

Python Challenge - Yahtzee

Here's a challenge to create a Yahtzee game in Python
We'll use text input and output to avoid any complicated graphics code.

Game Overview

The first step is to take a single 'turn' in Yahtzee
(This is a simplified version of the game to make things easier for now)

A turn is:

- The player rolls 5 dice and looks at the results
- They can either 'stick' at this point, or re-roll some or all of the dice
- After the reroll, they can once again either 'stick' or re-roll some or all of the dice
- After 3 rolls (1 original roll and 2 re-rolls), the player has to stick with what they've got
- The aim is to get one of the scoring combinations of dice, as show below

Scoring combinations

These are simplified combinations

- Three of a kind (Three dice all showing the same number)
- Four of a kind (Four dice all showing the same number)
- Five of a kind (Five dice all showing the same number - also called a "Yahtzee")

Example turn:

- **Roll 1**
Player rolls 5 dice, and gets:
2, 5, 3, 5, 1
- Player decides to keep the 5's and reroll the other three dice
- **Roll 2**
Player rolls the 3 chosen dice and now has:
5, 5 and 1, 5, 2
- Player decides to keep all the 5's and reroll the "1" and "2"
- **Roll 3**
Player rolls the 2 chosen dice and now has:
5, 5, 5 and 1, 5
- They are lucky!
They have 4 of a kind because they have four dice showing a number "5"

Another Example turn:

- **Roll 1**
Player rolls 5 dice, and gets:
2, 4, 3, 5, 1
- Player decides they want to keep the 5, and reroll the other 4 dice
- **Roll 2**
Player rolls the 4 chosen dice (and is very lucky) and now has:
5 and 1,1,1,1
- Player decides to stick here as they have 4 of a kind - they don't roll again

Coding it up

So to do this in python, you'll need to code the following steps in order.
Get something working after each step is completed.

Step	Description	Notes
1	Roll 5 dice	Use "random" to generate random numbers for each dice I'd recommend storing them in a list of 5 items
2	Show the results	Show the results of the roll
3	Choose which dice to keep and which to reroll	Allow player to select one or more (or all) dice that they wish to keep And they'll re-roll the other remaining dice I'd recommend a list of 5 True/False flags to determine which dice they wish to re-roll
4	Do the reroll if required	If they 'keep' all dice, you can go to the last step If they have already made 2 re-rolls, don't allow another reroll If a reroll is taking place, we can loop back to Step 1, but use the True/False flags list to only roll some of the dice
5	Show the final players score	Check if they have any of the scoring combinations and let the player know which

Hints and Tips

Hint 1 - looping

Use the "for" loop with a "range" to loop around a number of times.
Confusingly the range will work from "0" to "one below" the number you spec
e.g. You can make a loop from 0 to 5 like this:

```
for x in range(6):  
    print(x)
```

Hint 2 - ending a loop early

If you have a loop which repeats a fixed number of times, and you decide you want to end it earlier than that, you can use a "break" statement

Further ideas

- Add a score for each scoring combination.
Usually this is "total of all dice" for the "Three/Four of a kind", and a cool 100 points for a "Yahtzee"
Note that if you get "Four of a kind" you should only get the score for that combination, rather than also getting the score for "Three of a kind" aswell!
- Allow two players to take alternating turns
- Keep a scorecard for each player, and allow them to keep taking turns until their scorecard is full