

Yahtzee Scorer Code Creation

User

give me the complete code for yahtzee scorer along with some sample test cases

ChatGPT

Below is a Python implementation of a Yahtzee scorer along with some sample test cases:

python

```
def yahtzee_score(dice):
    # Checking for a valid input
    if not dice or len(dice) != 5 or not all(1 <= die <= 6 for die in dice):
        return "Invalid input"

    # Counting occurrences of each number
    counts = [dice.count(i) for i in range(1, 7)]

    # Scoring for each category
    ones = counts[0] * 1
    twos = counts[1] * 2
    threes = counts[2] * 3
    fours = counts[3] * 4
    fives = counts[4] * 5
    sixes = counts[5] * 6
    three_of_a_kind = sum(dice) if max(counts) >= 3 else 0
    four_of_a_kind = sum(dice) if max(counts) >= 4 else 0
    full_house = 25 if 2 in counts and 3 in counts else 0
    small_straight = 30 if any(counts[i] >= 1 and counts[i + 1] >= 1 and counts[i + 2] >= 1 and
counts[i + 3] >= 1 for i in range(3)) else 0
    large_straight = 40 if any(counts[i] >= 1 for i in range(6)) else 0
    yahtzee = 50 if max(counts) == 5 else 0
    chance = sum(dice)

    # Returning scores for each category
    return {
        "Ones": ones,
        "Twos": twos,
        "Threes": threes,
        "Fours": fours,
        "Fives": fives,
        "Sixes": sixes,
        "Three of a Kind": three_of_a_kind,
        "Four of a Kind": four_of_a_kind,
        "Full House": full_house,
        "Small Straight": small_straight,
        "Large Straight": large_straight,
        "Yahtzee": yahtzee,
        "Chance": chance
    }
```

```
# Sample test cases
test_cases = [
    [1, 1, 1, 1, 1], # Yahtzee
    [1, 1, 1, 2, 2], # Full House
    [1, 2, 3, 4, 5], # Large Straight
    [1, 2, 2, 3, 3], # Small Straight
    [1, 1, 2, 3, 3], # Three of a Kind
    [1, 1, 2, 2, 2], # Four of a Kind
    [1, 1, 2, 2, 6], # Chance
    [2, 3, 4, 5, 6], # Chance
    [1, 2, 3, 4, 4], # Chance
    [2, 2, 3, 3, 4], # Chance
]

for idx, test in enumerate(test_cases):
    print(f"Test case {idx + 1}: {test}")
    print(yahtzee_score(test))
    print()
```

This code defines a function `yahtzee_score` which takes a list of 5 integers representing the values of dice rolled in a Yahtzee game. It calculates and returns the score for each possible category in the game. The sample test cases cover various scenarios such as Yahtzee, Full House, Large Straight, Small Straight, Three of a Kind, Four of a Kind, and different combinations of numbers.

User

write the input types also beside the functions

ChatGPT

Sure, here are the input types specified beside the function signature:

python

```
from typing import List, Dict, Union
```

```
def yahtzee_score(dice: List[int]) -> Union[str, Dict[str, int]]:
    # Checking for a valid input
    if not dice or len(dice) != 5 or not all(1 <= die <= 6 for die in dice):
        return "Invalid input"

    # Counting occurrences of each number
    counts = [dice.count(i) for i in range(1, 7)]

    # Scoring for each category
    ones = counts[0] * 1
    twos = counts[1] * 2
    threes = counts[2] * 3
    fours = counts[3] * 4
    fives = counts[4] * 5
    sixes = counts[5] * 6
```

```

three_of_a_kind = sum(dice) if max(counts) >= 3 else 0
four_of_a_kind = sum(dice) if max(counts) >= 4 else 0
full_house = 25 if 2 in counts and 3 in counts else 0
small_straight = 30 if any(counts[i] >= 1 and counts[i + 1] >= 1 and counts[i + 2] >= 1 and
counts[i + 3] >= 1 for i in range(3)) else 0
large_straight = 40 if any(counts[i] >= 1 for i in range(6)) else 0
yahtzee = 50 if max(counts) == 5 else 0
chance = sum(dice)

# Returning scores for each category
return {
    "Ones": ones,
    "Twos": twos,
    "Threes": threes,
    "Fours": fours,
    "Fives": fives,
    "Sixes": sixes,
    "Three of a Kind": three_of_a_kind,
    "Four of a Kind": four_of_a_kind,
    "Full House": full_house,
    "Small Straight": small_straight,
    "Large Straight": large_straight,
    "Yahtzee": yahtzee,
    "Chance": chance
}

```

With these annotations, it's clear that the `yahtzee_score` function takes a list of integers as input and returns either a string (if the input is invalid) or a dictionary mapping each Yahtzee category to its score.