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Simple Football Game "Merancang Simulasi Permainan Bola Sederhana"

```
import math
import random
#Lambda value in Poisson distribution for higher rated team
lambOne = 1.148698355
#Lambda value for lower rated team
lambTwo = 0.8705505633

#Poisson distribution calculating goals scored by the home team
def homeMatch(homeRating,awayRating):
    ....global.lambOne
    ....global.x
    ....global.y
    ....if.x==.y:
        raise ValueError
    else:
        lamb = lambOne**(int(homeRating)-int(awayRating))
        homeScore = 0
        z = random.random()
        while z > 0:
            z = z - ((lamb**homeScore * math.exp(lamb * -1))/(math.factorial(homeScore)))
            homeScore += 1
        return (homeScore-1)

#Poisson distribution calculating goals scored by away team
def awayMatch(homeRating,awayRating):
    global lambTwo
    global x
    global y
    #This check is to stop a team playing itself
    if x == y:
        raise ValueError
    else:
        lamb = lambTwo**(int(homeRating)-int(awayRating))
        awayScore = 0
        z = random.random()
        while z > 0:
            z = z - ((lamb**awayScore * math.exp(lamb * -1))/(math.factorial(awayScore)))
            awayScore += 1
        return (awayScore-1)

#Selecting number of teams in league
```

```
#Selecting number of teams in league
```

```
leagueSize = int(input("Enter Number of Teams in league: "))
```

```
#Initialising empty lists
```

```
teamNames = []
```

```
teamSkill = []
```

```
teamPoints = []
```

```
teamFor = []
```

```
teamAgainst = []
```

```
teamWins = []
```

```
teamDraws = []
```

```
teamLosses = []
```

```
#Populating lists with number of zeroes equal to the number of teams (one zero for each)
```

```
for x in range(leagueSize):
```

```
    teamPoints += [0]
```

```
    teamFor += [0]
```

```
    teamAgainst += [0]
```

```
    teamWins += [0]
```

```
    teamDraws += [0]
```

```
    teamLosses += [0]
```

```
#Entering names and skill ratings for each team
```

```
for i in range(leagueSize):
```

```
    teamNames += [input("Enter team "+str(i+1)+" name: ")]
```

```
for j in range(leagueSize):
```

```
    teamSkill += [input("Enter "+teamNames[j]+" skill: ")]
```

```
#Initialising variables
```

```
homeScore = 0
```

```
awayScore = 0
```

```
#The season begins - each team plays all of its home games in one go
```

```
for x in range(leagueSize):
```

```
    #input("Press enter to continue ")
```

```
    print("=====")
```

```
    print(teamNames[x]+'s home games: "')
```

```
    print("=====\\n")
```

```
    for y in range(leagueSize):
```

```
        error = 0
```

```
        try:
```

```
            homeScore = homeMatch(teamSkill[x],teamSkill[y])
```

```
        #Skipping a game to stop a team playing itself
```

```
        except ValueError:
```

```
            pass
```

```
            error += 1
```

```
        try:
```

```
            awayScore = awayMatch(teamSkill[x],teamSkill[y])
```

```
        except ValueError:
```

```
            pass
```

```
        if error == 0:
```

```
            #Updating lists
```

```

print(teamNames[x],homeScore,"-",awayScore,teamNames[y],"\n")
teamFor[x] += homeScore
teamFor[y] += awayScore
teamAgainst[x] += awayScore
teamAgainst[y] += homeScore
if homeScore > awayScore:
    teamWins[x] += 1
    teamLosses[y] += 1
    teamPoints[x] += 3
elif homeScore == awayScore:
    teamDraws[x] += 1
    teamDraws[y] += 1
    teamPoints[x] += 1
    teamPoints[y] += 1
else:
    teamWins[y] += 1
    teamLosses[x] += 1
    teamPoints[y] += 3
else:
    pass

```

```

#Printing table (unsorted)
print("Final table: ")
for x in range(leagueSize):
    #Lots of formatting
    print(teamNames[x]+(15-len(teamNames[x]))*" "+" Skill: "+str(teamSkill[x])+(5-len(str(teamPoints[x])))+" ")
teamPoints.sort()
print(teamPoints)

```

```

☞ Enter Number of Teams in league: 3
Enter team 1 name: Ginda'steam
Enter team 2 name: kiyay'steam
Enter team 3 name: akbar'steam
Enter Ginda'steam skill: 2
Enter kiyay'steam skill: 1
Enter akbar'steam skill: 3
=====
Ginda'steam's home games:
=====

Ginda'steam 3 - 0 kiyay'steam

Ginda'steam 0 - 4 akbar'steam

=====
kiyay'steam's home games:
=====

kiyay'steam 0 - 2 Ginda'steam

kiyay'steam 2 - 1 akbar'steam

=====
akbar'steam's home games:

```

=====

akbar'steam 0 - 3 Ginda'steam

akbar'steam 2 - 0 kiyay'steam

Final table:

Ginda'steam	Skill: 2	Points: 9	For: 8	Against: 4	Goal difference: 4
kiyay'steam	Skill: 1	Points: 3	For: 2	Against: 8	Goal difference: -6
akbar'steam	Skill: 3	Points: 6	For: 7	Against: 5	Goal difference: 2

[3, 6, 9]

