III. Indexes

1. create index date_index
   on match_mast(play_date)

   It is a secondary, clustered index.

   This will help q4 q5 and q6 2). Because this index provides the play_date for the match. And in q4 q5 and q6 2) needs to have a subquery return the specific play_date and the main query use this play_date to compare with other records. If the process of finding the first date or final date could be faster, then it helps the whole process of q4 q5 and q6 2) to be faster.

2. create index schedule_index
   on goal_details(goal_schedule)

   It is a secondary, clustered index.

   This will help q3 ii, iii, iv, v, vi. Because all the q3 ii, iii, iv, v, vi require us to select the record with the specific goal_schedule out first then we do the count. If we can use an index to get entrance for the records that are 'ET' 'ST' or 'NT' directly, it saves some time on selecting the records that matches the condition.

3. Create multi-level indexes on soccer_country(country_id) and soccer_team(country_id).

   It is a primary, multi-level index.

   This will help q5 and q6. Because in q5 and q6, there are lots of scenarios that we want to get the team's country name. However, we need to first find out the teams that meets the condition and then use subqueries or add conditions to find out the country_id of the team and then join with the soccer_country table to find out the country name. This process is too slow. By making the multi-level index, when we find out the teams that meet the conditions then we can find out the country name from index directly. In this way it would be more efficient.

4. Create multi-level indexes on match_mast(match_no,) and match_details(match_no).

   It is a primary, multi-level index.

This will help q4 q5 q6. In q4, q5, q6 there are situations that we need to find out the specific match by match_no on the match_mast table with some applied conditions; then we need to use this match_no to find out the specific match in the match_details to retrieve the fields that we want to get. This might use subqueries and multiple conditions and it is time consuming. However, if we have multi-level indexes that point out the match_no from the match_mast to match_details, then as soon as we know the match_no in match_mast, we could get the entrance to the match_no in match_details by index and retrieve the information from match_details. It would be more efficient.