CSR

Pavel

CSR (Casino Strategies Report)

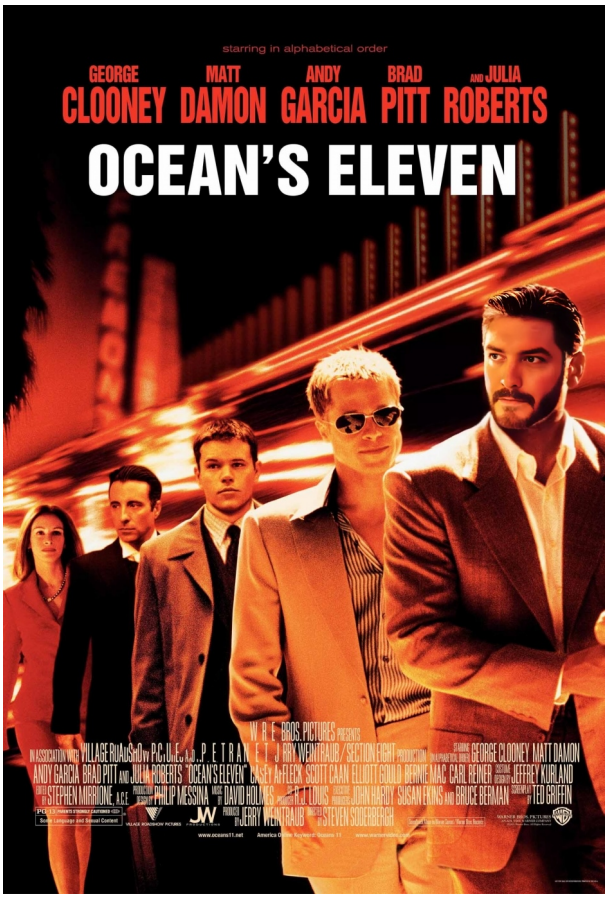

Figure 1:

Solution Specifics

1. Code As Much As You Can (**functional** code and **tidyverse style** where is possible). A little bit of OOP with R6 class.
2. Game simulation and **data wrangling**.
3. Creating different gaming strategies using common sense and **statistics**.
4. Finding best strategy backed by statistics. (monte carlo + estimation).
5. **Data Visualization** of metrics by different strategies using **ggplot2**.
6. **Results presentations** with Quarto.

Casino Rules

1. 10 .
2. 9 .
3. .
4. 500 .

Basic statistics

Insert expected values of winnings

Add plot of sigmoid plot(1:10000, (\(x) sigmoid_paramed(x))(1:10000))

- : 10.
- : **10** .
- 8.88.
- 12.94.
- : 9.29.
- 500 .
- 1000 .
- 50 .
- … , ! (,)

- -
- T-test
- Test χ^2
- Z-test

Strategies

1. Randy
   Randomly pulls machine, no brain at all
2. Average man
3. T shaped man
4. Biased Bayes
5. Chi

	w	one_in_w	l	one_in_l
0	30%	3	49%	2
5	11%	9	20%	5
10	38%	3	20%	5
20	19%	5	10%	10
100	1%	101	1%	101
1000	0%	264	0%	338

```
[1] 4
```

Visualization of strategies

plots.R

Best strategy

Conclusions

1. You will never win in the real casino
2. Statistics is useful
3. Simulations are fun and cheap
4. Write as many functions as possible