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Online Social Gaming and Social Networking Sites

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Abstract

Online social games are becoming a significant component in today's social media sites. The social networking sites environment has provided a platform for online games to develop and expand in the virtual medium. Users are now able to play games online, compare scores, and challenge each other among many other things. Due to the diverse user demographics of social media sites, various motivations to playing social games emerge. The need for this present research was to answer the question whether the integration of social games within social networking sites and apps have increased the likelihood of playing those games. Therefore, the main objective of this research is to predict from the fact that will be used to decide whether to include games (Adventure, Fighting, Design\Art, Virtual Life…etc.) in the social media sites that still have not been implemented (such as Twitter, Tumblr, etc.). Also, we want to discover whether the inclusion of social games has improved the services offered by social sites and whether social gaming has effects on human behavior with regards to socializing and interacting with others. The aim of this study was to examine the relation between social media apps and games, and whether the former has increased users participation in online games. The primary setting for the quantitative method of research study was the online gamers regardless their age, gender, and interests. The data were collected by distributing an online survey, and were analyzed using WEKA data mining tool. Two popular classification algorithms were used to predict the answer of this research question. The resulting data were compared and tested for their accuracy using different metrics.

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Keywords: Online games; Social sites; Data Mining; Random Forest; Neural Networks.

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1. Introduction

Social media sites have grown increasingly popular in the last few decades. Initially they were created as tools utilized in communication and connecting people, but in the recent years they have evolved enormously. Recently, a new service has emerged with the addition of social online games (Adventure, Design and Art, Fighting, Virtual Life, etc.) to these sites. Many research papers are aimed to find ways to improve online games[1, 2]. Researchers are interested in using data mining techniques on users of social media sites to find out ways to improve the games themselves and the site which hosts the game[3, 4]. In this paper, we want to uncover the following, whether people are more eager to playing games because of the social element in social media sites (comparing scores, challenging each other, etc.), and what motivates them to play.

The organization of the paper is as follows: Section 2 is a literature review that contains some related work that served as a reference for this study. In Section 3, we summarize the technique adapted to collect data necessary for this research. Section 4 presents the Data Mining Software Tool. In Section 5, we present the adapted Knowledge Discovery process. In section 6, we present the comparative analysis of different algorithms. Section 7 presents the Result Discussion and finally Section 8 presents the conclusion.

2. Literature Review

Few research papers were found that discuss the impact of social network sites on the behavior of the online gamers. Wender wrote a report entitled "Data Mining and Machine Learning with Computer Game Logs"[3], in this report, he explains the process of using machine learning algorithms to discover new data patterns of human behaviors in online games so game developers can use this knowledge derived to create artificial players that act in a way similar to the humans. Ansari, Talreja, and Desai[4] aimed in their research paper to analyze the online social games using association mining algorithms to provide the game designers with new data patterns that can help them in improving the design of online social games. In a research paper entitled "A Novel Approach for the Classification of Social Media Data using Decision Tree", the two authors Pillai and Oliver[5] used Naive Bayes algorithms to analyze the social network data for tweeter since it becomes one of the most popular social network sites and therefore, it generated a huge number of tweets every day. After applying the Naive Bayes, the authors applied a decision tree algorithm on the same data set to check the accuracy of the results generated from applying the Naive Bayes algorithm.

3. Dataset Description

The dataset used in this paper is generated from the answers to an online survey that was created in Google Forms and distributed to a sample of 118 online gamers through the Email, Facebook, and WhatsApp. 68 responders are females and the rest 50 are males who have various interests and backgrounds. There are multivariate attributes that were generated from the ten questions of the online survey as specified in Table 1 of Appendix.

The variables such as age and the time the respondent spent to play the games are of numeric type and their values are represented in ranges. The rest of the variables are of the type string.

4. Data Mining Software Tool

The mining tool that is used in this research is WEKA, which is a collection of machine learning algorithms that are used for mining the data[6]. This research depends on Weka tool for the following:

- Data pre-processing (data cleaning and reduction).
- Mining the data using classification algorithms.
- Evaluation of the model based on accuracy and the speed of the used algorithm.