Program Design

Foundation Programming

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Architectural Design

# Menu Screen

The program displays the welcome message and gives the user options to navigate the program. The user will have to enter 1 to create the league first.

Welcome To The Premier Football League

1. Create League
2. Display League
3. Add Match Scores
4. Display Team Game History
5. Exit

Enter Your Choice:

# Create League

The program will prompt the user to enter 10 teams and return to the menu after user input.

Enter 10 Teams To Create The League

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

Enter Team:

# Display League – After Initialization

The League Table will be initialized to 0 once the user creates the league.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | P | W | D | L | Pts |
| Team1 | 0 | 0 | 0 | 0 | 0 |
| Team2 | 0 | 0 | 0 | 0 | 0 |
| Team3 | 0 | 0 | 0 | 0 | 0 |
| Team4 | 0 | 0 | 0 | 0 | 0 |
| Team5 | 0 | 0 | 0 | 0 | 0 |
| Team6 | 0 | 0 | 0 | 0 | 0 |
| Team7 | 0 | 0 | 0 | 0 | 0 |
| Team8 | 0 | 0 | 0 | 0 | 0 |
| Team9 | 0 | 0 | 0 | 0 | 0 |
| Team10 | 0 | 0 | 0 | 0 | 0 |

# Enter Match Scores

The user enters the home team, home team score, away team and the away team, score.

Enter Home Team: Team1

Enter Home Score: 2

Enter Away Team: Team2

Enter Away Score: 1

If the user enters a team that does not match a team in the football league then an error message is displayed.

Enter Home Team: Teamabc123

Enter Away Team: Team///

Error teams do not exist, please try again

Once the user has completed entering match scores , the user will be directed to the menu where the league can be displayed in order to see the updated values, more match scores can be added and a teams game history can be viewed or the user can exit the program.

1. Create League
2. Display League
3. Add Match Scores
4. Display Team Game History
5. Exit

Enter Your Choice:

# Display League Table – After Match Input

If the user decides to display the league once they have entered match scores then the league will display with the updated values.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | P | W | D | L | Pts |
| Team1 | 1 | 1 | 0 | 0 | 2 |
| Team2 | 0 | 0 | 0 | 0 | 0 |
| Team3 | 0 | 0 | 0 | 0 | 0 |
| Team4 | 0 | 0 | 0 | 0 | 0 |
| Team5 | 0 | 0 | 0 | 0 | 0 |
| Team6 | 0 | 0 | 0 | 0 | 0 |
| Team7 | 0 | 0 | 0 | 0 | 0 |
| Team8 | 0 | 0 | 0 | 0 | 0 |
| Team9 | 0 | 0 | 0 | 0 | 0 |
| Team10 | 0 | 0 | 0 | 0 | 0 |

# Display A Team’s Game History

The user will enter the team they wish to see the game history of and then the user is presented with the menu screen.

Enter Team Name:

Team: Team1

Games Played: 1

Games Won: 1

Games Drawn: 0

Games Lost: 0

Points: 2

# 

# Flow Chart – Architectural Design

Data Design

# Team Data

## Structures

I plan to use structures to store the league table data because I can store different types of data and group them into one.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Required Entry** | **Validation Rule** | **Validation Text** |
| Name | char | 15 | YES |  |  |
| Played | int | 2 | NO |  |  |
| Won | int | 2 | NO |  |  |
| Drawn | int | 2 | NO |  |  |
| Lost | int | 2 | NO |  |  |
| Points | Int | 2 | NO |  |  |

# Match Data

## Structures

I also plan to have another structure to record the matches played.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Required Entry** | **Validation Rule** | **Validation Text** |
| Home Team | char | 15 | YES | Must Match corresponding team in the Teams Structure | Error Team does not exist |
| Away Team | char | 15 | NO | Must Match corresponding team in the Teams Structure | Error Team does not exist |
| Home Team Score | int | 2 | NO |  |  |
| Away Team Score | int | 2 | NO |  |  |

# Creating The League

## Function Description

The program will get input from the user and loop through for 10 teams to be stored in the team structure and it will initialize all values in the team structure to 0. The function will also loop through the maximum number of games played and initialize the home and away goals at 0 and these are stored in the game structure.

# Adding Matches

## Function Description

The program will get input from the user to enter a home team, away team and score and I will use the string compare function to compare the input entered that is stored in the game structure with the teams stored in the team structure to see if there is a match and if there isn’t a match then the program will print an error to the user stating this team does not exist. Once the program has a game It will modify the league table using the relevant assignment operators.

# The Menu

## Switch Case Description

I plan to use a switch case statement for the menu where I will call the functions that perform tasks in the program such as display league table and adding matches. I will also make use of the stdlib.h exit command to have the program quit when the user wishes to do so.

# Displaying Team Game History

## Function Description

I plan to have a char array called team name getting user input for a team name which is stored in team name and then the program will go through a for loop to see whether the team name entered exists in the league and then it will display the team which was inputted by the user and the games played, won, drawn, lost and their points in the league team and this information will be coming from the team structure.