Question 1: Programming: Let's Play Soccer

AIM: To make students understand the utility theory and bring it to practice by working on Utility functions, policies, single agent game, agent interaction with envrionment etc. The task is to model an agent to perform **assisted goal** shootout in the game of soccer. This is a simple implementation of policies, no learning is expected by the agent.

- There are 2 teams, team **RED** and team **BLUE**
- Team **RED** has 3 players and team **BLUE** has 4 players (1 Kicker and 3 in team **RED** play area).
- The players can not move from their respective places once the game starts.
- Team **BLUE** is performing an assisted goal shootout but from the Center Circle position. **(Condition 1)**
- So, one player from the **BLUE** team must remain at the center circle to take an assisted goal shoot.
- One player from each team will be staying in the Team **RED** goal box and will not leave it. **(Condition 2)**
- Apart from the center kicker from team **BLUE** players, the rest of the players will remain in the upper part as shown (**RED** Team area). **(Condition 3)**
- Shootouts must be done from the center by the team **BLUE** player as shown in the below image.
- **How to Play:**
    - The assisted goal shoot will be taken by a TEAM **BLUE** player from the center.
    - The kicker is our agent.
    - The agent needs to decide the shortest goal path, this will be your heuristic cost. (has to be assisted goal) **(Condition 4)**
    - With every run, the position of players will be changed, which has to be randomized and should satisfy the previous condition. **(Condition 5)**