Applied Data Science Capstone

April 8, 2020

Introduction

This section provides a description of the problem and a discussion of the project background.

Background

There are many situations where knowing the distance from a specific location is important. For example:

- Distance from a chemical spill
- Distance from an earthquake epicenter

In addition, knowing the distance to the closest occurrence of a specific capability is also an important factor in deciding which instance of that capability to utilize, specifically when there is a choice to be made. For example:

- Distance from the nearest fire station
- Distance to the nearest hospital, when there are multiple facilities to choose from within a defined radius.

Having access to accurate distance information (or distances, if there are multiple locations) relative to a known object or location can aide in decision making. For example, in the event of a medical emergency while in an unfamiliar city, it would be useful to know how many hospitals are nearby and which one is the closest.

Problem

This project will create a process for calculating distance from a specific location to a set of facilities. The process will be illustrated using an example based in Seattle, Washington, which is a densely populated urban area in the northwestern United States. By the way, Seattle is also the home of Amazon and nearby Microsoft (headquartered in Bellevue).

Seattle, Washington

The specific location chosen for this illustration is Seattle's Space Needle. It is a city landmark and is considered an icon of Seattle. It was built in 1962 for the World's Fair and stands 605 feet tall.

Space Needle

This process will calculate the straight-line distance from the Space Needle to surrounding hospitals, where the primary objective is to locate the closest hospital.