# Portfolio Projects

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## Project 1: BigQuery Data Exploration Part 1 — Homelessness

### Summary of the project

This project explores a homelessness dataset using Google BigQuery. The goal was to practice SQL-based data exploration skills and to identify trends, patterns, and potential insights related to homelessness.

### Dataset source

- Dataset: Homelessness dataset provided within the BigQuery environment.  
- Scope: Includes information on homelessness counts, possibly broken down by demographics, geography, and time.

### Tools used

- Google BigQuery (SQL queries and data exploration)  
- Google Sheets

### Steps taken (Methodology)

1. Data access: Connected to the homelessness dataset in BigQuery.  
2. Data cleaning / preparation: Checked for missing values, standardized column formats, and filtered the dataset for relevant attributes.  
3. Exploratory analysis: Queried data to summarize homelessness counts by demographics.  
4. Trend analysis: Examined patterns over time and compared results across locations.  
5. Visualization: Created charts/tables to better illustrate key findings..

### Findings / Results

- Homelessness has stayed stable over the period analyzed.  
- Regional variation shows that New York City has consistently higher rates compared to others.  
- Families are disproportionately affected.

### Further questions / future work

- What external factors (housing costs, unemployment rates, policy changes) explain observed changes?  
- Are there geographic hotspots for homelessness when normalized by population size?  
- Can predictive models forecast future homelessness based on historical trends?  
- How do sub-populations (e.g., veterans, youth, families) differ in trends compared to the general population?  
- How do regional differences compare when cost of living or population density are considered?

### Related work

- BigQuery Project: Exploration project hosted in Google Cloud BigQuery under project Exploration\_Project → homelessness.

[**BigQuery Data Exploration Project 1**](https://docs.google.com/spreadsheets/d/13Pai4tIXfhgsDXmTjs8cIy1EI6FUXdLbfHopKA2w30k/edit?usp=sharing)

[**Brittany Surber - BigQuery Data Exploration Part 1**](https://docs.google.com/document/d/1p0WFDBkFlbj3D_QINTwV2gsCmkbj7uDJ1xTimXNMKCw/edit?tab=t.0)

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## Project 2: Data Analytics Job Simulation — Forage

### Summary of the project

A job simulation through Forage, meant to simulate real-world analytics / forensic technology tasks. Completed practical tasks in data analysis and forensic technology.

### Dataset source

- Datasets were provided by Forage as part of the simulation.

### Tools used

- Excel.  
- Data visualization tools.

### Steps taken (Methodology)

1. Reviewed the instructions / problem statements in the simulation.  
2. Explored the provided dataset(s).  
3. Cleaned and standardized data (handled missing values, checked consistency).  
4. Performed exploratory analysis and anomaly detection.  
5. Summarized findings and prepared insights.

### Findings / Results

- Identified anomalies and irregularities in the dataset.  
- Highlighted trends or patterns relevant to the forensic context.

### Further questions / future work

- Can the forensic analysis be automated to improve efficiency?  
- How do anomalies correlate with external business or system events?  
- What additional data (time stamps, geospatial details, or metadata) would strengthen insights?

### Related work / certification

- Certificate: Forage Completion Certificate — awarded on September 18, 2025.  
 [Link to certificate](https://www.theforage.com/completion-certificates/9PBTqmSxAf6zZTseP/io9DzWKe3PTsiS6GG\_9PBTqmSxAf6zZTseP\_68cb6cb8b92fd6b1f49b6696\_1758232541551\_completion\_certificate.pdf)