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## Collecting Digital Data

The API Landscape: What's Out There?

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# **The API Landscape: What's Out There?**

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# Categories of APIs

## Government & Public Data

UK Parliament, ONS, data.gov.uk, US Census

## Geospatial

OpenStreetMap, Nominatim, Google Maps

## International Organisations

World Bank, UN, OECD, Eurostat

## AI & LLMs

OpenAI, Anthropic, Google Gemini

## Academic & Bibliometric

OpenAlex, Crossref, Semantic Scholar

Many of these APIs are **free** and require **no authentication** – ideal for research.



**What** Bills, debates, MPs, divisions – the full record of parliamentary activity

**Auth** None

**Format** JSON

**Use case** Political science, legislative studies, democratic representation

## Example endpoint

`members-api.parliament.uk/  
api/Members/Search?  
Name=Smith`

## Documentation

<https://members-api.parliament.uk/index.html>



**What** Development indicators (GDP, poverty, education, health) for 200+ countries and territories

**Auth** None

**Format** JSON

**Use case** Comparative politics, development studies, economics

## Example endpoint

```
api.worldbank.org/v2/  
country/GBR/indicator/  
NY.GDP.PCAP.CD?  
format=json
```

## Documentation

✉ <https://datahelpdesk.worldbank.org/knowledgebase/articles/889392>



**What** LLM-as-a-service: text generation, classification, embeddings, summarisation

**Auth** API key (paid)

**Format** JSON

**Use case** Text annotation, data classification, synthetic data generation

## Example endpoint

`api.openai.com/v1/  
chat/completions`

We'll discuss LLMs as coding assistants later today.



**What** UK official statistics — labour market, population, economy, housing, crime

**Auth** None

**Format** JSON / CSV

**Use case** Sociology, demography, policy studies

## Example endpoint

api.beta.ons.gov.uk/v1/  
datasets

## Documentation



<https://developer.ons.gov.uk/>



**What** Geospatial data, geocoding  
(address → coordinates), reverse  
geocoding (coordinates →  
address)

**Auth** None (rate limited: 1 req/sec)

**Format** JSON

**Use case** Spatial analysis, urban studies,  
geography

## Example endpoint

```
nominatim.openstreetmap.org/  
search?q=Edinburgh&  
format=json
```

## Documentation

🔗 <https://nominatim.org/release-docs/latest/api/Overview/>

# Finding More APIs

## Curated directory

### public-apis on GitHub

A collective list of free APIs for development, research, and fun.

`https://github.com/public-apis/public-apis`

## Other resources

- **RapidAPI Hub** — search and test APIs
- **ProgrammableWeb** — API directory
- **Google Dataset Search** — find open datasets

1.  **Documentation quality** — is it clear and up to date?
2.  **Rate limits** — can you collect data at a reasonable pace?
3.  **Terms of Service** — does the ToS allow research use?
4.  **Authentication** — is access free or paid?
5.  **Stability** — is the API actively maintained?

### Practical 3: API Challenge

Choose one of three APIs and build a data collection pipeline:



#### **UK Parliament API**

Search for MPs, explore  
bills and divisions



#### **World Bank API**

Compare development  
indicators across  
countries



#### **ONS API**

Retrieve UK official  
statistics datasets

Open the **Practical 3** notebook in Google Colab  
(Python or R – your choice!)