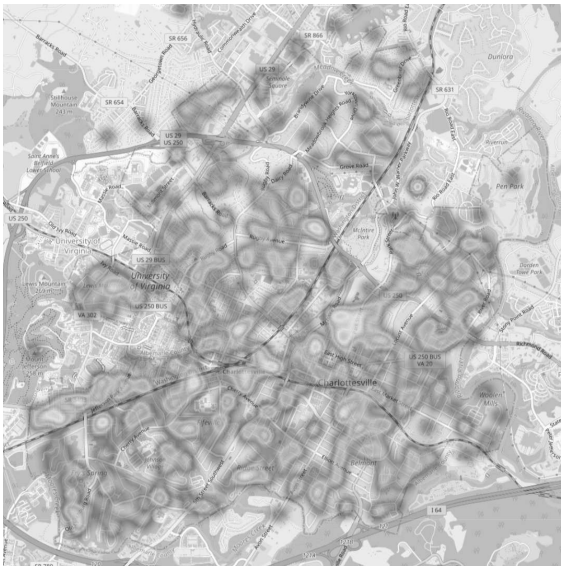
Using Data Science to Predict Parking Tickets

A DS4002 Case Study by Evan Stewart



Background

According to the U.S. Census Bureau, state and local governments collectively generated over $3 billion in revenue from parking-related fees in 2020, including parking tickets, meters, and government parking rentals. In Charlottesville, parking fines range from $20 to $360. In an already expensive economy, these additional costs can be difficult for individuals to manage. Many key factors influence the likelihood of receiving a parking ticket, which may be the difference in a driver receiving a parking ticket.

Understanding these contributing factors is also crucial for improving urban policies at the local level. Ultimately, neither drivers nor local governments want to deal with the frustrations associated with parking enforcement. This case study aims to contribute to a more efficient and equitable approach to parking management, which you will explore in the following scenario..

Your Task

You are a data scientist working for the City of Charlottesville looking to build a model that helps traffic managers and drivers understand where traffic tickets are most likely to occur. In this project, you will explore data given by the government of Charlottesville. You will use Isolation Forest to detect for and predict anomalies in parking tickets, helping the city become more efficient and reduce the burden of traffic enforcement. In doing so, you will also help Charlottesville residents better understand what variables, such as time of day, influence the likelihood of them receiving a ticket.