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1 # Simple Football Game "Merancang Simulasi Permainan Bola Sederhana"
2
3 import math
4 import random
5 #Lambda value in Poisson distribution for higher rated team
6 lambOne = 1.148698355
7 #Lambda value for lower rated team
8 lambTwo = 0.8705505633
9
10 #Poisson distribution calculating goals scored by the home team
11 def homeMatch(homeRating,awayRating):
12     global lambOne
13     global x
14     global y
15     if x == y:
16         raise ValueError
17     else:
18         lamb = lambOne**(int(homeRating)-int(awayRating))
19         homeScore = 0
20         z = random.random()
21         while z > 0:
22             z = z - ((lamb**homeScore * math.exp(lamb * -1))/(math.factorial(homeScore)))
23             homeScore += 1
24         return (homeScore-1)
25
26 #Poisson distribution calculating goals scored by away team
27 def awayMatch(homeRating,awayRating):
28     global lambTwo
29     global x
30     global y
31     #This check is to stop a team playing itself
32     if x == y:
33         raise ValueError
34     else:
35         lamb = lambTwo**(int(homeRating)-int(awayRating))
36         awayScore = 0
37         z = random.random()
38         while z > 0:
39             z = z - ((lamb**awayScore * math.exp(lamb * -1))/(math.factorial(awayScore)))
40             awayScore += 1
41         return (awayScore-1)
42
43 #Main Program
44 #Input
45 x = int(input("Home Rating: "))
46 y = int(input("Away Rating: "))
47
48 #Output
49 homeScore = homeMatch(x,y)
50 awayScore = awayMatch(x,y)
51
52 print("Home Score: ",homeScore)
53 print("Away Score: ",awayScore)
54
55 #End of Program
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37     # Calculating awayScore,
38     while z > 0:
39         z = z - ((lamb**awayScore * math.exp(lamb * -1))/(math.factorial(awayScore)))
40         awayScore += 1
41     return (awayScore-1)
42
43 #Selecting number of teams in league
44 leagueSize = int(input("Enter Number of Teams in league: "))
45
46 #Initialising empty lists
47 teamNames = []
48 teamSkill = []
49 teamPoints = []
50 teamFor = []
51 teamAgainst = []
52 teamWins = []
53 teamDraws = []
54 teamLosses = []
55
56 #Populating lists with number of zeroes equal to the number of teams (one zero for each)
57 for x in range(leagueSize):
58     teamPoints += [0]
59     teamFor += [0]
60     teamAgainst += [0]
61     teamWins += [0]
62     teamDraws += [0]
63     teamLosses += [0]
64
65 #Entering names and skill ratings for each team
66 for i in range(leagueSize):
67     teamNames += [input("Enter team "+str(i+1)+" name: ")]
68 for j in range(leagueSize):
69     teamSkill += [input("Enter "+teamNames[j]+" skill: ")]
70
71 #Initialising variables
72 homeScore = 0
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73 awayScore = 0
74
75 #The season begins - each team plays all of its home games in one go
76 for x in range(leagueSize):
77     #input("Press enter to continue ")
78     print("=====")
79     print(teamNames[x]+'s home games: ')
80     print("=====\\n")
81     for y in range(leagueSize):
82         error = 0
83         try:
84             homeScore = homeMatch(teamSkill[x],teamSkill[y])
85             #Skipping a game to stop a team playing itself
86             except ValueError:
87                 pass
88             error += 1
89         try:
90             awayScore = awayMatch(teamSkill[x],teamSkill[y])
91             except ValueError:
92                 pass
93         if error == 0:
94             #Updating lists
95             print(teamNames[x],homeScore,"-",awayScore,teamNames[y],"\\n")
96             teamFor[x] += homeScore
97             teamFor[y] += awayScore
98             teamAgainst[x] += awayScore
99             teamAgainst[y] += homeScore
100             if homeScore > awayScore:
101                 teamWins[x] += 1
102                 teamLosses[y] += 1
103                 teamPoints[x] += 3
104             elif homeScore == awayScore:
105                 teamDraws[x] += 1
106                 teamDraws[y] += 1
107                 teamPoints[x] += 1
108                 teamPoints[y] += 1
109             else:
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110         teamWins[y] += 1
111         teamLosses[x] += 1
112         teamPoints[y] += 3
113     else:
114         pass
115
116 #Printing table (unsorted)
117 print("Final table: ")
118 for x in range(leagueSize):
119     #Lots of formatting
120     print(teamNames[x]+(15-len(teamNames[x]))*" "+" Skill: "+str(teamSkill[x])+(5-len(str(teamSkill[x])))*" "+" Points: "+str(t
121 teamPoints.sort()
122 print(teamPoints)

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Enter Number of Teams in league: 2
Enter team 1 name: Rans Football
Enter team 2 name: Halilintar Football
Enter Rans Football skill: nta
Enter Halilintar Football skill: nta

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=====
Rans Football's home games:
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=====
Halilintar Football's home games:
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Final table:

Rans Football	Skill: nta	Points: 0	For: 0	Against: 0	Goal difference: 0	Wins: 0	Draws: 0	Losses:
Halilintar Football	Skill: nta	Points: 0	For: 0	Against: 0	Goal difference: 0	Wins: 0	Draws: 0	Loss

[0, 0]

