This project simulates the daily operation of a petrol station using **discrete event simulation** in Python with the SimPy library. It models a realistic environment with 4 fuel pumps and 1 cashier, serving 500 cars over a simulated 24-hour period. The system tracks customer flow from arrival, fueling, payment, and exit, with queues forming at each stage.

The simulation measures:

* **Pump and cashier utilization**
* **Average customer waiting time**
* **Flow efficiency and bottlenecks**

Key outcomes include performance reports and visualizations (e.g., pump usage and waiting time histograms), with the goal of improving station layout and reducing wait times. Results are summarized in an auto-generated PDF report.

**Tools used**: Python, SimPy, Matplotlib, FPDF