

Project Phase - III

▼ Team members

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Mapping the ER model to the Relational model

The relational model by itself can be considered to be in the first normal form. So We have skipped over the 1st normal form since our relational model itself follows the constraint of having atomic and single-valued attributes.



Minor error fix - There was a confusion regarding the primary key for the players. Steam ID alone is sufficient as a primary key opposing the pair of

Steam User and Steam ID mentioned in the ER model

Changes made in relations

Matches

- Converted the 2 subclasses into an attribute since they are disjoint and have no separate features as such.
- Made participating teams into a separate relation since it was multivalued attribute.

Heroes

- Composite attribute Base stats are converted into another relation with the primary key as the Hero name.

Teams

- Players is a Composite attribute (5 players) split it into 5 attributes.

Players

- Split User name into 2 independent attributes, steam name and steam ID.

*It has been assumed that an attribute having atomic property implies that it can be not be split into **meaningful** attributes. So attributes which can further be split but will have no meaning have been kept unchanged, such as Date of birth and other attributes dealing with time.*

2nd Normal form

A model is said to be in its 2nd normal form when it follows 2 constraints:

- The model is in 1st normal form.
- There is no non-prime attribute which is functionally dependent on a **proper** subset of any candidate key.



Note In the relation Match description Teams is only dependent on Match ID, but it hasn't been removed since that relation exists to get quick match details based on Match ID. Hence to reduce the number of joins it has not been normalized

Changes made in each relation

Matches

- Made participating teams into a separate relation since it was multivalued attribute.

Match performance

- Removing Steam Name since it is only dependent on Steam ID (subset of primary key)

Match description

- Removing Steam Name since it is only dependent on Steam ID (subset of primary key)

Roles

- Removing Steam Name since it is only dependent on Steam ID (subset of primary key)

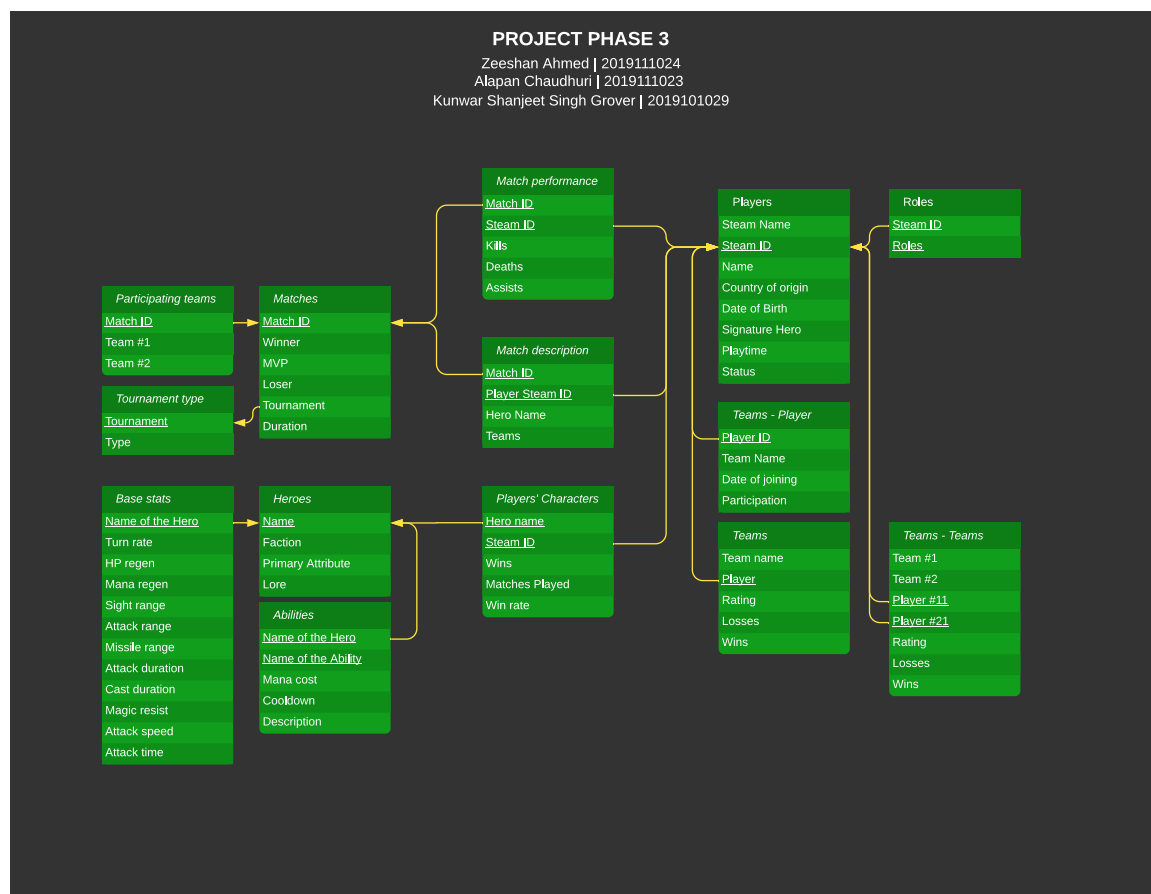
Players' Performance

- Removing Steam Name since for a given Steam ID since we don't have to display all the players performance at a time at a high frequency but only look up based on the name/ID.

3rd Normal form

A model is said to be in its 2nd normal form when it follows 2 constraints:

- The model is in 2nd normal form.
- There is sole dependence of attributes on the candidate keys rather than any non-prime attribute.



Changes made in each relation

Matches

- The type of the match (Amateur or professional) depends on the Tournament the match belongs to. So given the tournament of a match, you can