Project Phase 3

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Relational model

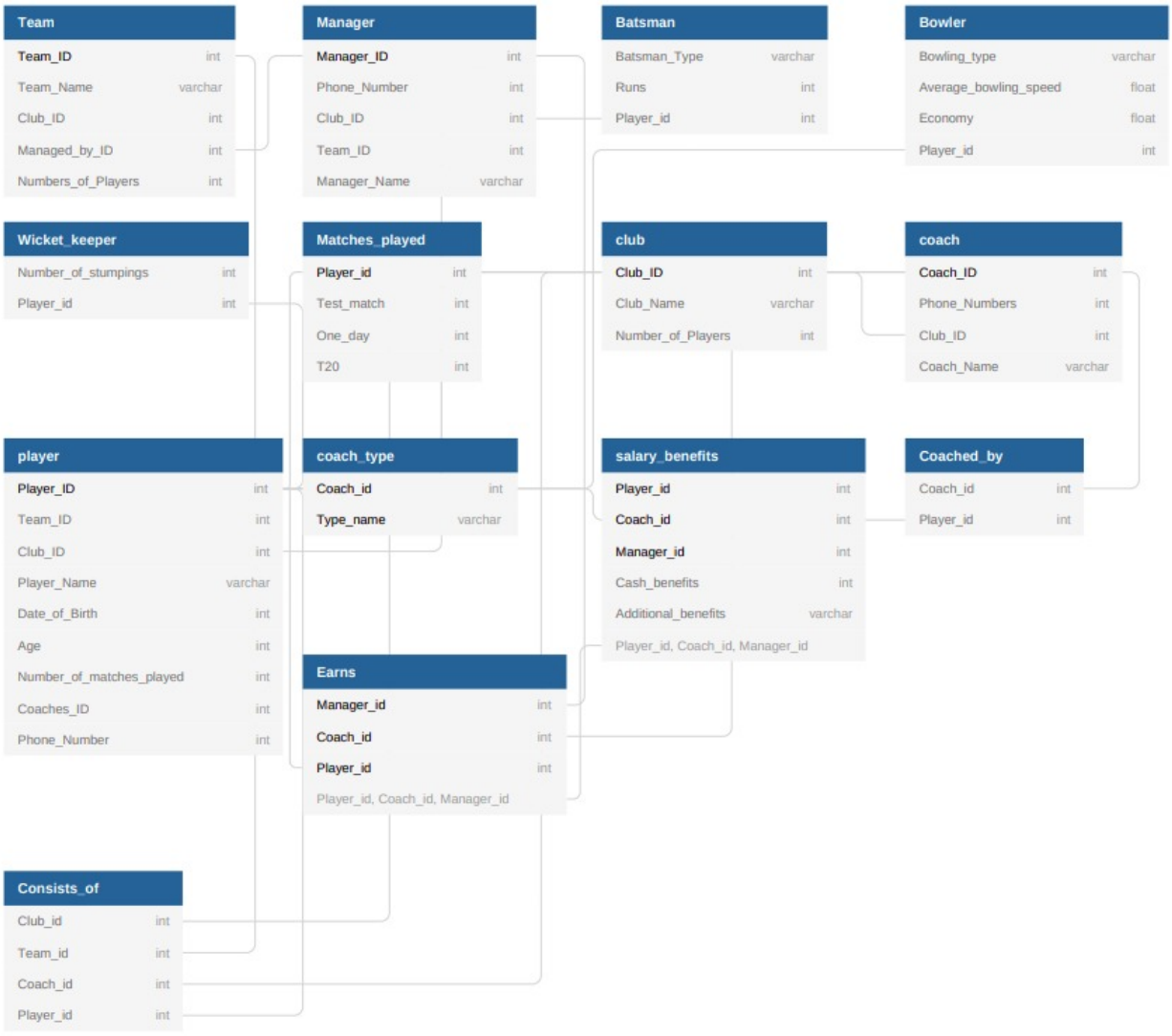
A relational model is in the form of relation tables with a set of rules followed.

We mapped all the binary relations and included the foreign key in the every relation. In weak entities, we included the primary key(foreign keys) of the identifying relationship and paired it up with the partial key to form the primary key of the relation table. One of the weak entity had 3 identifying entities, so we took a combination of all the primary keys of the entities and the partial key to form the primary attribute of the weak relation table.

For the sub-classes, we included the primary key(of its super class) in the table and related it.

For relations with degree n > 2, we created a table which consists of the primary keys of all entities participating in the relation as foreign keys whose combination will form the primary key of the table.

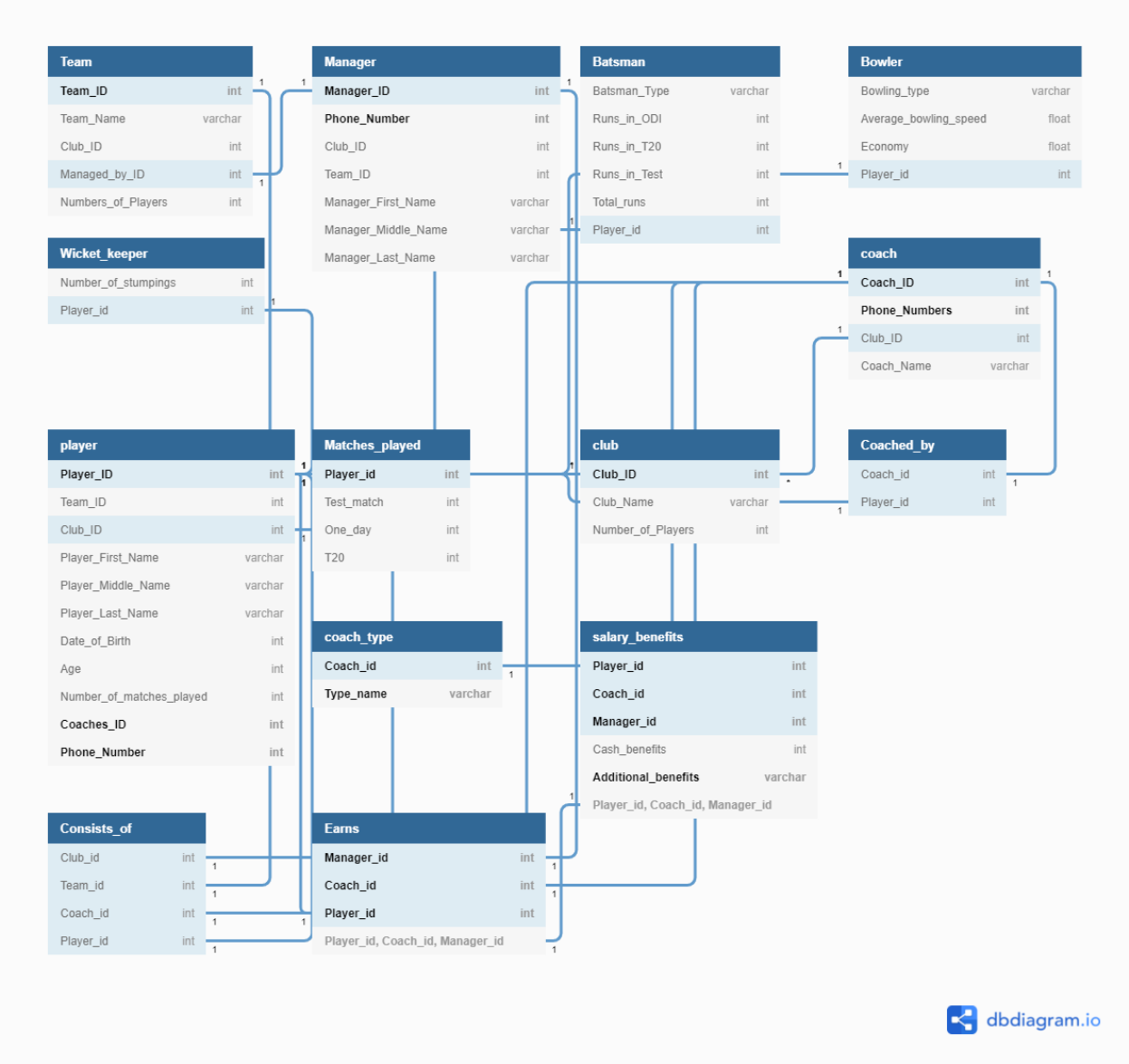
All the composite attributes(Batsman.Runs, player.player_name, manager.manager_name) are divided into the number of parts in the composite attribute and placed in the table as separate attributes.



1 NF

Requires that there be no multi-valued attributes, and that there be no repeating groups. A multi-valued attribute would contain more than one value for that field in each row.

So, for all table having multi-valued attributes (player, coach, manager, salary_benefits), we made the combination of the current primary key and the multi-valued attribute as the primary key. For, example, in case of manager, primary key = {manager_id + phone_number}.

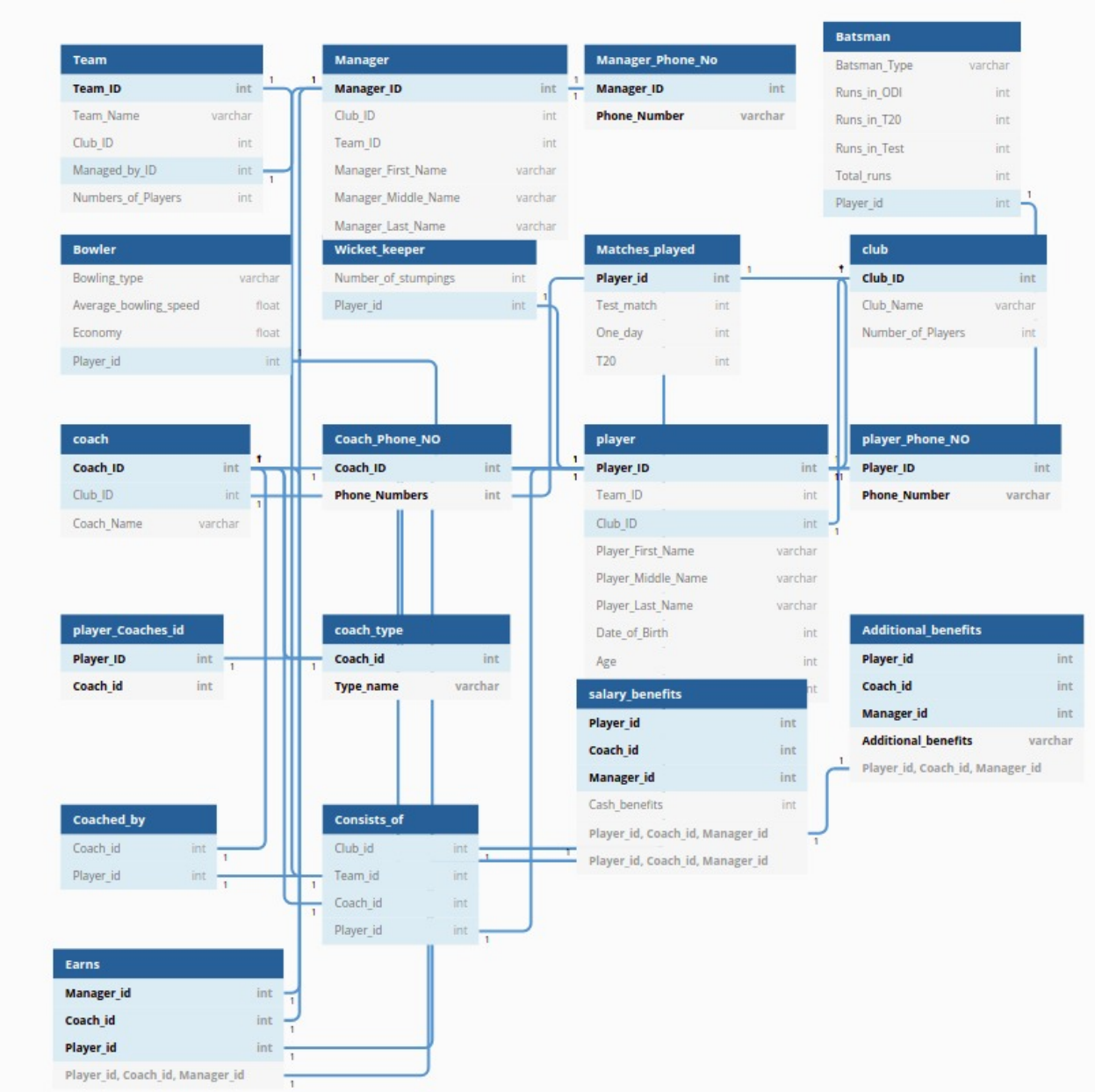


2 NF

It should be in 1 NF and there should be no Partial Dependency.

In the relational model,

1. In the table manager, all the non-prime attributes are dependent only on manager_ID directly or indirectly. Thus there will be redundant data. We divided the table into two tables where one contains the manager_id and all non-prime attributes and the other one contains manager_id and phone_numbers and none other since nothing depends on both of them. Similarly, we have done the same for tables player, coach and salary_benefits.



3 NF

It must be in 2 NF and have no transitive dependency.

1. Age attribute in player table was dependent on date_of_birth which is non-prime attribute, so we make a separate table containing player_id, date_of_birth and age as the attributes.
2. We do the same in subclass of table player, batsman where total_runs scored depends upon non-prime attributes. So we make a separate table for

Batsman_total_runs.