Personalizing Game by Using Social Network

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Abstract. A social network game is a type of online game that is played through social networks. Users are now able to play games online, compare scores, and challenge each other among many other things. But, existing social network games encourage a user to forward a message to the friends of a user connected to the social network to promote the game. In this paper, we propose a personalized game using social network. To achieve this, the game reflects the update or activity of the relationship between friends in the social network. This approach not only enhances the immersion of the game by providing the game that reflects the reality to the user, but also promotes the participation of the social network by allowing the user to detect the situation of the social network while playing the game.

Keywords: Social network game · Personalization · Game interaction · Social interaction · Synchronous vs asynchronous interaction

1 Introduction

A social network game is a type of online game that is played through social networks. 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. The social games business has been growing fast and, in recent years, they have made headlines with promising estimations [1–3]. Facebook is the most popular social network service with over 1.1 billion active users. Recently Facebook announced that 20% of Facebook's daily users play social games [4]. These numbers suggest that games and play on Facebook have become very popular, and that it is the most popular platform for social games.

The beginning of the social games era can be set in 2007, when the social network service Facebook was opened for third-party developer applications with the launch of the Facebook Developer Platform [5]. [6] has proposed the following short definition for social games: "Online games that adapt your friendship ties for play purposes, while accommodating your daily routines." This definition emphasizes three distinct aspects: Social games are played online, they take advantage of the player's existing social network, and they support the sporadic and spontaneous cultural use of social network services, such as Facebook.

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But, existing social network games encourage a user to forward a message to the friends of a user connected to the social network to promote the game. This kind of spam message delivery is a problem that can cause displeasure among friends of social network. We will study a new type of social network game that can promote both social networks and game play.

2 Personalized Social Network Game

In this paper, we propose a personalized game using social network. To achieve this, the game reflects the update or activity of the relationship between friends in the social network. This approach not only enhances the immersion of the game by providing the game that reflects the reality to the user, but also promotes the participation of the social network by allowing the user to detect the situation of the social network while playing the game (Fig. 1).

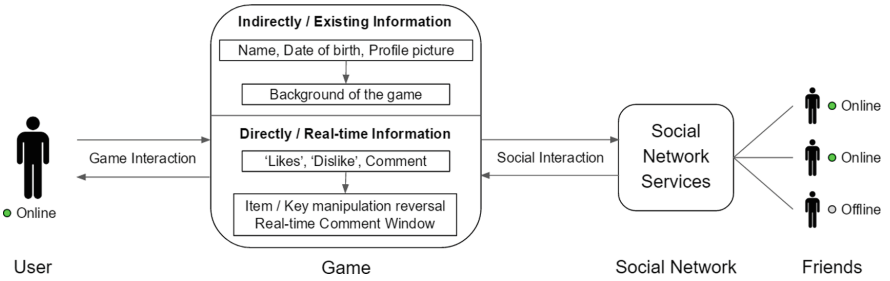

Fig. 1. Interaction of personalized social network game

2.1 Synchronous vs Asynchronous Interaction

There are two different way of interaction for the proposed social game. First is synchronous interaction between game and social network. This method exchanges data in real time between the game and the social network during gameplay to provide seamless connectivity between game players and friends on-line. For example, the game instantly reflects a friend's "likes" or "dislikes" updates on the social network to the game environment, affecting game play. Although they interact with each other in a heterogeneous way, they recognize each other's existence and become able to communicate in a new way.

The second is asynchronous interaction, which uses existing information in social networks to reflect on the game. Unlike the first, it does not provide real-time communication with users on social networks. For example, a game environment is constructed using public information accessible from a social network, such as a friend's birthday, a school of his or her birth.

2.2 Game System Reflecting Social Network

There are two ways to reflect the information acquired from social networks into the game. The first is to build the background of a game that uses information from social networks. The background of the game does not directly affect the game play, but it is easy for the user to recognize while playing the game. For example, it is possible to naturally inform the user who is playing the game, such as collecting photo information of friends who have reached birthday and playing billboard on the background of the game.

Second, we use information from social networks to influence game play directly. This can interfere with or help users play the game. To implement this, we automatically post a message to the social network when the game starts. If friends make a positive comment, such as "Like" in the message, the player will have an item that is favorable to gameplay. Or, negative reactions can be caused by obstacles in the game (Table 1).

Table 1. Using information of social network

	Existing information	Real-time information
Information interaction	Social Network → Game	Social Network ↔ Game
Influence on the game	Indirectly	Directly
Examples applied to the game	Background of the game	Item/Obstacles

3 Implementation and Results

3.1 Development Environment

We use Unity3D engine to implement a proposed social network game. Unity3D engine supports multi-platform, and it can be distributed to various operating systems such as Android and iOS. In particular, there are a variety of plug-ins that can be applied to social networks. And, tetris made with Unity3D was used as an example game. In the existing Tetris game, the game system will be modified to reflect the information of the social network. The social network API uses the Facebook API. The Facebook API supports the Unity3D plug-in and provides all of the social networking information for this study.

3.2 Main Function

We implemented a login window to connect to Facebook in a Tetris game using the Facebook API. If the login is successful, access to existing information in the social network is made to implement asynchronous interactions. And, the wallpaper of the Tetris game is created by using the name, profile picture and date of birth of a friend whose birthday is approaching. As a result, the game player naturally recognizes the information of the social network while playing Tetris. And since this information is used only as a background for the game, it does not directly affect the game.

To implement the synchronized interaction between the Tetris game and Facebook, “Likes”, “Dislike” responses and comment information are used. When the Tetris game starts, a message is automatically posted to notify friends about the start of the game on the timeline of the logged-in Facebook account. Friends who are online on Facebook can respond to comments like “Like” or “Dislike” on the post while playing the game. We provide the game player with an item that can clear the Tetris block whenever there is a “Like” response, allowing the game to proceed advantageously. On the contrary, whenever there is a “Dislike” response, the direction of the key that manipulates the falling Tetris block is reversed for 3 s to make the game difficult.

As a result, the social interaction and the game interaction are linked in synchronous or asynchronous manner, and the game and the social network update are mutually reflected. We have implemented cases where the game does not have a direct impact on the game play, and that provides an obstruction or an aid factor when reflecting the social network updates in the game.

4 Conclusion

In this paper, we propose a new type of social network game that can make both social network and game play positive by utilizing information of friends of social network for game play. We divide the information of social network into two categories: existing information that the user has registered in the past, and real - time information that is updated and communicated in real time, and processed and applied to be used as an element of the game. As a result, the user can easily detect the situation of the social network while playing the game (Fig. 2).

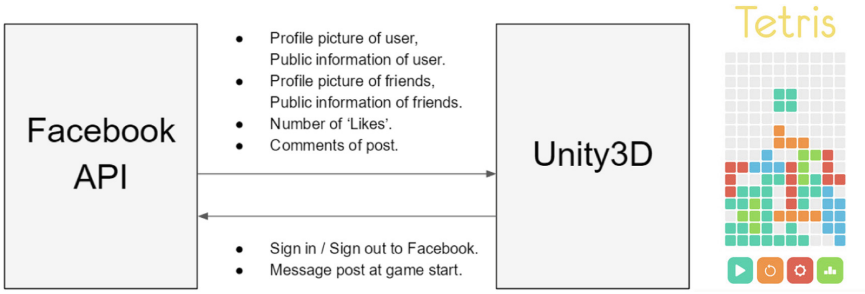

Fig. 2. Exchange of information between Facebook API and Unity3D

However, there was a limit to the fact that friends of social networks could not know the user’s game play situation in real time. Depending on the progress of the game, the responses of the friends can be changed, and the users who play the game should feel more immersed in the game and be influenced by the social network. Therefore, it is necessary to follow-up research to configure the system so that the friends of the social network know the situation of the game in real time.

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