# Object Oriented Programming Project

**PROBLEM STATEMENT:**

There are various SportsPerson. Footballer being one of them. A team cannot exist without a footballer. A match doesn’t start if there aren’t a minimum of 3 footballers.

3 classes are: (classes condition of the project)

1. SportsPerson
2. Footballer
3. Team

where (inheritance and composition condition of the project)

Footballers inherits characteristics of a SportsPerson and Footballer is in a strong relationship i.e. in a composition relationship with Team because a team cannot exist without a footballer. A FootBaller is a PART-OF of a Team.

And (functionality condition of the project)

A match starts only if there are a minimum of 3 players else we print “We don’t have enough players to play the match”

**UML:**

|  |
| --- |
| SportsPerson |
| #name : String  #nationality : String  +count : int |
| +SportsPerson()  +SportsPerson(name : String, nationality : String)  +getName() : String  +setName(name : String) : void  +getNationality() : String  +setNationality(nationality : String) : void+toString() : String |

superclass

Inheritance i.e. extends

subclass

|  |
| --- |
| Footballer |
| #jerseyNo: int  +team : Team |
| +Footballer()  +Footballer(name : String, nationality : String, jerseyNo : int)  +getJerseyNo() : int  +setJerseyNo (jerseyNo : int) : void  +displayDetails() : void  +startMatch() : void |

Composition (class Team won’t exist without class Footballer)

|  |
| --- |
| Team |
| #noOfPlayers: int  #teamName : String  #stadiumName : String |
| +Team()  +Team(noOfPlayers : int, teamName : String, stadiumName : String)  +getTeamName() : String  +setTeamName(teamName : String) : void  +getStadiumName() : String  +setStadiumName(stadiumName : String) : void  +Match() : void |

**CODE:**

package PROJECT;

import java.util.\*;

class SportsPerson {

protected String name;

protected String nationality;

public int count;

public SportsPerson()

{

}

public SportsPerson(String name, String nationality)

{

this.name = name;

this.nationality = nationality;

}

public String getName()

{

return name;

}

public void setName(String name)

{

this.name = name;

count++;

//counter is incremented to check if no of playrs required to start the match criteria is fulfilled

}

public String getNationality()

{

return nationality;

}

public void setNationality(String nationality)

{

this.nationality = nationality;

}

public String toString()

{

return ("\nName: " + getName() + "\nNationality: " + getNationality());

}

}

class Footballer extends SportsPerson {

protected int jerseyNo;

Team team;

public Footballer()

{

}

public Footballer(String name, String nationality, int jerseyNo)

{

super(name, nationality);

this.jerseyNo = jerseyNo;

this.team = new Team(11, "Football Club of Barcelona", "Camp Nou");

}

public void setJerseyNo(int jerseyNo)

{

this.jerseyNo = jerseyNo;

}

public int getJerseyNo()

{

return jerseyNo;

}

public void displayDetails()

{

System.out.println(super.toString());

System.out.println("Jersey Number: " + getJerseyNo());

System.out.println("Team Name: " + team.getTeamName());

System.out.println("Stadium Name: " + team.getStadiumName());

}

public void startMatch()

{

//If count >= 2 i.e. if there are 3 players or more only then will the game start.

if(count>=2)

{

this.team.Match();

}

//If there still aren't enough players then print the below statement.

else

{

System.out.print("We dont have enough players to play the match.\n\n");

}

}

}

class Team {

protected int noOfPlayers;

protected String teamName;

protected String stadiumName;

public Team()

{

}

public Team(int noOfPlayers, String teamName, String stadiumName)

{

this.noOfPlayers = noOfPlayers;

this.teamName = teamName;

this.stadiumName = stadiumName;

}

public String getTeamName()

{

return teamName;

}

public void setTeamName(String teamName)

{

this.teamName = teamName;

}

public String getStadiumName()

{

return stadiumName;

}

public void setStadiumName(String stadiumName)

{

this.stadiumName = stadiumName;

}

public void Match()

{

System.out.print("The match is played by " + getTeamName() + " at " + getStadiumName() + ".\n\n");

}

}

public class Game {

public static void main(String[] args) {

Footballer f = new Footballer("Messi", "Argentina", 10);

f.displayDetails();

f.startMatch();

f.setName("Devarsh");

f.setNationality("India");

f.setJerseyNo(11);

f.displayDetails();

f.startMatch();

f.setName("Neymar");

f.setNationality("Brazil");

f.setJerseyNo(9);

f.displayDetails();

f.startMatch();

}

}

**OUTPUT:**

