

Chapter 1

An Introduction to Data Analytics: Its Types and Its Applications

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ABSTRACT

Data analytics mainly deals with the science of examining and investigating raw data to derive useful patterns and inference. Data analytics has been deployed in many of the industries to make decisions at proper levels. It focuses upon the assumption and evaluation of the method with the intention of deriving a conclusion at various levels. Various types of data analytical techniques such as predictive analytics, prescriptive analytics, descriptive analytics, text analytics, and social media analytics are used by industrial organizations, educational institutions and by government associations. This context mainly focuses towards the illustration of contextual examples for various types of analytical techniques and its applications.

INTRODUCTION: DATA ANALYTICS

Data analytics is the knowledge of investigating raw data with the intention of deriving solution for a specified problem analysis. Nowadays analytics has been used by many corporate, industries and institutions for making exact decision at various levels. The mechanism of drawing solutions during analysis of large datasets with the intention of determining hidden patterns and its relationship. Analytics differs from mining with the mechanism of determining the new patterns, scope, techniques and its purpose.

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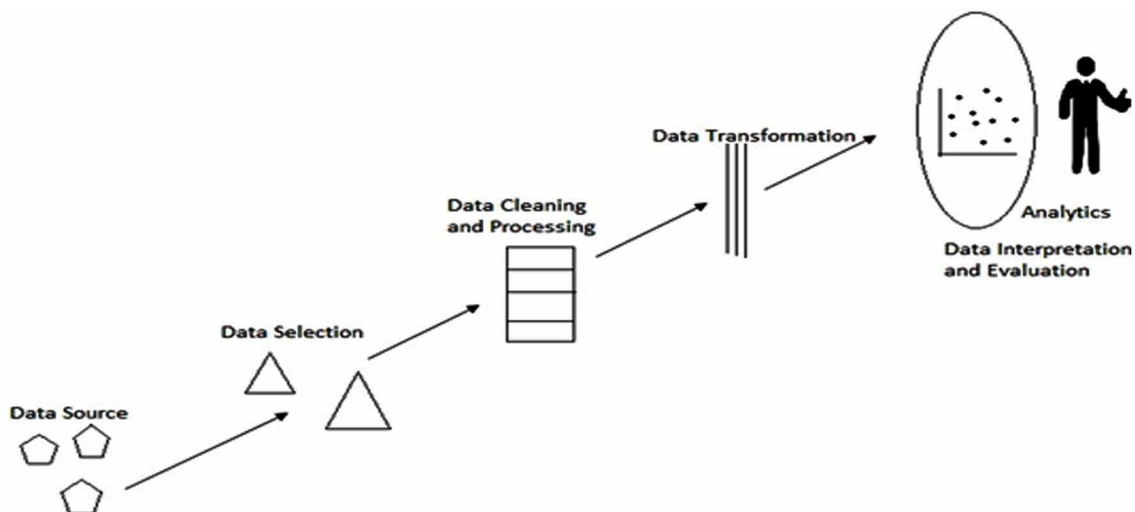
ANALYTICS PROCESS MODEL

The Mechanism of analytics has been used variantly with machine learning, data science and knowledge discovery. The process model initially starts with the data source which is in raw form of representation. The data needed for analysis has to be selected with accordance to the problem need for data interpretation. The identified data may contain various missing fields, irrelevant data items. This has to be resolved and cleaned. Then the data has to be transformed accordingly to the necessary format for evaluation and this can be made by the data standardization techniques such as min-max normalization, Z-score normalization and normalization by decimal scaling. As an outcome the final evaluated pattern provides the visualized data representation of the data which can be fed up for evaluation and interpretation. The workflow of the process model is depicted in Figure 1.

ANALYTIC REQUIREMENTS

The Analytical model should actually solve the chosen problem in which it has to be developed. In order to achieve or to solve the defined problem it should be properly defined. The model to be developed must have predictive capabilities in order to determine the patterns and interpretations from the observed data. Then the model should resemble an interpretable power and it should be justifiable in nature. Even though the model is to be interpretable it should adhere to its statistical performance. The efficiency in collecting the data, processing, analyzing it also plays a role in the requirement of the analytical requirements.

Figure 1. Analytics process model



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