

Simulation of Marketing Mix – Placement of Business

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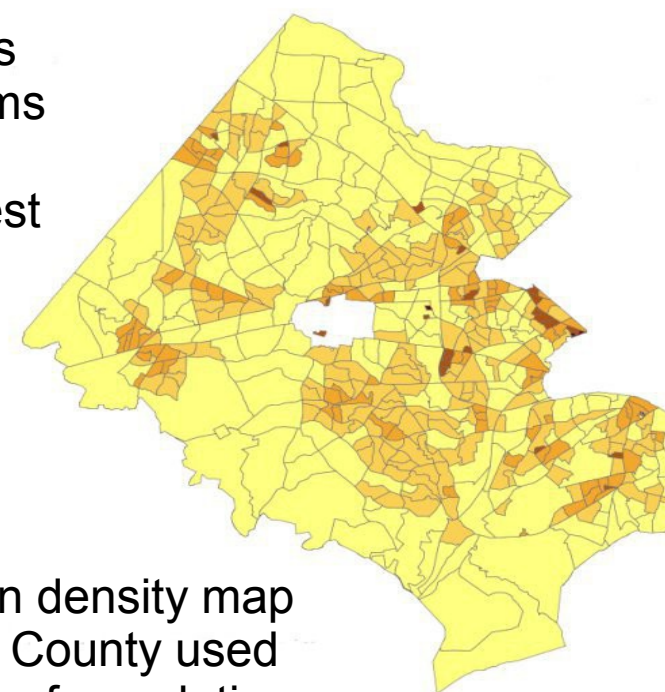
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Abstract

Companies often face problems when seeking a way to transport goods/services to consumers. The strategy businesses use to solve such a problem is called the marketing mix. The purpose of this project is to find the optimal distribution channel based simply on a few variables such as population density and location of competition. The project will feature a GUI aspect created in Java to display the optimal location of a business. The optimal location will be found using a heuristic to evaluate possible locations.

Introduction

One of the aspects of the marketing mix is the placement or location aspect. This aspect includes the physical location of the store. The program aims to focus on the physical location of a possible business to maximize revenue and reach the largest consumer base. A heuristic will be written to process variables such as population density and location of location competition.



Population density map of Fairfax County used as source of population density data

Background

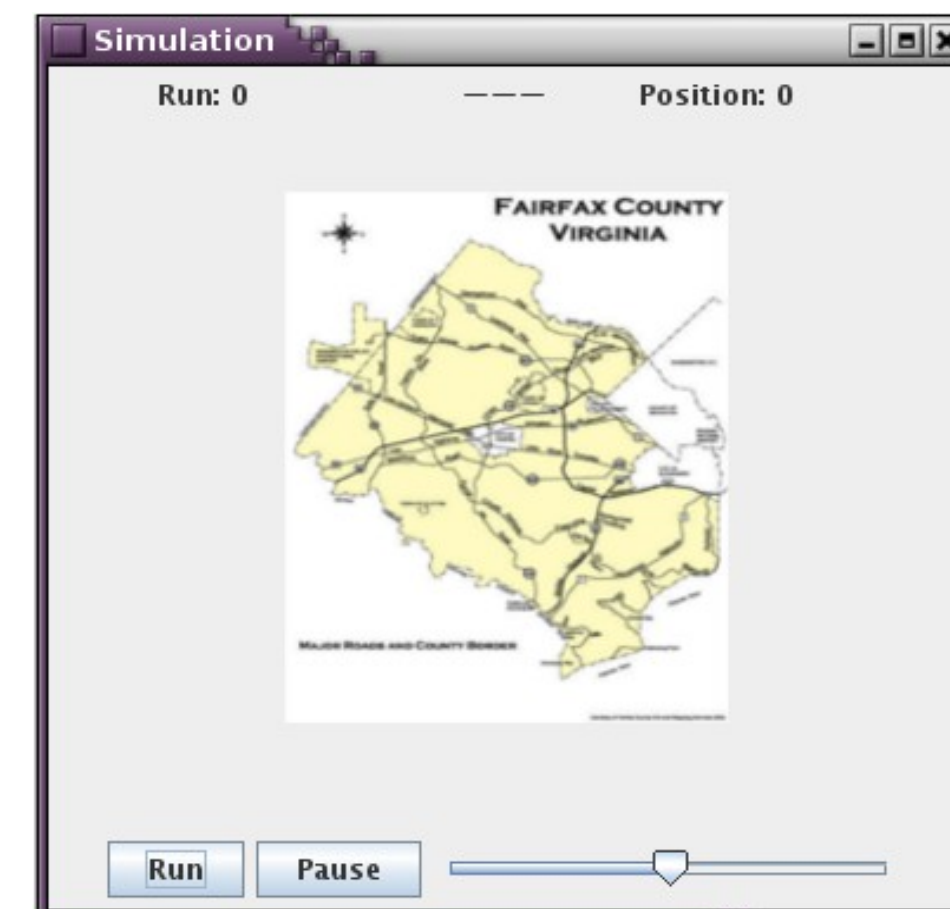
Finding the optimal location is currently done through professional advisors. The advisors take into account many variables of marketing mix such as location of the store, advertising, price, etc. Many programs have been written to model the process, although few have succeeded because of the many variables involved. Models usually tend to focus on the placement aspect of the marketing mix as it is the aspect that can be more easily measured quantitatively. The variables included in the placement aspect include population density, ease of access, and location of competition. A heuristic is then developed to evaluate the data and to find the optimal location. However, many previous models have failed to accurately find the optimal location because the significance of placement varies depending on the placement. For example, gas stations place more emphasis on location than a mall. A model can be made where the heuristic can be easily adjusted based on the emphasis placed on the placement aspect.

Developments

The model will be coded in Java with the occasional use of Python for various tasks. For example, Python is used to copy the data from a population density map into a usable text file. The program will include separate aspects including a GUI and a heuristic class to allow for easier editing. The GUI displays a map of Fairfax County (test region) and display the location of local competition along with the optimal location. A rating will also be given for possible business locations.

Discussion of Results

The program can currently read in the text file with the population density and find the location where the greatest number of people are closest to.



Current GUI