**WORK WITH OPEN DATA ASSIGNMENT**

**SOFTWARE PROCESS DEVELOPMENT**

**CODE**

import requests

import pandas as pd

import matplotlib.pyplot as plt

url = "https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/une\_rt\_a?geo=LT&age=Y15-74&sex=T&unit=PC\_ACT"

resp = requests.get(url)

data = resp.json()

time\_index = data["dimension"]["time"]["category"]["index"]

index\_to\_time = {v: k for k, v in time\_index.items()}

records = []

for idx\_str, val in data["value"].items():

  idx = int(idx\_str)

  tc = index\_to\_time.get(idx)

  if tc is not None:

    records.append((tc, val))

df = pd.DataFrame(records, columns=["time\_code", "unemployment"])

df["date"] = pd.to\_datetime(df["time\_code"], format="%Y", errors="coerce")

df = df.dropna().sort\_values("date").reset\_index(drop=True)

df["year"] = df["date"].dt.year

annual\_avg = df.groupby("year")["unemployment"].mean().reset\_index()

print(annual\_avg.tail(10))

plt.plot(annual\_avg["year"], annual\_avg["unemployment"], marker="o")

plt.title("Lithuania Annual Unemployment Rate (UNE\_RT\_A)")

plt.xlabel("Year")

plt.ylabel("Unemployment (%)")

plt.grid(True)

plt.tight\_layout()

plt.show()

**OUTPUT**

A graph with blue lines and dots

AI-generated content may be incorrect.

**Dataset chosen**

* Title: *Unemployment by sex and age – annual data (UNE\_RT\_A)*
* Portal: [Eurostat](https://ec.europa.eu/eurostat)
* Direct API link:
* https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/une\_rt\_a?geo=LT&age=Y15-74&sex=T&unit=PC\_ACT
* I chose this dataset because it provides a long-term view of Lithuania’s unemployment rate and is reliable, open, and maintained by Eurostat.

**Access method**

* Data was accessed directly from the Eurostat JSON API using requests in Python.

**Cleaning and transformations**

* Extracted unemployment values and mapped them to their corresponding time labels.
* Converted the time codes (e.g., 2015) into proper datetime objects.
* Sorted the series chronologically and grouped by year.
* Computed annual averages (though data was already annual, this ensures consistency).

**Result**

* The output is a line plot of Lithuania’s average unemployment rate (2015–2024).
* Interpretation: Lithuania’s unemployment rate shows noticeable fluctuations, with peaks during periods of economic stress (e.g., COVID) and declines in recent years, reflecting recovery.

**Obstacles and solutions**

* Attempts with the *monthly* dataset (UNE\_RT\_M) and *quarterly* dataset (UNE\_RT\_Q) gave no values for Lithuania.
* The issue was data availability: Lithuania’s data was only present in the *annual* dataset (UNE\_RT\_A).
* Switching to the annual dataset resolved the problem.

**Licensing/terms**

* Eurostat data is freely reusable under the *Creative Commons BY 4.0* license.