

# Database definition for the exam

```
create table "User" (  
  "Id" integer primary key,  
  "Email" varchar(30) unique,  
  "Username" varchar(30) unique,  
  "Balance" real check ("Balance" > 0),  
  "CreditCardNo" char(16)  
);  
  
create table "Game" (  
  "Title" varchar(50),  
  "Year" integer,  
  "Released" boolean,  
  "Price" real check ("Price" > 0),  
  "PEGI" integer check ("PEGI" > 0),  
  primary key("Title", "Year")  
);  
  
create table "User_Game" (  
  "UserId" integer,  
  "Title" varchar(50),  
  "Year" integer,  
  primary key ("UserId", "Title", "Year"),  
  foreign key ("UserId") references "User" on delete cascade,  
  foreign key ("Title", "Year") references "Game" on delete cascade  
);  
  
create table "Review" (  
  "UserId" integer not null references "User" on delete cascade,  
  "Title" varchar(50),  
  "Text" text,  
  "Score" smallint check ("Score" between 0 and 10),  
  "GameTitle" varchar(50) not null,  
  "GameYear" integer not null,  
  "Date" timestamp without time zone,  
  primary key ("UserId", "Title"),  
  foreign key ("GameTitle", "GameYear") references "Game"  
);
```

**Note:** The PEGI index marks the minimum suggested age to sold that particular game, so for example PEGI = 16 means that the game should be sold only to people who are 16 or older.

**Exercise 1 - (5 points):**

Write a query that adds the following table **Publisher** to the database: and the following constraints:

Column	Type
Id	integer
Name	varchar(20)
Founded	integer

- The primary key is Id.
- Name cannot be NULL.
- Founded must be greater than 1970.

**Exercise 2 - (10 points):**

Assuming of having performed the change of schema in the previous question, define a reference between **Producer** and **Game**, such that a producer can publish different games but a game can only be published by one producer.

**Exercise 3 - (10 points):**

Assume of having performed the change of schema in Exercise 1, add the necessary entries in the database to insert the game **Call of Duty: Modern Warfare**, that will be published in November 2019 and produced by **Activision** founded in 1970. Activision suggests that the game is sold to people who are 16 or older. You can choose an Id of your choice for the new row in the table **Publisher**.

**Exercise 4 - (10 points):**

Write a query that retrieves the title and price of all games released after 2010. Eliminate duplicate rows from the result.

**Exercise 5 - (15 points):**

Write a query that retrieves the text of all reviews for the game **Unreal Tournament 3**.

**Exercise 6 - (15 points):**

Write a query that returns the title and price of all the games owned by user **pureownage**.

**Exercise 7 - (15 points):**

Write a query that returns, for each user, his username and the average score of the games he reviewed.

**Exercise 8 - (20 points):**

Write a query that returns all the column values of the top-selling game of 2019. The top-selling game is the game with the highest revenue (calculated as the sum of all purchased copies).