachelor',
 'skills': ['Python', 'JavaScript', 'SQL'],
 'nationality': 'USA',
 'city': 'New York',
 'salary': 800000.0,
 'gender': 'Male'}
```

In [262]:

```python
import requests

# Update endpoint
url = "http://localhost:8000/candidate/{candidate_id}"
# Replace `candidate_id` with the id of the candidate you want to update
url = url.format(candidate_id="63dfa115e816060fd85b03d0")

print(url)

headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

response = requests.get(url, headers=headers)

response.json()
```

```
http://localhost:8000/candidate/63dfa115e816060fd85b03d0 (http://localhost:800
0/candidate/63dfa115e816060fd85b03d0)
```

Out[262]:

```
{'_id': '63dfa115e816060fd85b03d0',
 'first_name': 'Zohaib',
 'last_name': 'Afridi',
 'email': 'zohaib.afridi@example.com',
 'UUID': '63df9fe2e816060fd85b03cc',
 'career_level': 'Senior',
 'job_major': 'Computer Science (Machine Learning)',
 'years_of_experience': 10,
 'degree_type': 'Masters',
 'skills': ['Python', 'Flask', 'SQL'],
 'nationality': 'Pakistan',
 'city': 'New York',
 'salary': 800000.0,
 'gender': 'Male'}
```

If unathorized person call API, then

In [275]:

```python
import requests

# Update endpoint
url = "http://localhost:8000/candidate/{candidate_id}"
# Replace `candidate_id` with the id of the candidate you want to update
url = url.format(candidate_id="63dfa115e816060fd85b03d0")

print(url)

headers = {
    'Authorization' : "unknown person"
}

response = requests.get(url, headers=headers)

response.json()
```

```
http://localhost:8000/candidate/63dfa115e816060fd85b03d0 (http://localhost:800
0/candidate/63dfa115e816060fd85b03d0)
```

Out[275]:

```
{'detail': 'Not authorized'}
```

Search Data using Keywords

In [353]:

```python
import requests
url = "http://localhost:8000/all-candidates"
headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

params = {
    "query": "Flask"
}

response = requests.get(url, headers=headers, params=params)
```

In [354]:

```python
response.json()
```

Out[354]:

```
{'candidates': [{'first_name': 'Zohaib',
   'last_name': 'Afridi',
   'email': 'zohaib.afridi@example.com',
   'UUID': '63df9fe2e816060fd85b03cc',
   'career_level': 'Senior',
   'job_major': 'Computer Science (Machine Learning)',
   'years_of_experience': 10,
   'degree_type': 'Masters',
   'skills': ['Python', 'Flask', 'SQL'],
   'nationality': 'Pakistan',
   'city': 'New York',
   'salary': 800000.0,
   'gender': 'Male'}]}
```

In [352]:

```python
url = "http://localhost:8000/all-candidates"

headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

params = {
    "query": "Python"
}

response = requests.get(url, headers=headers, params=params)

response.json()
```

Out[352]:

```
{'candidates': [{'first_name': 'Zohaib',
   'last_name': 'Afridi',
   'email': 'zohaib.afridi@example.com',
   'UUID': '63df9fe2e816060fd85b03cc',
   'career_level': 'Senior',
   'job_major': 'Computer Science (Machine Learning)',
   'years_of_experience': 10,
   'degree_type': 'Masters',
   'skills': ['Python', 'Flask', 'SQL'],
   'nationality': 'Pakistan',
   'city': 'New York',
   'salary': 800000.0,
   'gender': 'Male'},
  {'first_name': 'Rafi',
   'last_name': 'Afridi',
   'email': 'rafi.afridi@example.com',
   'UUID': '63df9fcde816060fd85b03cb',
   'career_level': 'Mid Level',
   'job_major': 'Computer Science',
   'years_of_experience': 5,
   'degree_type': 'Bachelor',
   'skills': ['Python', 'JavaScript', 'SQL'],
   'nationality': 'USA',
   'city': 'New York',
   'salary': 800000.0,
   'gender': 'Male'}]}
```

In [355]:

```python
url = "http://localhost:8000/all-candidates"
headers = {
    'Authorization' : "f99193e8-a54f-11ed-a3c0-4c3488f63316"
}

query = "This Text Is Not Available"

response = requests.get(url, headers=headers, params={"query": query})

response.json()
```

Out[355]:

```
{'candidates': []}
```

Update Candidate using API Call

In [356]:

```python
import requests

# Update endpoint
url = "http://localhost:8000/candidate/{candidate_id}"

# Replace `candidate_id` with the id of the candidate you want to update
url = url.format(candidate_id="63dfa0cae816060fd85b03ce")

print(url)

# Replace with the updated candidate information
payload = {
    "first_name": "Rafi",
    "last_name": "Afridi",
    "email": "john.doe@example.com",
    "career_level": "Manager",
    "job_major": "Information Technology",
    "years_of_experience": 10,
    "degree_type": "Bachelor's",
    "skills": ["Python", "JavaScript", "HTML", "CSS", "FastAPI", "MongoDB",
    "nationality": "American",
    "city": "San Francisco",
    "salary": 100000,
    "gender": "Male"
}

# Replace `user_id` with the user's id who is making the request
headers = {
    "Authorization": "ecbd814c-a54f-11ed-a5ef-4c3488f63316"
}

# Make the PUT request
response = requests.put(url, json=payload, headers=headers)

# Check the response status code
if response.status_code == 200:
    print("Candidate updated successfully")
else:
    print("Failed to update candidate")
```

```
http://localhost:8000/candidate/63dfa0cae816060fd85b03ce (http://localhost:800
0/candidate/63dfa0cae816060fd85b03ce)
Candidate updated successfully
```

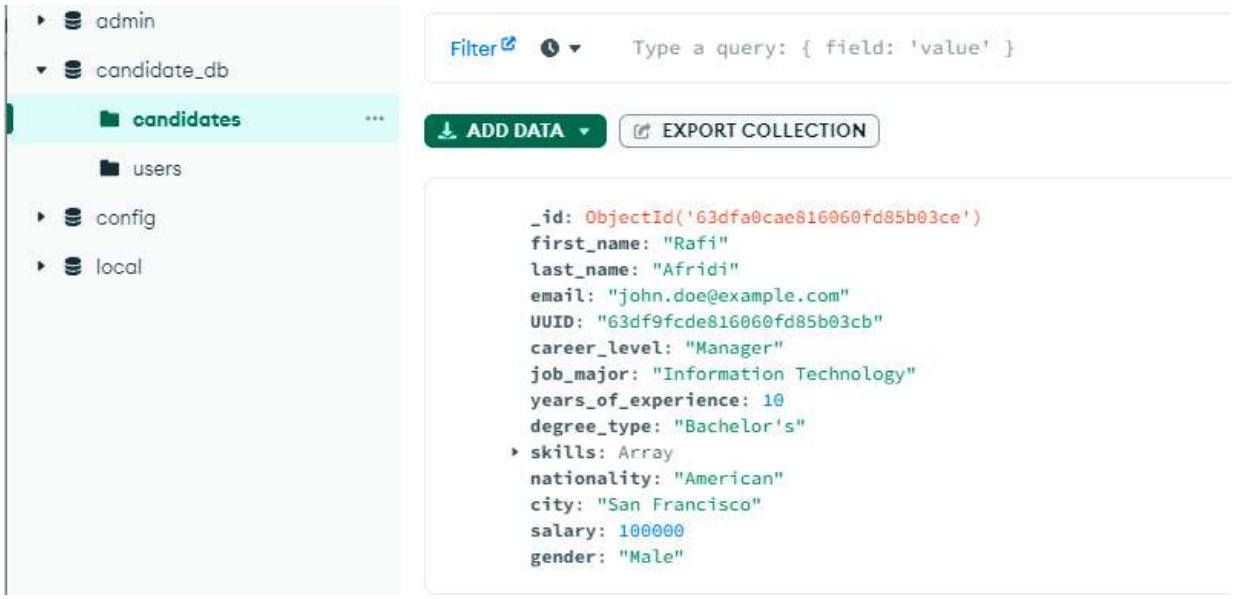
```
_id: ObjectId('63dfa0cae816060fd85b03ce')
first_name: "Rafi"
last_name: "Afridi"
email: "john.doe@example.com"
UUID: "63df9fcde816060fd85b03cb"
career_level: "Manager"
job_major: "Information Technology"
years_of_experience: 10
degree_type: "Bachelor's"
skills: Array
  0: "Python"
  1: "JavaScript"
  2: "HTML"
  3: "CSS"
  4: "FastAPI"
  5: "MongoDB"
  6: "Others"
nationality: "American"
city: "San Francisco"
salary: 100000
gender: "Male"
```


Delete Candidate using API Call

In [357]:

```python
import requests

# Define the URL for the endpoint
url = "http://localhost:8000/candidate/{candidate_id}"

# Define the header for the request
headers = {
    "Authorization": "ecbd814c-a54f-11ed-a5ef-4c3488f63316",
}

# Make a DELETE request to the endpoint, passing in the candidate_id and aut
response = requests.delete(url.format(candidate_id="63dfa115e816060fd85b03d0

# Check the response status code
if response.status_code == 200:
    print("Candidate deleted successfully")
else:
    print("Error deleting candidate:", response.text)
```

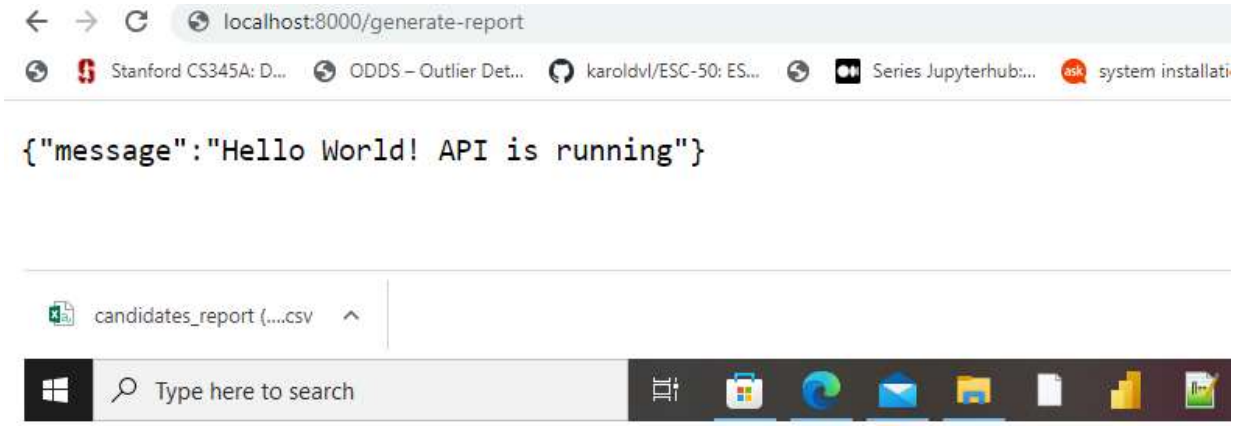
```
Candidate deleted successfully
```



Get Report

Go to [http://localhost:8000/generate-report (http://localhost:8000/generate-report)](http://localhost:8000/generate-report)

You will have CSV file as shown



Final Notes:

Assesment was amazing, i really enjoyed that. I have solved this as per my understanding in a bad condition (I had fever, because I was ill but I respect you and your valuable time - therefor i solved it rather wait for my health recovery).

I am will share all files with you.

If something is missing or you feel that it is not as per requirements, means it might be mis-understanding, but you will feel from my solution that I can solve and complete such tasks.

If you have any query, feel free to contact me.

Looking forward; Thanks


Thank You!