Project Overview

Objective: To analyse player behaviour in Left 4 Dead 2 to generate actionable insights that could be applied to FBC: Firebreak, focusing on enhancing player engagement, weapon balancing, and identifying player playstyles.

Deliverables:

- A cleaned and prepared dataset ready for analysis.
- An exploratory data analysis (EDA) report with key findings.
- Specific analyses addressing potential questions relevant to FBC: Firebreak.
- Interactive visualisations created in Tableau.
- A final report summarising insights, recommendations, and next steps.
- Documentation of analytical workflows and pipelines.

Step 1: Data Understanding

Actions:

- **Familiarise Yourself with the Dataset:**
    - Review all columns and understand what each represents.
    - Note the data types and potential relationships between variables.

Considerations:

- **Relate to FBC: Firebreak:**
    - Since both games are cooperative first-person shooters, think about how player behaviours in Left 4 Dead 2 could inform design decisions for FBC.
    - Consider the aspects of player engagement, weapon usage, and cooperative dynamics.

Step 2: Data Cleaning and Preparation

Tools: Python (Pandas, NumPy), SQL (if applicable)

Actions:

- **Load the Data:**
    - Import the dataset into a Jupyter Notebook or your preferred Python environment.
- **Data Cleaning:**
    - Check for missing values and handle them appropriately.
    - Remove or correct any anomalies or outliers that could skew the analysis.

    - Ensure data types are correct (e.g., numerical values are in numerical format).
- **Data Transformation:**
    - Create new features if necessary (e.g., total shots fired, kill ratios).
    - Normalise or scale data if required for certain analyses.
- **Data Export:**
    - Save the cleaned dataset for use in SQL databases or Tableau.

Documentation:

- Keep detailed notes on the cleaning process.
- Comment your code thoroughly.
- Prepare a data dictionary explaining each variable.

Step 3: Exploratory Data Analysis (EDA)

Tools: Python (Matplotlib, Seaborn), SQL for queries

Actions:

- **Descriptive Statistics:**
    - Calculate means, medians, modes, and standard deviations for key variables.
- **Visualisations:**
    - Create histograms, box plots, and scatter plots to visualise distributions and relationships.
- **Correlation Analysis:**
    - Use correlation matrices to identify relationships between variables.
- **Identify Patterns:**
    - Look for trends in weapon usage, playtime, and other player behaviours.

Considerations:

- **Relate Findings to Game Design:**
    - How do different weapons impact player engagement?
    - Are there any imbalances that could inform weapon balancing in FBC?

Step 4: Specific Analyses

Analysis Idea: Detecting Trolling Behaviour

- **Objective:** Identify players who are likely to troll based on friendly fire incidents and other negative behaviours.
- **Actions:**

    - Define metrics for trolling (e.g., high friendly fire rates, low team support).
    - Use classification algorithms to categorise players.
- **Deliverable:** A list of factors that indicate trolling behaviour and potential methods to mitigate it.

Considerations:

- **Applicability to FBC: Firebreak:**
    - Use these analyses to suggest features that could enhance player engagement.
    - Provide recommendations on how to design systems that minimise negative behaviours.

Step 5: Data Visualization with Tableau

Actions:

- **Import Data into Tableau:**
    - Use the cleaned dataset to create interactive dashboards.
- **Create Visualisations:**
    - **Playtime Prediction:**
        - Visualise the relationship between predicted and actual playtime.
        - Use scatter plots and regression lines.
    - **Player Playstyles:**
        - Create cluster plots to show different player segments.
        - Use heat maps to show weapon usage patterns.
    - **Trolling Behaviour:**
        - Visualise the distribution of friendly fire incidents.
        - Use bar charts or bubble charts to highlight outliers.
- **Build Dashboards:**
    - Combine visualisations into dashboards that tell a coherent story.
    - Ensure they are interactive and user-friendly.

Deliverable:

- A Tableau workbook containing all visualisations and dashboards.

Step 6: Reporting and Presentation

Actions:

- **Prepare a Report:**
    - Summarise your methodology, findings, and recommendations.
    - Use clear and concise language suitable for both technical and non-technical audiences.

- **Create a Presentation:**
    - Develop slides highlighting key insights and visuals.
    - Practice presenting your findings, focusing on clarity and coherence.
- **Include Business Implications:**
    - Explain how your insights can inform game design decisions for FBC: Firebreak.
    - Suggest actionable strategies based on your analysis.

Step 7: Documentation

Actions:

- **Code Documentation:**
    - Ensure all your Python code is well-commented.
    - Include README files explaining how to run your scripts.
- **Analytical Workflow:**
    - Document each step of your analysis process.
    - Include data sources, tools used, and any challenges encountered.
- **Data Pipeline:**
    - Outline how data flows from raw collection to final analysis.
    - Mention any automated processes or scripts that could be reused.
