Problem 0

```python
import numpy as np
import pandas as pd
import requests
import json
import os
import dotenv
import lyricsgenius

r = requests.get('https://httpbin.org/user-agent')
useragent = json.loads(r.text)['user-agent']
useragent
```

```
'python-requests/2.32.3'
```

Problem 1

Part a

the root: the root is https://newsapi.org/v2 endpoint: the endpoint is /top-headlines parameters: the parameters are country=de, category=sports, and pageSize=50 method of acquiring keys: to acquire the keys, you will will need to go to https://newsapi.org/ and create an account to get a free API key method for supplying these keys during an API call: to send the key, you would need to use headers={'Authorization': 'Bearer YOUR_API_KEY'} or pass as apiKey query parameter cost: there is a free plan that allows 100 requests per day, and no credit card is needed on the free plan

Part b

the root: the root is https://api.congress.gov/v3 endpoint: the endpoint is /bill parameters: the parameters are congress=119, type=hr, and limit=100 method of acquiring keys: to acquire the keys, you will will need to register at api.congress.gov to get a key method for supplying these keys during an API call: to send the key, you would need to query string as api_key=YOUR_API_KEY cost: it is free to use with an API key.

Part c

the root: the root is https://api.rentcast.io/v1 endpoint: the endpoint is /property parameters: the parameter is address based - address=1+Lewis+Mountain+Parkway,+Charlottesville, +VA+22904 method of acquiring keys: to acquire the keys, you will will need to sign up at https://rentcast.io/ method for supplying these keys during an API call: to send the key, you would need to use the header: headers = {'X-API-Key': 'YOUR_API_KEY'} cost: there are 100 free API calls/month on the basic tier. 25,000 lookups would require a paid plan, which starts around $29/mo for 5,000 requests

Problem 2

Part a

the root: the root is https://api.genius.com endpoint: the endpoint is /search parameters: the parameter is q = Bob Dylan method of acquiring keys: to acquire the keys, you will will need to generate an Access Token by creating a client at https://genius.com/api-clients and choose "Access for Apps Without Users" method for supplying these keys during an API call: to send the key, you would need to add header: Authorization: Bearer YOUR_ACCESS_TOKEN cost: it is free to use with rate limits

```python
# Part b

dotenv.load_dotenv()
genius_token = os.getenv('GENIUS_TOKEN')
print("Access token loaded successfully:", bool(genius_token))

Access token loaded successfully: True

# Part c

headers = {
    "Authorization": f"Bearer {genius_token}",
    "User-Agent": useragent
}
params = {"q": "Bob Dylan"}
response = requests.get("https://api.genius.com/search",
headers=headers, params=params)
data = response.json()

# Get the artist API path
artist_path = data['response']['hits'][0]['result']['primary_artist']
['api_path']
artist_path

'/artists/181'

# Part d

artist_id = data['response']['hits'][0]['result']['primary_artist']
['id']
songs_url = f"https://api.genius.com/artists/{artist_id}/songs"

params = {
    "sort": "popularity",
    "per_page": 20
}
response = requests.get(songs_url, headers=headers, params=params)
songs_data = response.json()
```

```
# Convert to Data Frame
songs = songs_data['response']['songs']
df = pd.DataFrame([{
    "title": song['title'],
    "id": song['id'],
    "url": song['url'],
    "release_date": song.get('release_date', None)
} for song in songs])
df.head()

                           title     id  \
0              We Are the World  96286
1            Blowin' in the Wind  79424
2          Make You Feel My Love  68146
3  The Times They Are A-Changin'  62605
4            Like a Rolling Stone  54784


                                                 url release_date
0  https://genius.com/Usa-for-africa-we-are-the-w...         None
1  https://genius.com/Bob-dylan-blowin-in-the-win...         None
2  https://genius.com/Adele-make-you-feel-my-love...         None
3  https://genius.com/Bob-dylan-the-times-they-ar...         None
4  https://genius.com/Bob-dylan-like-a-rolling-st...         None
```

Problem 3

```
genius = lyricsgenius.Genius(genius_token, verbose=False)
song = genius.search_song("Tangled Up in Blue", "Bob Dylan")
print(song.lyrics[:500])  # shows the first 500 characters of the
lyrics

103 ContributorsTangled Up in Blue LyricsThe opening track of Dylan's
1975 album Blood on the Tracks, "Tangled Up in Blue" is considered one
of Dylan's finest songs.

The Telegraph said of the song in 2013:

The most dazzling lyric ever written, an… Read More [Verse 1]
Early one morning the sun was shining
I was laying in bed
Wondering if she'd changed at all
If her hair was still red
Her folks they said our lives together
Sure was going to be rough
They never did like Mama's homemade dress
Papa
```

```
/home/palmersaevon/miniconda3/envs/ds6001summer2025/lib/python3.13/
site-packages/lyricsgenius/genius.py:468: FutureWarning: The
constructor signature will change in a future version. It will change
to Song(lyrics, body) instead of Song(client, json_dict, lyrics).
  song = Song(self, song_info, lyrics)
```