

Report

Mohammad Baratnezhad

Individual Coursework

W1996549

Dataset: <https://data.london.gov.uk/dataset/walking-and-cycling-borough>

Link of the Video: **Uploaded separately in blackboard.**

Link to Streamlit app: [Streamlit](#)

Link to GitHub repository: <https://github.com/MohammadBr3/project-lifecycle-cw2.git>

Aims and Objectives

Walking and Cycling by Borough

Description in the website:

Table showing proportion of residents who walk for at least 30 minutes at a given frequency, and proportion of residents who cycle (any length or purpose) at a given frequency, by local authority and region.

1 Results are grouped according to the area where respondents live, which may not be the same as the area where they walk or cycle.

2 "Cycle" in this table refers to any cycling, irrespective of length or purpose. "Walk" in this table refers to any walking, of at least 30 minutes, irrespective of purpose.

3 95% CI refers to 95% Confidence Interval, calculated using the Wilson Score method (see Notes and Definitions document).

4 Sample excludes those who responded "don't know" to the relevant question, but includes those who stated that they are unable to walk.

5 Sample sizes for the Isles of Scilly and City of London are very small and caution is needed in interpreting these results.

6 Percentages are rounded to the nearest 1 percent. Percentages lower than 0.5 percent are suppressed and the symbol "-" is shown.

<https://www.gov.uk/government/collections/walking-and-cycling-statistics>

Aims:

- Analyze the proportion of residents in London boroughs who walk or cycle regularly.
- Develop a Streamlit app to visualize trends in walking and cycling data.

Development Methodology:

The Agile methodology was chosen for this project due to its iterative nature, allowing for incremental development and continuous feedback. Key phases included:

1. Data Collection: Extracting and cleaning data from the London Datastore.
2. Prototyping: Building initial visualizations (e.g., bar charts, maps) using Python libraries (Pandas, Plotly).
3. Testing: Validating functionality with test cases and refining based on results.
4. Deployment: Hosting the final app on Streamlit for public access.

Agile was ideal for adapting to evolving requirements, such as adding interactive filters or addressing data anomalies.

Requirements:

Functional Requirements:

1. Load and preprocess CSV data from the dataset.
2. Display interactive visualizations (e.g., borough-wise walking/cycling rates).
3. Enable users to filter data by year, borough, or activity type.
4. Give access to users to go through the credibility of the dataset.
5. Provide information on what choices they have while filtering and help understanding.

Non-Functional Requirements:

1. Performance: App must load within 3 seconds.
2. Usability: Intuitive UI with clear labels and tooltips.
3. Compatibility: Responsive design for desktop and mobile.
4. Easy to access and related names on the link.

Test cases:

1	TC1	Title:	Data Loading
Description:			check CSV data loads correctly.
Steps and input data:			Import library and load the data, check preview.
Dependencies:			CSV file in repository

Expected result:	Data displays in a table with no errors.
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2	TC2	Title:	Visualization Interaction
Description:		Ensure charts update when filters (year/activity) are applied.	
Steps and input data:		Select "Barnet" and "1 Per Week".	
Dependencies:		Plotly library	
Expected result:		Line chart reflects Barnet while the frequency of collecting data is once per week.	

3	TC3	Title:	Borough-Specific Filter
Description:		Test filtering data for a specific borough (e.g., "Westminster").	
Steps and input data:		Select "Westminster" from the box for piechart.	
Dependencies:		CSV file in repository and plotly	
Expected result:		All visualizations show Westminster data.	

4	TC4	Title:	Data checking
Description:		Check if the percentages are not less than 0	
Steps and input data:		Import pandas and check describe function	
Dependencies:		CSV file in repository	
Expected result:		No errors.	

5	TC5	Title:	Multi-Filter Combination
Description:		Verify visualizations update when combining all the options.	
Steps and input data:		Choosing one option of all possibilities	
Dependencies:		CSV file in repository and streamlit app	

Expected result:	All the filters are working.
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6	TC5	Title:	First view before filtering
Description:		After checking that we need to have a graph before the user filter.	
Steps and input data:		Write an if code for a pie chart graph	
Dependencies:		.py file and streamlit app	
Expected result:		We have all areas before the users choose to filter.	

Test log:

Add your test log here. Use the template provided.

TC	Date	Executed by	Actual result	Pass/Fail	Notes
1	05/05/2025	Mohammad	Data loaded successfully.	Pass	No missing values.
2	05/05/2025	Mohammad	Chart updated with "Barnet" and "1 Per Week".	Pass	Tool is working.
3	05/05/2025	Mohammad	Westminster data filtered.	Pass	UI responsive.
4	05/05/2025	Mohammad	There are some ' ' which shows data lower than 0.5.nothing negative or more than 100%.	Pass	Data is cleaned.
5	05/05/2025	Mohammad	All filters being changed at the same time and no errors.	Pass	All tools are working fine.
6	05/05/2025	Mohammad	The pie chart that has all areas without being filtered.	Pass	Pie chart bit messy but better than empty.

choose your different options.

This dataset contains information about walking and cycling in different areas from 2010 to 2017.

'<https://data.london.gov.uk/dataset/walking-and-cycling-borough>'

Deploy

Choose a pie chart

Walking

Pie Chart of Walking and Cycling Percentages

Choose a city

Choose an option

Choose a city to see the pie chart of walking and cycling percentages.

Pie Chart of Walking Percentages



choose your different options.

This dataset contains information about walking and cycling in different areas from 2010 to 2017.

'<https://data.london.gov.uk/dataset/walking-and-cycling-borough>'

Deploy

Choose a pie chart

Cycling

Pie Chart of Walking and Cycling Percentages

Choose a city

Choose an option

Choose a city to see the pie chart of walking and cycling percentages.

Pie Chart of Cycling Percentages

