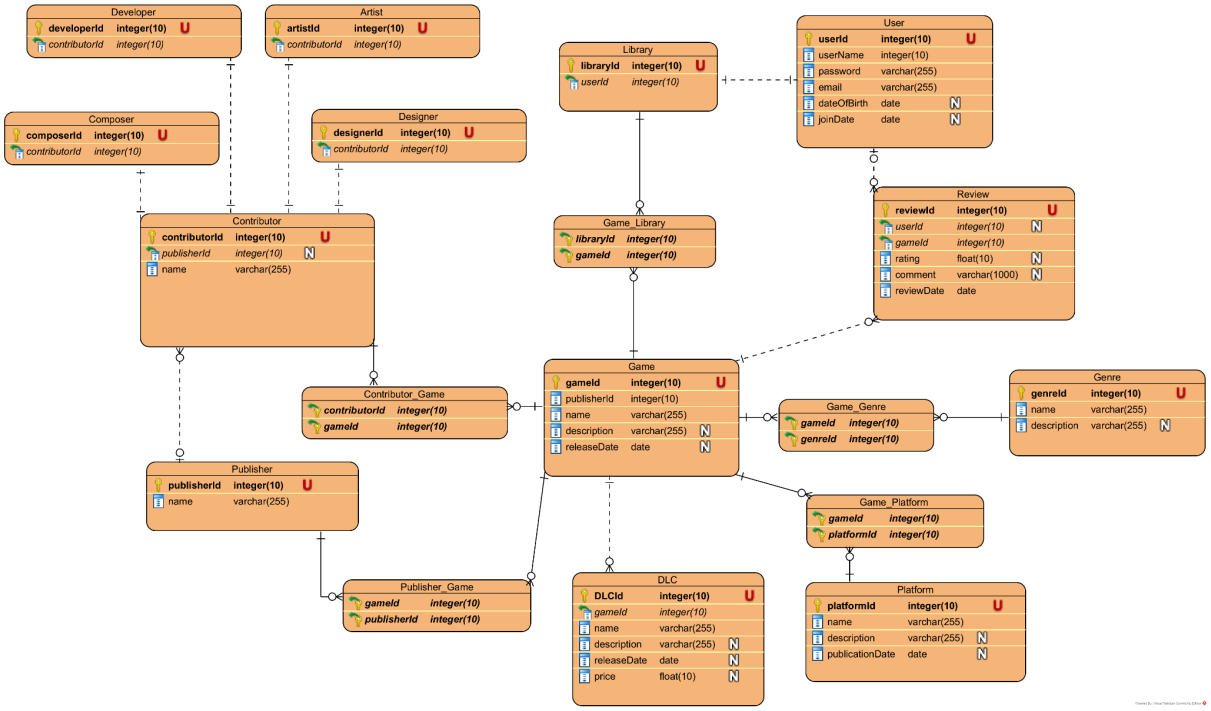
Databases - Lab 1

Sep Vrij - (6663729)
Richard Peach - (7511094)

In step 2 we converted the ER model to a SQL DDL. This was pretty easy to convert, since our ERD is a very complete diagram.



For example the Game table is expressed like:

```sql
-- SQL DDL for 'Game' table
CREATE TABLE IF NOT EXISTS Game (
   gameid INT(10),
   publisherid INT(10),
   name VARCHAR(255),
   description VARCHAR(255),
   releaseDate DATE,
   PRIMARY KEY (gameid),
   FOREIGN KEY (publisherid) REFERENCES Publisher(publisherid)
);
```

Step 4 - Posteriori normalisation

We'll not discuss if we have violated any of the normalization constraints and correct them where necessary.

First Normal Form

Atomicity: Each table cell must hold only one value, and it must be of a single data type.
No Repeating Groups: Each attribute must have a single value, not a set or list.
Unique Rows: Every row must be identifiable by a unique key (primary key).
Row Order Irrelevance: The sequence of rows should not affect the dataset's meaning.

We do not violate any of these constraints. All of our tables have unique keys, no row order relevance, no repeating groups and use atomicity.

To implement Many-To-Many relations we use junction tables.

Second Normal Form

Non-Key Attribute Dependence: All non-key attributes must depend on the entire primary key, not just part of it.

Anomaly Prevention: Ensures data is stored in the correct table to prevent update anomalies and ensure logical consistency.

We do not violate any of these constraints. All of our attributes rely on the right primary keys and stored in the correct tables.

Third Normal Form

No Transitive Dependencies: No non-key attribute should depend on another non-key attribute. Dependencies should only be on the primary key.

We do not have non-key attributes that rely on other non-key attributes.

Boyce-Codd Normal Form

Key constraint: Every attribute in a table should depend on the key, the whole key and nothing but the key.

This applies to our attributes.

Fourth Normal Form

Multivalued dependencies: The only multivalued dependency we're allowed to have in a table, are multivalued dependencies on the key.

Our multi-valued dependency like Genre for a Game, has its own table and has been split.

Fifth Normal Form

Join result: The table cannot be describable as the logical result of joining some other tables together. If it can't be thought of that way, it cannot be in 5NF

None of our tables are logical results of joined tables.