# Title: Bayesian Network influence diagram for Football Player Selection

**Description:** This research employs Bayesian Networks to create an advanced decision-making tool for player selection in football teams. The model takes into account various factors such as coach preference, fitness level, time for recovery, and behavioral aspects, and it uses conditional logic to produce more refined and context-sensitive results. By evaluating a range of criteria from objective skills to subjective evaluations like leadership and clutch performance, the model produces a probabilistic outcome of a player being either "Selected" or "Dropped" for a match or season.

## How to run the project.

1. Open the proj3.neta file on the Netica software.
2. Run the network
3. Select one attribute from each of the 12 available super parent nodes.
4. Analyse how the values in the respective parent node change.
5. Select the final attributes for your player you have in mind.
6. See the probability of Selection.
7. Rerun the network with changed values, or different selections.

## Network Overview

**Selection Node**: This is the final decision node that indicates whether a player will be "Selected" or "Dropped". It is influenced by four main parent nodes: Coach Preference, Time for Recovery, Fitness Level, and Behavior.

**Coach Preference**: This node evaluates how much a coach would prefer to have the player in the lineup. It is influenced by:
- **Training Performance**: How well the player performs in practice sessions.
- **Communication**: How well the player communicates with the team and understands tactical instructions.
- **Style of Play**: How well the player's style fits into the team's tactical setup.
- **Clutch Player**: The ability of a player to perform well in high-stake matches, such as knockout rounds or cup finals.

**Time for Recovery & Fitness Level**: Both these nodes are influenced by:
- **Age**: Older players may need more time for recovery and may have a lower fitness level.
- **Height**: Might affect the player's speed and agility or injury risk.
- **Body Type**: Can influence stamina and overall physical performance.
- **Position of Play**: Different positions have different fitness demands.

**Behavior**: This node evaluates the behavioral aspects of a player and is influenced by:

- **Leadership**: The ability to motivate and guide the team.
- **Mental Health**: Emotional stability and how well the player copes with pressure.
- **Teamwork**: Ability to work well in a team setting.
- **Off-Field Behavior**: Conduct outside of football, including discipline and professionalism.