**INTRODUCTION**

Having easy access to the web has radically changed the way people interact with brands and products. From physical products to online services, people tend to instantly share their opinions and reviews on various platforms on the Internet. A recent research experiment1 shows that consumers are more willing to share a review when the experience they have had evokes emotions, whether positive or negative. This large volume of consumers' reviews holds insightful information about the quality of the product/service, therefore analyzing them will help consumers make a better judgment toward the targeted item. In the past few years, a new sub- field of natural language processing (NLP) called reputation generation has been well-established as an area of interest. The main focus of reputation generation systems is to produce a numerical value in which an entity is held based

on mining customer reviews and their numerical ratings.

Over the last decade, many reputation generation systems have been proposed [1]\_[8] to generate and visualize reputation of online products and services based on fusing and mining textual and numerical reviews. However, these systems have not taken into consideration (1) extracting and processing reviews from various platforms, (2) filtering reviews written by potential spammers, (3) generating a numerical reputation value toward each aspect of the target product, and, (4) providing an advanced reputation visualization tool for a better decision-making process. Thereby, we designed and built an upgraded reputation generation model that overcomes the shortcomings of the previous systems in order to compute and visualize the reputation of an entity (product, movie, hotel, restaurant, service) with consistent reliability. The proposed system collects and processes data from both e-commerce and social media platforms. Then, a spam filtering system is applied to eliminate spam reviews and prepare the cleaned output for aspect-based sentiment analysis (ABSA), where aspects of the target entity are extracted from the reviews with their sentiment polarities. Later, the time and popularity features of the reviews are exploited along with the ASBA results to finally generate a reputation value of each aspect of the target entity as well as the overall reputation value using mathematical formulas. The system also proposes an analytical dashboard that displays in-depth information about the reputation of the target entity.

In this manner, this study addresses the following research question: with the consideration of review popularity, review time, spam filtering, and ABSA, can the proposed reputation model offer better results in terms of generating and visualizing reputation than state-of-the-art (SOTA) systems?

This paper is organized as follows. Section 2 presents the related work concerning the previous reputation generation systems as well as the ABSA models. Section 3 presents the preliminaries. Section 4 describes our proposal. Section 5 details the experiments. Section 6 presents the discussion. And finally, Section 7 concludes this paper.