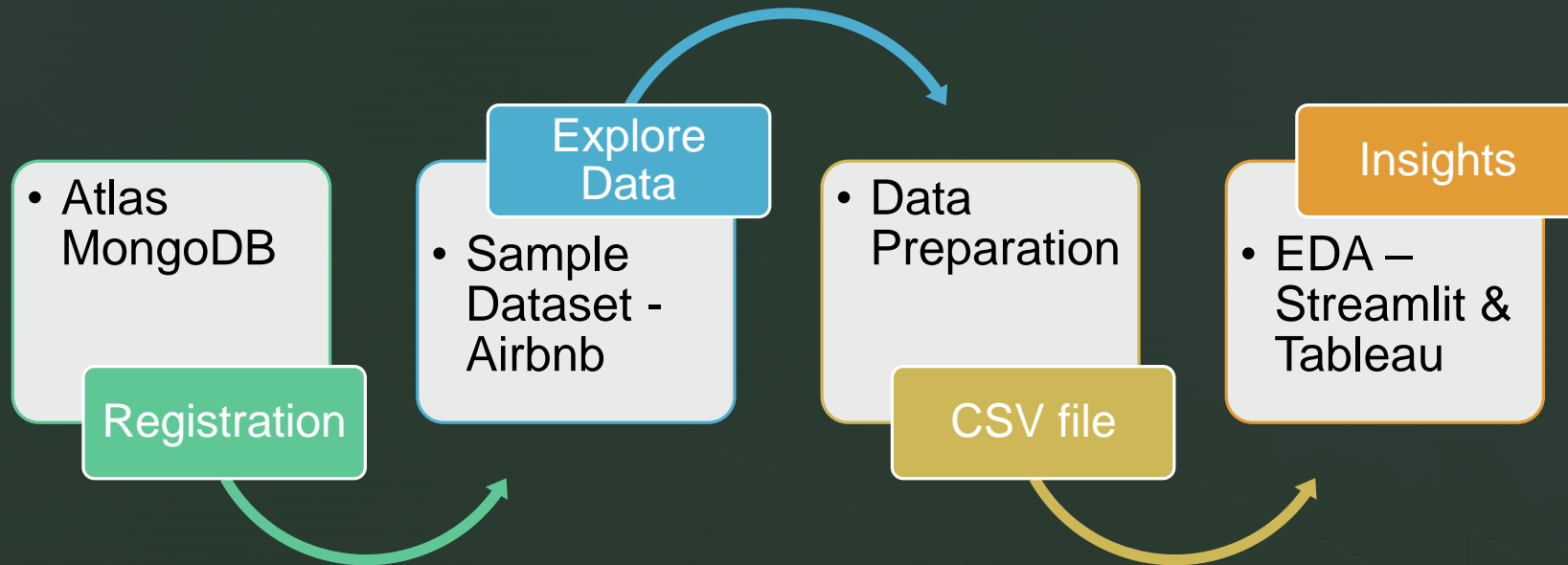# Project Overview

Objective

- The project objective is to establish a functional database environment using MongoDB Atlas to store and manage Airbnb sample data. This involves the following key steps:

1. **Account Creation and Setup**: Register for a MongoDB Atlas account and initiate a new project.

2. **Cluster Configuration**: Set up and configure a cluster within the MongoDB Atlas project by selecting a cloud provider and region, and specifying the cluster's technical specifications.

3. **User and Network Configuration**: Create a database user with the necessary permissions and configure network access for secure data handling.

4. **Data Importation**: Load the Airbnb sample dataset into the cluster to populate it with collections relevant to Airbnb listings, reviews, and user information, thereby preparing the database for subsequent data management and analysis tasks.

Project Workflow

System Requirements

- Visual Studio Code Version: 1.85.1 or later

- Atlas MongoDB

- Tableau Public

Note: Install or register the above tools to execute the project.

PIP Installations

- pip install pandas

- pip install streamlit

- pip install streamlit-option-menu

- pip install Pillow

- pip install pymongo

- pip install plotly
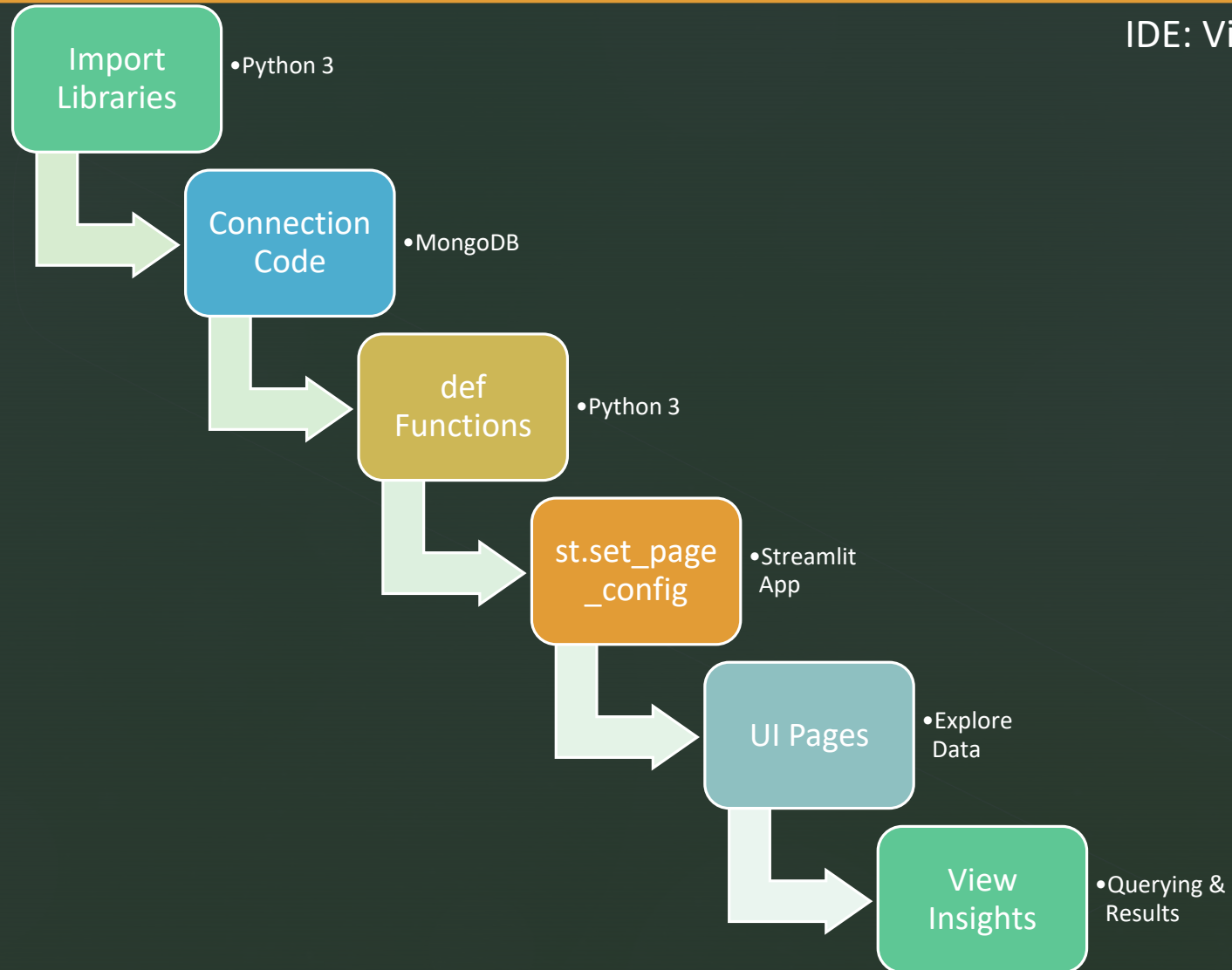
Note: Install the above pip in respective IDE terminal (Eg: VS Code terminal or Run in cmd for Windows)

Coding References

- GITHUB Repositories

- Atlas MongoDB

- Streamlit Documentation

Coding Flow

IDE: Visual Studio Code

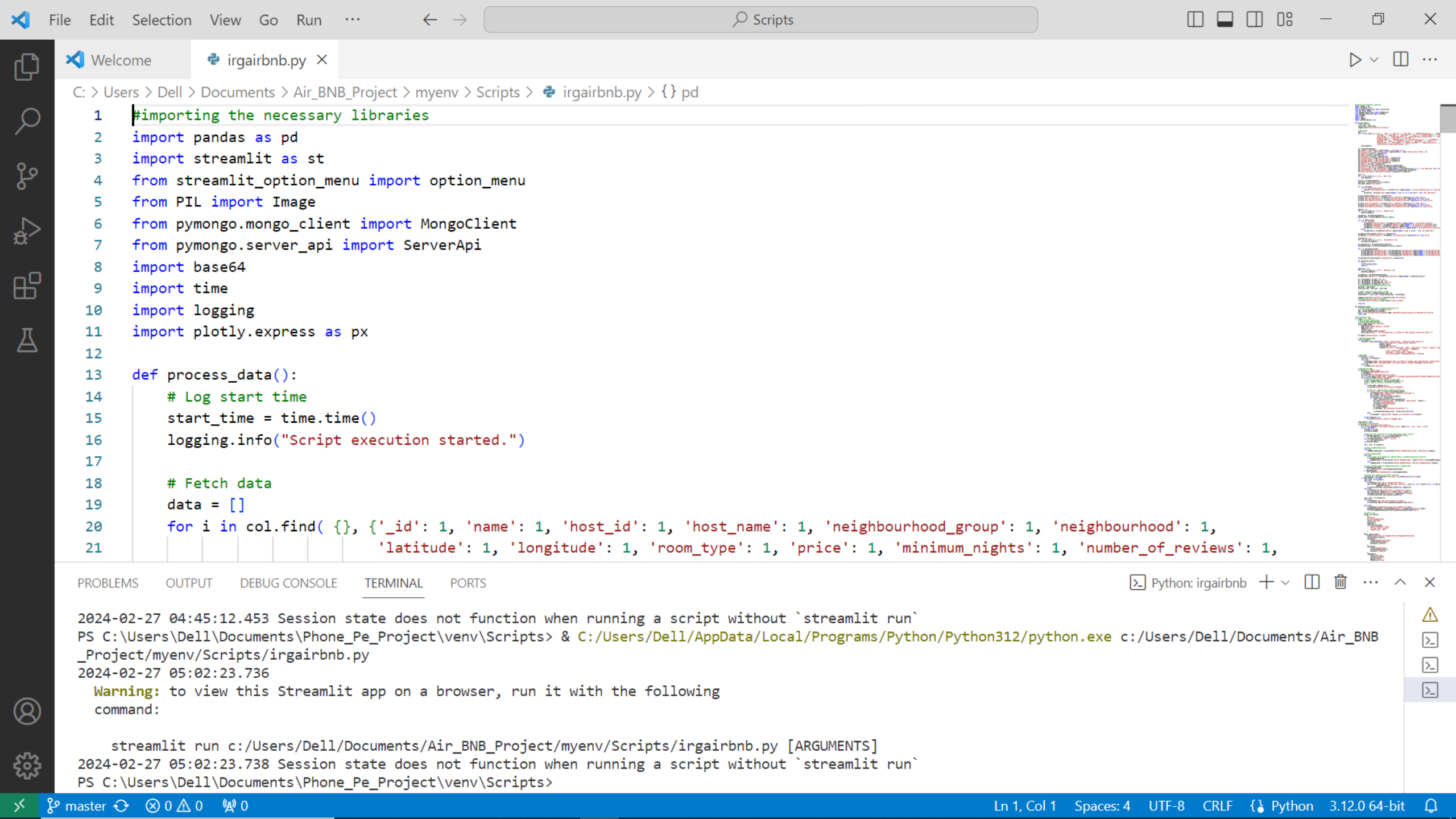**Import Libraries** • Python 3

Connection Code • MongoDB

def Functions • Python 3

st.set_page _config • Streamlit App

UI Pages • Explore Data

View Insights • Querying & Results

Annexure: Screenshots

Welcome   irgairbnb.py ✕

C: > Users > Dell > Documents > Air_BNB_Project > myenv > Scripts > irgairbnb.py > {} pd

```python
1   #importing the necessary libraries
2   import pandas as pd
3   import streamlit as st
4   from streamlit_option_menu import option_menu
5   from PIL import Image
6   from pymongo.mongo_client import MongoClient
7   from pymongo.server_api import ServerApi
8   import base64
9   import time
10  import logging
11  import plotly.express as px
12
13  def process_data():
14      # Log start time
15      start_time = time.time()
16      logging.info("Script execution started.")
17
18      # Fetch data
19      data = []
20      for i in col.find( {}, {'_id': 1, 'name': 1, 'host_id': 1, 'host_name': 1, 'neighbourhood_group': 1, 'neighbourhood': 1,
21                            'latitude': 1, 'longitude': 1, 'room_type': 1, 'price': 1, 'minimum_nights': 1, 'number_of_reviews': 1,
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
2024-02-27 04:45:12.453 Session state does not function when running a script without `streamlit run`
PS C:\Users\Dell\Documents\Phone_Pe_Project\venv\Scripts> & C:/Users/Dell/AppData/Local/Programs/Python/Python312/python.exe c:/Users/Dell/Documents/Air_BNB
_Project/myenv/Scripts/irgairbnb.py
2024-02-27 05:02:23.736
  Warning: to view this Streamlit app on a browser, run it with the following
  command:

    streamlit run c:/Users/Dell/Documents/Air_BNB_Project/myenv/Scripts/irgairbnb.py [ARGUMENTS]
2024-02-27 05:02:23.738 Session state does not function when running a script without `streamlit run`
PS C:\Users\Dell\Documents\Phone_Pe_Project\venv\Scripts>
```

```
(myenv) C:\Users\Dell\Documents\Air_BNB_Project\myenv\Scripts>streamlit run c:/Users/Dell/Documents/Air_BNB_Project/myenv/Scripts/irgairbnb.py

  You can now view your Streamlit app in your browser.

  Local URL: http://localhost:8501
  Network URL: http://192.168.1.3:8501
```

✕

🏠 Home

⊕ Explore Data

🔍 Exploratory Data Analysis

Airbnb Analysis | By IRG

Technologies Used : Python scripting, Data Preprocessing, Visualization, EDA, Streamlit, MongoDb, Tableau

EDA Domain : Travel Industry, Property Management and Tourism

GUVI

✕

🏠 Home

⊕ Explore Data

🔍 Exploratory Data Analysis

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MongoDB Connection

Paste MongoDB Connection Code:

Sample Code : mongodb+srv://username:<password>@cluster0.ifo6y0s.mongodb.net/?
retryWrites=true&w=majority&appName=Cluster0

Connect MongoDB

✓ Set up connection security   ✓ Choose a connection method   ③ Connect

Connecting with MongoDB Driver

1. Select your driver and version

We recommend installing and using the latest driver version.

Driver

| Python ▼ |

Version

| 3.12 or later ▼ |

2. Install your driver

Run the following on the command line

Note: Use appropriate Python 3 executable

```
python -m pip install "pymongo[srv]"
```

View MongoDB Python Driver installation instructions.

3. Add your connection string into your application code

⬤ View full code sample

```
mongodb+srv://rajaguruirusan:<password>@cluster0.ifo6y0s.mongodb.net/?
retryWrites=true&w=majority&appName=Cluster0
```

Replace **<password>** with the password for the **rajaguruirusan** user. Ensure any option params are
URL encoded .

✕

Home

⊕ Explore Data

🔍 **Exploratory Data Analysis**

Airbnb Analysis | By IRG

MongoDB Connection

Paste MongoDB Connection Code:

Sample Code : mongodb+srv://username:<password>@cluster0.ifo6y0s.mongodb.net/?retryWrites=true&w=majority&appName=Cluster0

mongodb+srv://rajaguruirusan   @cluster0.ifo6y0s.mongodb.net/?retryWrites=true&w=majority&appName=Cluster0

Connect MongoDB

Successfully connected to MongoDB!

`sample_airbnb` **database is available.**

Collection name: `listingsAndReviews` , Record Count: `5555`

Data Processed in 00:30 minutes

	_id	name	property_type	room_type	bed_type	minimum_nights	maximum_nights	cancellation_policy	last_revi
0	10006546	Ribeira Charming Duplex	House	Entire home/apt	Real Bed	2	30	moderate	2019-01-
1	10009999	Horto flat with small garden	Apartment	Entire home/apt	Real Bed	2	1,125	flexible	None
2	1001265	Ocean View Waikiki Marina w/prkg	Condominium	Entire home/apt	Real Bed	3	365	strict_14_with_grace_period	2019-02-
3	10021707	Private Room in Bushwick	Apartment	Private room	Real Bed	14	1,125	flexible	2016-01-
4	10030955	Apt Linda Vista Lagoa - Rio	Apartment	Private room	Real Bed	1	1,125	flexible	None

`Data processed successfully!`

Download CSV File

Home

Explore Data

Exploratory Data Analysis

Airbnb Analysis | By IRG

📁 Upload a file

☁️ **Drag and drop file here**
Limit 200MB per file • CSV, TXT, XLSX, XLS
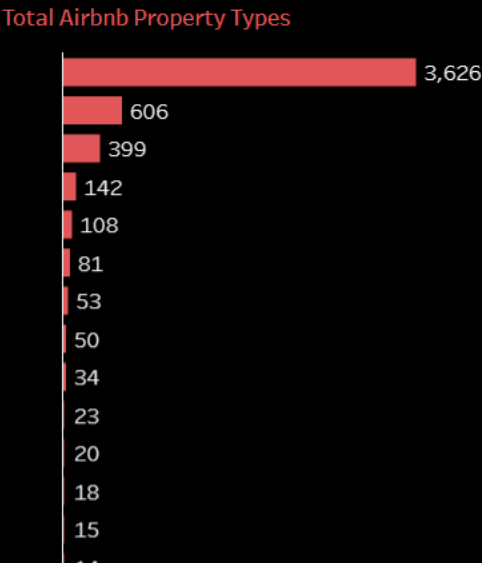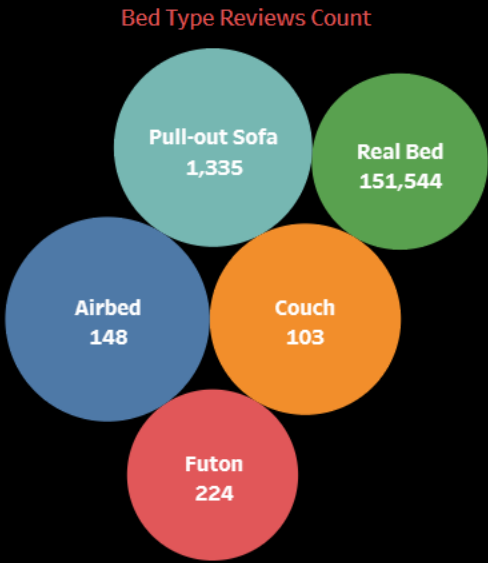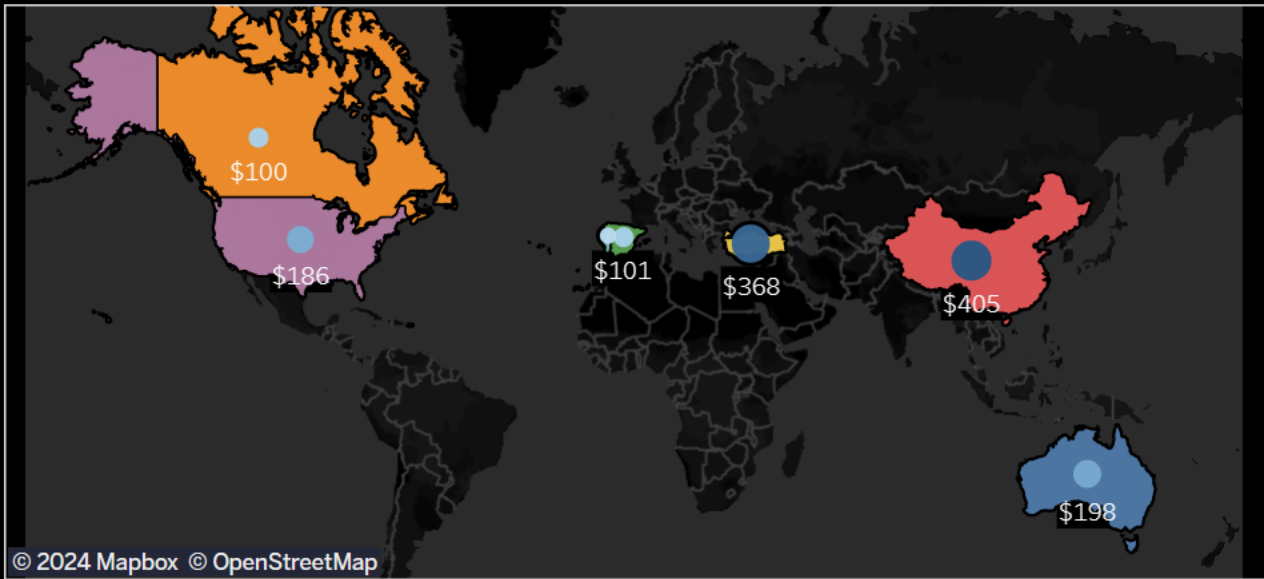
Browse files

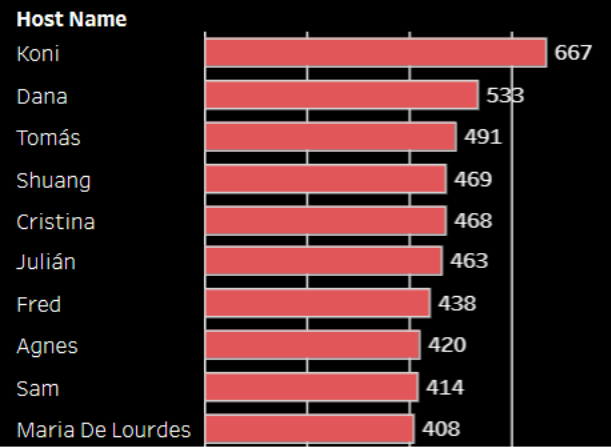Please upload a file to continue.

Air BNB Analysis

Total Hosts	Total Neighbourboods	Total Properties	Total Reviews
5,104	447	5,555	153,354

© 2024 Mapbox © OpenStreetMap

$100
$186
$101
$368
$405
$198

Bed Type Reviews Count

Pull-out Sofa 1,335
Real Bed 151,544
Airbed 148
Couch 103
Futon 224

Total Airbnb Property Types

Apartment	3,626
House	606
Condominium	399
Loft	142
Townhouse	108
Guest suite	81
Boutique hotel	53
Guesthouse	50
Hostel	34
Aparthotel	23
Cottage	20
Other	18
Cabin	15
Bungalow	14
Resort	11
Tiny house	7
Nature lodge	2
Chalet	2
Camper/RV	2
Boat	2
Treehouse	1
Train	1
Hut	1
Earth house	1
Castle	1
Campsite	1
Barn	1

Top 10 Hosts

Host Name	
Koni	667
Dana	533
Tomás	491
Shuang	469
Cristina	468
Julián	463
Fred	438
Agnes	420
Sam	414
Maria De Lourdes	408

Room Types and Cancellation with Average Pricing

	Entire hom..	Private ro..	Shared roo..
flexible	9,035 $391	6,541 $240	
moderate	33,672 $223	15,741 $125	54 $107
strict_14_with_gra..	61,470 $322	25,108 $232	704 $172
super_strict_30	475 $373		
super_strict_60	355 $410	35 $345	

Room & Bed Types with Price

	Entire hom..	Private roo..	Shared roo..
Airbed	116 $102	32 $50	
Couch	38 $188	48 $142	17 $156
Futon	74 $111	143 $93	7 $45
Pull-out Sofa	924 $169	354 $110	
Real Bed	103,855 $316	46,848 $213	841 $341

Thank You!!!