Risk

Write a program (or notebook) called assignment_5_risk (.py or .ipynb)

The program should simulate 1000 individual battle rounds in Risk (3 attacker vs 2 defender) and plots the result.

One battle-round is one shake of the attacker and defender dice.

I am being vague about what it plots, I will leave that to you.

For the last few marks.

A more complicated version simulates a full series of rounds for armies of arbitrary sizes, until one side is wiped out, and plots the results.

(This is open ended, so it is only for the last few marks)

Rules of Risk

In Risk one army fights another. (using 6-sided dice)

In each battle round, the attacker can put forward up to three of their troops (3 dice).

The defender can use up to two of their defending troops (2 dice).

Each side loses troops depending on the following rules:

- The two top dice are compared (i.e. the attackers top dice roll with the defender's top dice roll)
  If the attacker's dice is the same or lower, they lose one troop otherwise the defender loses a troop (i.e. if the attacker's dice is higher)
- The next two highest dice from each side are then compared (i.e. the attackers second highest to the defenders second highest)
  If the attacker's dice is the same or lower, they lose one troop otherwise the defender loses a troop (i.e. if the attackers' dice is higher)

Examples

Attacker rolls	Defender Rolls	Attacker Loses	Defender Loses	Explanation
6,4,1	5,3	0	2	6 beats 5 and 4 beats 3 (the one is ignored as it's the lowest)
6,6,6	6,3	1	1	Defender 6 beats the attackers first 6 and the attackers second 6 beats the defenders 3
5,4,4	5,4	2	0	The defenders 5 beats the attackers 5 and the defenders 4 beats the attackers 4(defender wins when dice are the same)

See the rules How to play Risk | Official Rules | UltraBoardGames

search "to decide a battle"