## **🎲 Problem Statement: “Rare Roll Wins!”**

### **🔷 Problem Description:**

Two players, **Player 1 and Player 2**, compete in a dice game. In each round, both players roll **two fair 6-sided dice**, and their **sum of both dice** is calculated.

* The **player who rolls the sum with the least probability wins** the round.
* If both players roll sums with the **same probability**, the round is a **draw**.
* The game consists of **R rounds**, and the player who wins the most rounds is the **overall winner**.
* If both players have the same number of wins, the game ends in a **tie**.

### **🔷 Probability Distribution of Rolling Two Dice (Sum & Frequency)**

| Sum | Ways to Get It | Probability |
| --- | --- | --- |
| 2 | (1,1) | **1/36 ≈ 2.78%** |
| 3 | (1,2), (2,1) | **2/36 ≈ 5.56%** |
| 4 | (1,3), (2,2), (3,1) | **3/36 ≈ 8.33%** |
| 5 | (1,4), (2,3), (3,2), (4,1) | **4/36 ≈ 11.11%** |
| 6 | (1,5), (2,4), (3,3), (4,2), (5,1) | **5/36 ≈ 13.89%** |
| 7 | (1,6), (2,5), (3,4), (4,3), (5,2), (6,1) | **6/36 ≈ 16.67%** |
| 8 | (2,6), (3,5), (4,4), (5,3), (6,2) | **5/36 ≈ 13.89%** |
| 9 | (3,6), (4,5), (5,4), (6,3) | **4/36 ≈ 11.11%** |
| 10 | (4,6), (5,5), (6,4) | **3/36 ≈ 8.33%** |
| 11 | (5,6), (6,5) | **2/36 ≈ 5.56%** |
| 12 | (6,6) | **1/36 ≈ 2.78%** |

The least probable sums are **2 and 12**, followed by **3 and 11**, and so on.

### **🔷 Input Format:**

* The first line contains an **integer R** (**1 ≤ R ≤ 1000**) – the number of rounds.
* The next R lines contain two pairs of integers:
  + P1\_d1, P1\_d2 → Player 1’s two dice values
  + P2\_d1, P2\_d2 → Player 2’s two dice values

### **🔷 Output Format:**

* Print "Player 1 wins" if Player 1 wins more rounds.
* Print "Player 2 wins" if Player 2 wins more rounds.
* Print "It's a draw" if both players win the same number of rounds.

### **🔷 Sample Input 1:**

3  
1 1 3 4  
2 2 6 6  
5 3 4 6

### **🔷 Sample Output 1:**

Player 1 wins

### **🔷 Explanation:**

| Round | Player 1 Rolls | Sum | Probability | Player 2 Rolls | Sum | Probability | Winner |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | (1,1) | 2 | **2.78%** (1/36) | (3,4) | 7 | **16.67%** (6/36) | **Player 1** |
| 2 | (2,2) | 4 | **8.33%** (3/36) | (6,6) | 12 | **2.78%** (1/36) | **Player 2** |
| 3 | (5,3) | 8 | **13.89%** (5/36) | (4,6) | 10 | **8.33%** (3/36) | **Player 2** |

* **Player 1 wins 1 round**, **Player 2 wins 2 rounds** → **Player 2 wins the game**

### **🔷 Sample Input 2 (Draw Case):**

2  
1 2 3 6  
4 5 2 3

### **🔷 Sample Output 2:**

It's a draw

### **🔷 Explanation:**

| Round | Player 1 Rolls | Sum | Probability | Player 2 Rolls | Sum | Probability | Winner |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | (1,2) | 3 | **5.56%** | (3,6) | 9 | **11.11%** | **Player 1** |
| 2 | (4,5) | 9 | **11.11%** | (2,3) | 5 | **11.11%** | **Draw** |

* **Player 1 wins 1 round**, **Player 2 wins 0 rounds**, **1 draw** → **Draw Game**

### **🔷 Constraints:**

* 1 ≤ R ≤ 1000 (Up to 1000 rounds can be played)
* 1 ≤ P1\_d1, P1\_d2, P2\_d1, P2\_d2 ≤ 6 (Each die can only roll values between 1 and 6)

Would you like me to provide a Python implementation for this problem? 🚀