## Entities of the system:

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| **Entity** | **Entity type** | **Description of it** |
| **User** | Key | Main user |
| **Admin** | Weak | Subclass of user with more previligies |
| **AuthSession** | Weak | Dependent of user |
| **Item** | Key | Game item which we are selling |
| **Favorite** | Associative | Item which user liked |
| **Game** | Key | Game to which any item belongs |
| **Genre** | Key | Game genre |
| **ItemRating** | Associative | Item’s rating based on users |
| **Collection** | Associative | Collection of items which was created by user |
| **Category** | Key | Category of items(differs by genre) |

## Relationships:

* User - Favorite: One user can have multiple favorites (1:M)
* Favorite - Item: One favorite relates to one item (M:1)
* User - AuthSession: One user can have 1 active session (1:1)
* User - Game: One user can view many games (M:N)
* Item - Game: One item can be related to one game (M:1)
* Item - Category: Many items can be classified into one category (M:1)
* Game - Genre: Many games can belong to the same genre. (M:1)
* User - Collection: One user - many collections (1:M)
* Collection - Item: (М:М), because one collection can contain many items, and an item can be included in several collections
* User - ItemRating: Rating as an associative entity with the **score** attribute

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| Relationships | **Cardinality** | **Ordinality -(obligation)** | **Description** |
| **User – AuthSession** | 1:1 | Mandatory ↔ Mandatory | One user = one active session |
| **User – Favorite** | 1:M | Mandatory  User → Optional Favorite | Not every user is required to have favorites |
| **Favorite – Item** | M:1 | Mandatory  Favorite → Mandatory  Item | Each Favorite is tied to one item. |
| **User – ItemRating** | 1:M | Optional ↔ Optional | Not every user rates |
| **ItemRating – Item** | M:1 | Mandatory ↔ Mandatory | Each grade is given to a specific subject. |
| **User – Collection** | 1:M | Обязательный User → Необязательная Collection | Not every user creates collections |
| **Collection – Item** | M:N | Optional ↔ Optional | The collection may be empty, the item may not be included in any |
| **Item – Game** | M:1 | Mandatory ↔ Mandatory | Each item is associated with one game. |
| **Game – Genre** | M:1 | Mandatory ↔ Mandatory | A game always has a genre |
| **Item – Category** | M:1 | Mandatory ↔ Mandatory | Each item has a category |

## Attributes

#### **User**

* user\_id (PK)
* email
* password\_hash
* Username
* is\_admin
* created\_at (derived)
* last\_login\_at (derived)

#### **AuthSession**

* session\_id (PK)
* user\_id (FK → User)
* token
* expires\_at
* created\_at

#### **Item**

* item\_id (PK)
* name
* description
* price
* image\_url
* stock\_quantity
* rating (derived, average value from ItemRating)
* game\_id (FK → Game)
* category\_id (FK → Category)

#### **Favorite**

* user\_id (FK → User)
* item\_id (FK → Item)
* **PK: composite** (user\_id, item\_id) — the same thing cannot be in favorites twice

#### **ItemRating**

* rating\_id (PK)
* user\_id (FK → User)
* item\_id (FK → Item)
* rating\_value — from 1 to 5
* comment
* rated\_at

#### **Collection**

* collection\_id (PK)
* user\_id (FK → User)
* title
* description
* created\_at

#### **CollectionItem**

* collection\_id (FK → Collection)
* item\_id (FK → Item)
* **PK: composite** (collection\_id, item\_id)

#### **Game**

* game\_id (PK)
* name
* genre\_id (FK → Genre)
* release\_date

#### **Genre**

* genre\_id (PK)
* name — RPG, FPS, Adventure , etc...

#### **Category**

* category\_id (PK)
* name — T-shirts, posters, figurines, etc.
* description