

## import packages

```
In [ ]: ## importing packages

import requests
import pandas as pd
from sqlalchemy import create_engine
```

## extract data

```
In [ ]: def extract(country="United States")-> dict: # here I have set default parameter
        # API Call
        api_url = f"http://universities.hipolabs.com/search?country={country}"
        data = requests.get(api_url).json()
        print(f"Total number of universities in {country}: {len(data)}")
        return data
```

## transform data

```
In [ ]: def transform(data, city="California")-> pd.DataFrame: # default to "California"
        df = pd.DataFrame(data)

        # Filtering entire dataframe with name having city value
        df = df[df["name"].str.contains(f"{city}")]

        print(f"Total number of universities in {city}: {len(df)}")

        # Here I use List comprehension that iterates through each value, and for each
        # Finally returns a single string where elements are now separated by the comma
        df['domains'] = [','.join(map(str, l)) for l in df['domains']]
        df['web_pages'] = [','.join(map(str, l)) for l in df['web_pages']]

        df = df.reset_index(drop=True)

        # Exported Columns
        return df[['domains', 'country', 'web_pages', 'name']]
```

## load data

```
In [ ]: def load(df)-> None:
        # Loads data into a sqlite database
        disk_engine = create_engine('sqlite:///universities.db')
        df.to_sql('uni_table', disk_engine, if_exists='replace')
```

## calling functions

```
In [ ]: ext_data = extract() # optional - Enter Country as arg to search
        dataframe = transform(ext_data) # optional - Enter City as second arg to search
```

```
load(dataframe)
dataframe
```

Total number of universities in United States: 4535

Total number of universities in California: 84

Out[ ]:	domains	country	web_pages	name
0	csuci.edu	United States	https://www.csuci.edu/	California State University Channel Islands
1	calbaptist.edu	United States	http://www.calbaptist.edu/	California Baptist University
2	calsouthern.edu	United States	http://www.calsouthern.edu/	California Southern University
3	cpp.edu	United States	http://www.cpp.edu/	California Polytechnic State University, Pomona
4	calcoast.edu	United States	http://www.calcoast.edu/	California Coast University
...	...	...	...	...
79	ucsb.edu	United States	http://www.ucsb.edu/	University of California, Santa Barbara
80	ucsc.edu	United States	http://www.ucsc.edu/	University of California, Santa Cruz
81	usc.edu	United States	http://www.usc.edu/	University of Southern California
82	carrington.edu	United States	http://www.carrington.edu	Carrington College California-Sacramento
83	calarts.edu	United States	https://calarts.edu/	California Institute of the Arts

84 rows × 4 columns

In [ ]: