Chapter 17
Big Data Visualization Tools and Techniques

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ABSTRACT

In this chapter, a discussion is presented on the latest tools and techniques available for Big Data Visualization. These tools, techniques and methods need to be understood appropriately to analyze Big Data. Big Data is a whole new paradigm where huge sets of data are generated and analyzed based on volume, velocity and variety. Conventional data analysis methods are incapable of processing data of this dimension; hence, it is fundamentally important to be familiar with new tools and techniques capable of processing these datasets. This chapter will illustrate tools available for analysts to process and present Big Data sets in ways that can be used to make appropriate decisions. Some of these tools (e.g., Tableau, RapidMiner, R Studio, etc.) have phenomenal capabilities to visualize processed data in ways traditional tools cannot. The chapter will also aim to explain the differences between these tools and their utilities based on scenarios.

INTRODUCTION

Business decisions have always been reliant on available information. Without the right type of information at the right time, business decisions can be flawed and in some cases catastrophic. Managers and top line executives alike rely on data, facts and historical records to be able to take actions that would solve a problem, avoid a potential business problem or even create new business opportunities. In a recent research study conducted among 600 medium sized British firms, insufficient information and information barriers are accounted as one of the biggest constraints to management efficiency (Bloom, Lemos, Qi, Sadun, & Reenen, 2011).

It is argued that the visual representation of data (data visualization) is perhaps one of the most important aspects of data analysis. Decision makers can relate better with a visual reference to information that is given to them as opposed to textual information. Through visual perceptions and cognitive processes, data can be made easier to understand and better business insight can be obtained from the data. Let us consider an example.

Figure 1. Visual navigation map showing vehicular route from Hauppauge to Long Island (Google, 2015)
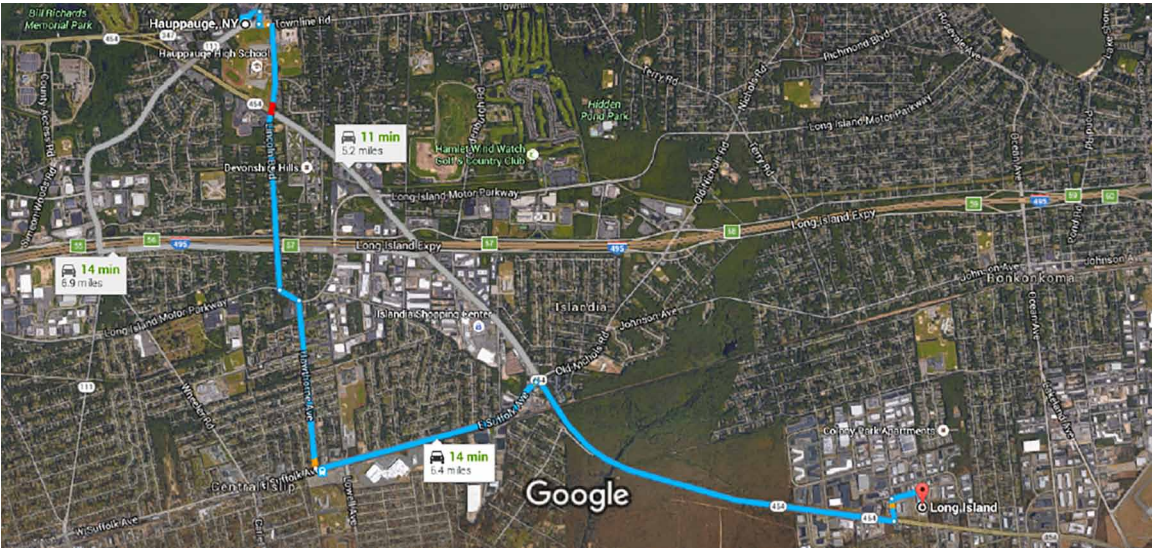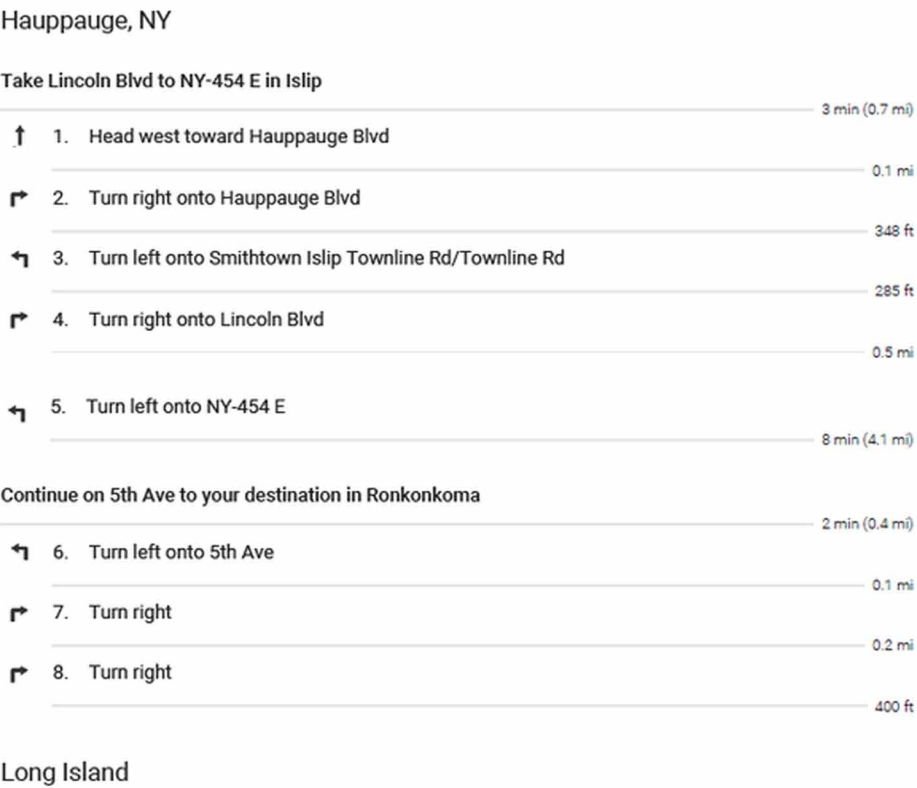

Figure 2. Textual description of the vehicular route from Hauppauge to Long Island. (Google, 2015)

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