Project Idea 1 University (+ living-) costs prediction England – Germany, next 10 years

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| --- | --- | --- | --- | --- | --- |
| Data (Sources) | Preprocessing | Model | Plotting | Output Data | Nice to have |
| Data of Semesterbeiträge DE  (Statistisches Bundesamt) | Download (ETL?) | Linear Regression? | Trend of University costs (EN/DE) | Numbers (Pounds/€)  How much costs 1 year of studying | Give cheapest university  -Rate cities |
| Data of UK Costs per Universities/subject?  (Data still pending) | Webscraping?  (beautifulsoup?)   * Nosql -> sql database -> metabase/tablau public | Time Series? (I hope not) | Trend of Living costs EN/DE | Which cities  UK / DE | List of subjects output per university |
|  | Manually (universities); average food + living costs + public transport |  |  | Metabase Graphs | Lists of english study programs Germany |
|  |  |  |  |  | List of University ranking |

Difficulties:

-finding (comparable) Data

-having to include financial calculations

Sources:

[World University Rankings 2023 | Times Higher Education (THE)](https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking?page=1)

World ranking plus country and university name – to scrape off

Study programs in English in Germany:

[List of Study Programs in Germany for 2023 - 17,438 programs (studying-in-germany.org)](https://programs.studying-in-germany.org/)

1. **Predition (linear regression):**

Average Groceries (

Average Rent/Bills (gas/water/electricity)

Average University Costs

England/Germany – Dates back to 90 (30 year window of history)

1. **A random Ranking (web scraping):**

10 Top Universities UK / Germany

[World University Rankings 2023 | Times Higher Education (THE)](https://www.timeshighereducation.com/world-university-rankings/2023/world-ranking?page=1)

1. **A list or small table study programms in English in Germany (web scraping)**

[List of Study Programs in Germany for 2023 - 17,438 programs (studying-in-germany.org)](https://programs.studying-in-germany.org/)

1. **Student housing per University [DE / EN] (Data Sources???)**
2. **Tuition Fee per University per Year [DE / EN] (Data Sources???)**

[Studiengebühren 2021 - eine Übersicht aller Bundesländer (nachhilfe-team.net)](https://www.nachhilfe-team.net/studitipps/studiengebuehren/) (2021) (eingeladen; schwierig)

[Semesterbeiträge an deutschen Unis | Zenjob Blog](https://www.zenjob.com/de/blog/Uni-Ranking-Semesterbeitrag/) (weird source; 2023?) (extracting difficulty; has table)

**Interesting Links:**

[Cost of Living in United Kingdom - 2023 prices. (expatistan.com)](https://expatistan.com/cost-of-living/country/united-kingdom?currency=EUR)

-ministry of education UK (data?)

Have one big database and many tables for it.

Relevant Questions:

-request package to get html of page (beautiful soup extraction -> set them into pandas dataframe; „sql alchemy“ (week 6 – reddit pipeline) to put data into postgres (df.to\_sequel)

-week4 (requests: point at page, html is pulled down; read with beautiful soup, read through and load into ETL), skip nosql

-national / region / city – equal England Germany living cost comparison

-private unviesities (stay in tables)

-prestige university cost more money? -yes, they do

-scholarships for students? (Master/bachelor)

-do universities charge different amount based on „home“ / away universities

-restricted access to certain study programms (Medicine/Pharmacy/Dental Care – in DE); EN?

- keep in table, make a note that restrictions can apply

-tuition caps /

- multiply column with whichever exchange rate (placeholder /manual conversion rate)

-Fachhochschulen?

- Study lenght Germany 3 years bachelor + 2 years master; england: 3 + 1 yr master

-special requirements for international students in some counties of Germany? (BaWü)

-Fachbereich

Sources used:

[www.zenjob.com/de/blog/Uni-Ranking-Semesterbeitrag/](http://www.zenjob.com/de/blog/Uni-Ranking-Semesterbeitrag/)

[List of universities in England - Wikipedia](https://en.wikipedia.org/wiki/List_of_universities_in_England)

https://www2.daad.de/deutschland/studienangebote/international-programmes/en/result

University\_en:

|  |  |  |
| --- | --- | --- |
| Index | University\_en | Study Programm\_en |
|  |  |  |

Unis\_de:

|  |  |  |
| --- | --- | --- |
| Index | University\_de | Study Programm\_de |
|  |  |  |

Rent\_en:

|  |  |  |
| --- | --- | --- |
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|  |  |  |

Rent\_de: (pending)

[Mietkosten für Studierende in 68 Städten - Studis Online (studis-online.de)](https://www.studis-online.de/studienkosten/mietkosten.php#tabelle)

-siehe Links Ordner

|  |  |  |
| --- | --- | --- |
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Uni\_fee\_en: + City!! de\_&\_en\_uni\_fees.ipynb

[List of universities in England - Wikipedia](https://en.wikipedia.org/wiki/List_of_universities_in_England) -> extract cities

|  |  |  |
| --- | --- | --- |
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Uni\_fee\_de: + City!! de\_&\_en\_uni\_fees.ipynb

|  |  |  |
| --- | --- | --- |
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|  |  |  |

Uni

Postgres vsc connection

[Connect to PostgreSQL in VS Code – data-nerd.blog](https://data-nerd.blog/2020/02/06/postgresql-extension-for-vscode/)

-all dfs in 3 .py files

-load dfs as tables in postgres

-hops (change format); csv is extracting hops, not necessary

Sql alchemy! Connection py – postgres with sql alchemy (postgres pw & user in .py)

Method: pandas to sql methods

Df.to\_sql

Query – data extraction

-how to write pandas df to postgresql table

-user’s choice -> variable in python -> variable send to postgres

-postgres variable\_(users choice)+query -> output query to python

-load data to streamlit

-everything needs to happen in app.py or be imported into app.py (data)

Ressources:

https://www.studentcrowd.com/page/cheapest-uk-cities-for-student-accommodation