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1  #While Loops Challenge 30: Power Ball Simulator App
2  import random
3
4  print("-----Power Ball Simulator-----")
5
6  #Determine the size of the lottery
7  #Get the number of white-balls
8  white_balls = int(input("How many white-balls to draw from for the 5 winning
9  numbers (Normally 69): "))
10  if white_balls < 5:
11      white_balls = 5
12
13  #Get the number of red-balls
14  red_balls = int(input("How many red-balls to draw from for the Power Ball
15  (Normally 26): "))
16  if red_balls < 1:
17      red_balls = 1
18
19  #Calculate the odds of winning this specific lottery
20  odds = 1
21  for i in range(5):
22      #Example multiplication for generating odds to win
23      #(69*68*67*66*65)*26/120 normal power ball
24      #(20*19*18*17*16)*4/120 20 white balls, 4 red balls
25      odds *= white_balls - i
26  odds *= red_balls/120
27  print("You have a 1 in " + str(odds) + " chance of winning this lottery.")
28
29  #Get ticket interval
30  ticket_interval = int(input("Purchase tickets in what interval: "))
31
32  #Generate the winning lottery numbers
33  #Get the white-balls for the ticket
34  winning_numbers = []
35  while len(winning_numbers) < 5:
36      number = random.randint(1, white_balls)
37      if number not in winning_numbers:
38          winning_numbers.append(number)
39  winning_numbers.sort()
40
41  #Get the red-ball for the ticket
42  number = random.randint(1, red_balls)
43  winning_numbers.append(number)
44
45  #Simulate the power ball drawing
46  print("\n-----Welcome to the Power Ball-----")
47  print("\nTonight's winning numbers are: ", end="")
48  for number in winning_numbers:
49      print(str(number), end=' ')
50
51  input("\nPress 'Enter' to begin purchasing tickets!!!")
52
53  #initialize variables to aid in the selling of tickets
54  tickets_purchased = 0
55  active = True
56  tickets_sold = []
57
58  #Run the lottery if we haven't purchased the winning ticket and we still want to
59  #play
60  while winning_numbers not in tickets_sold and active == True:
61      #Make a new lottery ticket for the user to buy
62      lottery_numbers = []
63      #Get the white-balls for the ticket
64      while len(lottery_numbers) < 5:

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62         number = random.randint(1, white_balls)
63         if number not in lottery_numbers:
64             lottery_numbers.append(number)
65     lottery_numbers.sort()
66
67     #Get the red-ball for the ticket
68     number = random.randint(1, red_balls)
69     lottery_numbers.append(number)
70
71     #This current ticket has not yet been sold
72     if lottery_numbers not in tickets_sold:
73         tickets_purchased += 1
74         tickets_sold.append(lottery_numbers)
75         print(lottery_numbers)
76     #The ticket has already been sold and is a loser; don't sell again
77     else:
78         print("Losing ticket generated; disregard...")
79
80     #Check if the user wants to continue buying tickets at the indicated interval
81     if tickets_purchased % ticket_interval == 0:
82         print(str(tickets_purchased) + " tickets purchased so far with no
winners...")
83         choice = input("\nKeep purchasing tickets (y/n): ")
84         if choice != 'y':
85             active = False
86
87     #The lottery is now over
88     #We purchased the winning ticket and we won the lottery
89     if lottery_numbers == winning_numbers:
90         print("\nWinning ticket numbers: ", end='')
91         for number in lottery_numbers:
92             print(str(number), end=' ')
93         print("\nPurchased a total of " + str(tickets_purchased) + " tickets.")
94     #We didn't purchase the winning ticket and we gave up
95     else:
96         print("\nYou bought " + str(tickets_purchased) + " tickets and still lost!")
97         print("Better luck next time!")

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