

# blotto.run

April 2, 2022

```
[1]: import blotto
import numpy as np

[2]: def player_strategy(n_battalions,n_fields):
    battalions = np.random.multinomial(100, [3/20, 3/20, 4/20, 5/20, 5/20, 0/
↪20], size = 1)[0] # array

    battalions_placement = [] # liste

    for i in battalions: # loops
        sum_battalions = sum(battalions)
        random_choice = int(round(i / sum_battalions * 100,0))
        battalions_placement.append(random_choice)

    battalions_placement=battalions[np.random.rand(n_fields).argsort()]
    assert sum(battalions_placement)==n_battalions
    return battalions_placement

def computer_strategy(n_battalions, n_fields):
    battalions = np.random.multinomial(100, np.ones(n_fields)/n_fields, size =
↪1)[0]

    battalions_placement = []

    for i in battalions:
        sum_battalions = sum(battalions)
        random_choice = int(round(i / sum_battalions * 100,0))
        battalions_placement.append(random_choice)

    battalions_placement=battalions[np.random.rand(n_fields).argsort()]
    assert sum(battalions_placement)==n_battalions
    return battalions_placement

[3]: def call_battle(n_battalions,n_fields, player_strategy, computer_strategy):
    c_battlions=computer_strategy(n_battalions,n_fields)
    p_battlions=player_strategy(n_battalions,n_fields)
```

```

diff=p_battlions-c_battlions
points=sum(diff>0)-sum(diff<0)

return int(points>0)-int(points<0)

def test_strategies(n_fields,n_battalions,player_strategy, computer_strategy):
    n_tests=100000
    r=0
    record=[]
    for i in range(n_tests):
        p=call_battle(n_battalions,n_fields,
            player_strategy, computer_strategy)
        record.append(p)
        r+=p
    return r/n_tests

```

```
[4]: test_strategies(6,100,player_strategy, computer_strategy)
```

```
[4]: 0.33314
```

```
[5]: blotto.run(6,100, player_strategy, computer_strategy)
```

```

-----
AttributeError                                Traceback (most recent call last)
Input In [5], in <module>
----> 1 blotto.run(6,100, player_strategy, computer_strategy)

AttributeError: module 'blotto' has no attribute 'run'

```

```
[ ]:
```