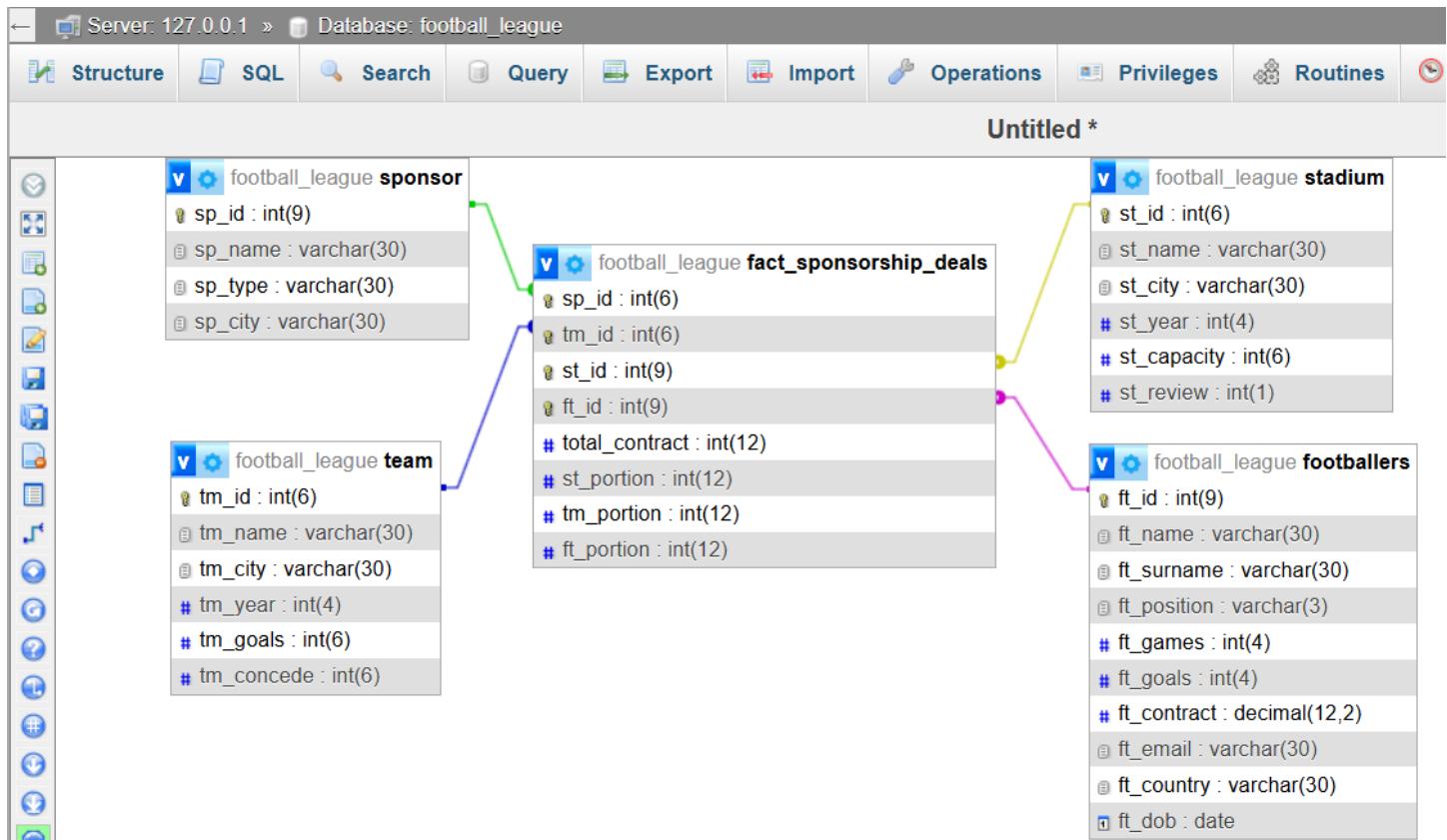


## Part B

2.

A Star Schema can be adapted for the database from Part A by introducing a new central fact table and restructuring the relationships. The new fact table, `fact_sponsorship_deals`, enforces referential integrity by containing the primary keys from all four dimensions: `sp_id` (Sponsor), `tm_id` (Team), `st_id` (Stadium) and `ft_id` (Footballers). The combination of these is the Concatenate key (composite primary key). To ensure a pure Star Schema and avoid a Snowflake structure, we removed the direct links between dimension tables (specifically dropping `st_id` from Team and `tm_id` from Footballers). This new schema offers a more detailed analysis of the sponsorship deals, recording not just the total contract value but explicitly how fees are distributed among the team, the stadium, and individual players.

The resulting schema, implemented in the XAMPP environment, is shown below.



Alternatively, the database can be structured as a Snowflake Schema by normalizing the team dimension. The team dimension is linked to the stadium table creating a dimension hierarchy. As a result, the new fact table excludes the `st_id` column, as the information about the stadium is now derived indirectly through team dimension. Therefore, the composite primary key consists of (`sp_id`, `tm_id`, `ft_id`). While this design reduces the width of the fact table, it introduces another join operation during query execution to retrieve stadium details.

The resulting schema, implemented in the XAMPP environment, is shown below.

