Summary of the visualisation

1. Visualisation Aim

This visualisation explores cyclist safety in London, focusing on casualty data from 2018—when Vision Zero was implemented—through to 2023. The primary aim is to illustrate the spatial and temporal distribution of cycling casualties, highlighting variations in severity and trends over time. Key elements include:

- A 2.5D hexagonal map displaying total, slight, serious, and fatal casualties.
- A time slider to observe changes across years.
- A line chart showing total casualties per year.
- Identification of the borough with the highest casualty count under each selection.

2. Design and Technical Approach

Design Approach:

- The layout consists of two separate sections: a map and a text panel, ensuring simultaneous access to spatial and numerical information.
- Interactive elements such as a time slider and filter buttons enable users to compare data dynamically across different years and injury severities.
- A 2.5D mapping approach enhances readability compared to a traditional 2D map by providing an intuitive representation of casualty density.
- Colour coding is used to distinguish injury severity: deeper shades of red indicate more severe casualties, creating a clear visual hierarchy.

Technical Approach:

- The map is built using Mapbox GL JS, a powerful JavaScript library for interactive geospatial data visualisation.
- D3.js is employed to generate the line chart, it was chosen for its flexibility in handling statistical visualisations.
- The visualisation is developed using HTML, CSS, and JavaScript, ensuring accessibility without requiring additional software or local servers.
- Data interactions, such as filtering and responding to user selections, are implemented through JavaScript event handling.

3. Data Source and Processing

The base map is styled using Mapbox, while the cyclist casualty data is sourced from the UK Department for Transport's Road Safety Data, downloaded in November 2024. As the official 2024 dataset is yet to be released, 2023 represents the most recent available data. Data cleaning involved filtering for London-based cyclist casualties, categorising them by severity and year using Jupyter Notebook (Python 3.11.9). QGIS (v3.34.10) was also used to generate the hexagonal grid and aggregate casualty counts of each grid.

4. Limitations and Future Improvements

There are some limitations in this visualisation. Firstly, some of the casualty data is hard-coded from CSV files to prevent local server issues and ensure accessibility, but this approach reduces flexibility. Future improvements could involve a more efficient and robust method. Secondly, individual column values of the hexagon grid are not currently displayed, which can limit precise numerical insights. Future work could enhance interactivity by enabling users to view exact casualty numbers and linking the dataset with cyclist road networks to provide a deeper understanding of the practical problems.