Bilkent University

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CS 353 Database Systems

BilPlay - Group 22

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https://github.com/ikbalkazar/CS353-Group-22

1. Introduction

BilPlay is a community based social gaming marketplace where users can find various games from different genres. BilPlay enables users to play games alone or with their friends online. Users can buy the games they want and add them to their game library. A handy aspect of this gaming platform is that it provides user reviews for games which anyone can contribute and express their own ideas about games.

2. Description

Basic function of BilPlay is basically gather gamers in a platform in which they can play together, exchange information and ideas about games. People can add others to their friend list and can play with their friends by creating game sessions.

A gamer can create a game session on a game that he/she owns. Then he/she can invite friends to the session and they can together play the game.

User reviews are one of key parts of BilPlay. Every user can express their own ideas about each game they own in their reviews. These reviews are simply the guidelines to the users who do not have those games. When a gamer does not have an idea about what the game is, what is the game about or is it worth to buy the game, it is quite useful to take a look at the reviews. A game review is consisted of 3 parts. First is the time which review is made. By looking at the time, users can see whether the review is up-to-date and is more related to the game since games can be updated by the providers. Second part is rating. Rating is the overall point of the game given by the user and is out of 10 where 10 is perfect and 1 is awful. Third and the last of part of the review is comment. Users can write their comments in their own words. Comments provided by users are quite handy for other gamers since the gamer perspective is pretty much similar considering the type of the game. Moreover, users who played the game before, can see the positive and negative aspects of the game and describe these in the comment section. To conclude, these reviews can

prevent users from wasting their money on games they do not know and similarly, they can

lead users to the games they more likely to enjoy.

3. E/R Diagram
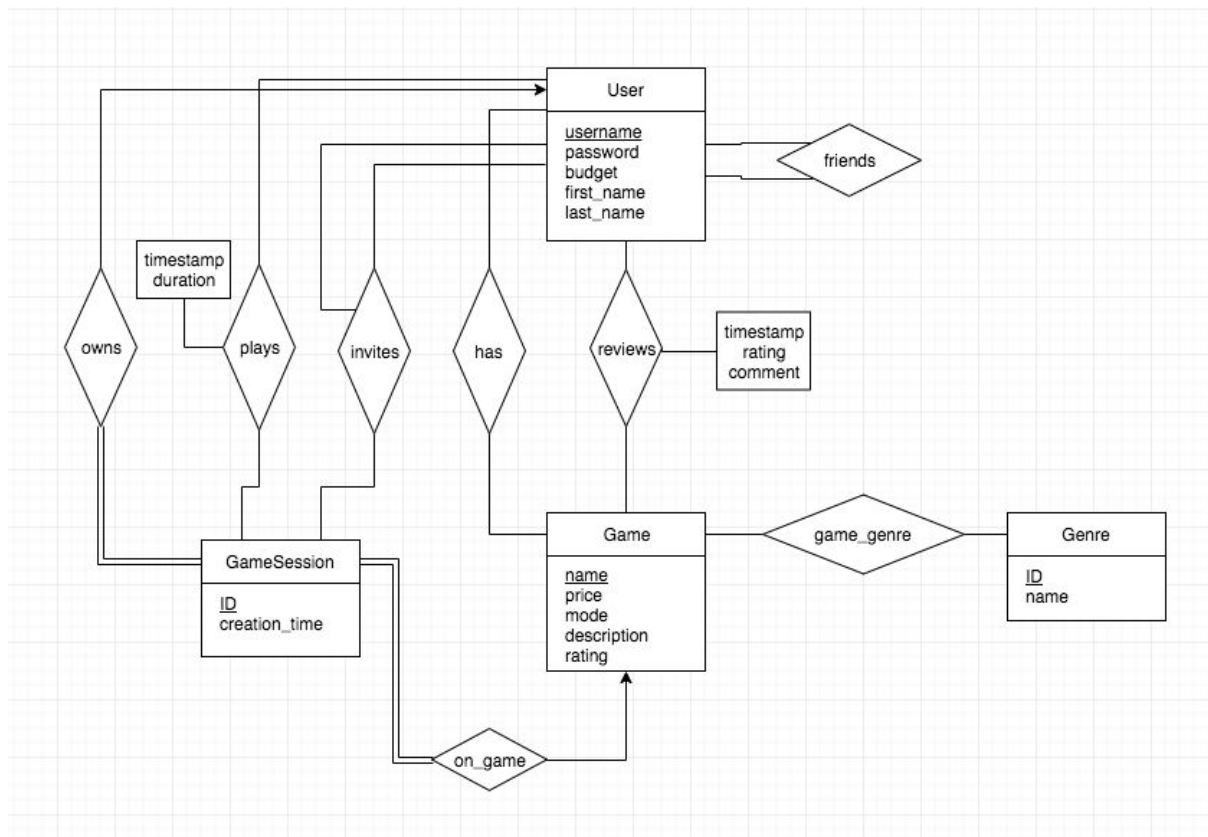
The E/R diagram above summarizes the entities and relationships between them. Each

entity and relationship will be discussed in detail in the following parts.

4. Functional Requirements

4.1. Entities

1. **User**

Users have:

- A unique username.

- Password.

- Budget.

- First name.

- Last name.

Users can:

- Increase their budget.

- Buy games that they can afford.

- Write reviews to games they bought.

- Add other users as friends.

- Create a game session on a game that they own.

- Invite friends to game sessions that are on multiplayer games.

- Accept invitation and join a game session to start playing the game.

2. Game
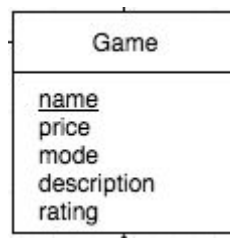
Games have:

- A unique name.

- Price in Turkish Liras.

- Mode (either multiplayer or singleplayer).

- Description written by the creator.

- Associated genres such as strategy, arcade, action etc.

Games can be:

- Bought by users.

- Associated with a game session.

- Reviewed by users who bought the game.
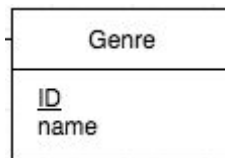
3. GameSession
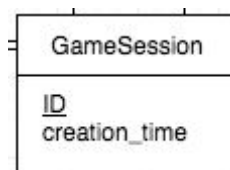
Game Sessions have:

- A unique ID.

- Creation timestamp.

Game Sessions can be:

- Created by users.

- Used to send invitations to friends of the user.

- Joined by a user for a certain duration of time.

4. **Genre**

Genres have:

- Unique ID.

- Names such as action, first person shooter etc.

Genres can be:

- Associated with games.

4.2. Relationships

1. **owns**

   When a user creates a game session, they become the sole owner of the game session. Being the owner of a game session entitles user to invite their friends to the session if the game in question is a multiplayer game.

2. **plays**

   Users can play in game sessions they own or they can join other game session via invitation sent by their friends on the platform if they also bought the game beforehand. When you enter a game session your join timestamp is recorded and when you leave the session duration of the game play for the particular user is stored in the attribute of this relation.

3. **invites**

   Owner of a game session can invite their friends which also bought the game. Invited user can join the game session and start playing the multiplayer game with their friends.

4. **friends**

   Users can add each others as friends on the platform. Friends can invite each other

   to game sessions they create later on.

5. **has**

   Users can increase their budget in the platform and buy games from the game

   market.

6. **reviews**

   User who bought the game and tried it out can leave a review on the game.

   Review includes a timestamp, rating between 1-10 and a comment.

7. **on_game**

   This relationship allows us to store the relationship between GameSession and

   Game entities. Each game session can be associated with a unique game.

8. **game_genre**

   Each game can be associated with one or more genre such as action, adventure,

   strategy.

5. Non-Functional Requirements

- **Usability**

   BilPlay will have a user friendly interface and it will be designed with simplicity in mind in order to prevent any distractions that might cause users to have an unpleasant gaming experience. Users will be able to easily observe their gamer social network and interact by inviting each other to multiplayer game sessions.

- **Reliability**

   Reviews by previous customers on the game market will showcase the reliability of the platform.

- **Performance / Scalability**

   Careful implementation of the database architecture we designed and explained in detail above will allow us to scale to significant number of users without hitting any bottlenecks.

6. Limitations

Users can join a game session only if they are owner or they were invited by the owner of the game session. Users also can write reviews on a game if they bought the game. Users can not play a game they don't own (i.e. join a game session associated with that game). Users can only invite their friends to game sessions. Users can not invite their friends to game sessions on single player games. Users can not be in several game sessions at the same time.