

Stats Set Report

Caleb Smith, Laura Dobie, Agrayan Gupta, & John Alexis

January 7, 2018

1 The Game

Our game is a reinterpretation of a card game titled “Set”. Essentially, you attempt to match together *sets* of three cards to score points. Further instructions (and the game itself) can be found online [here](#).

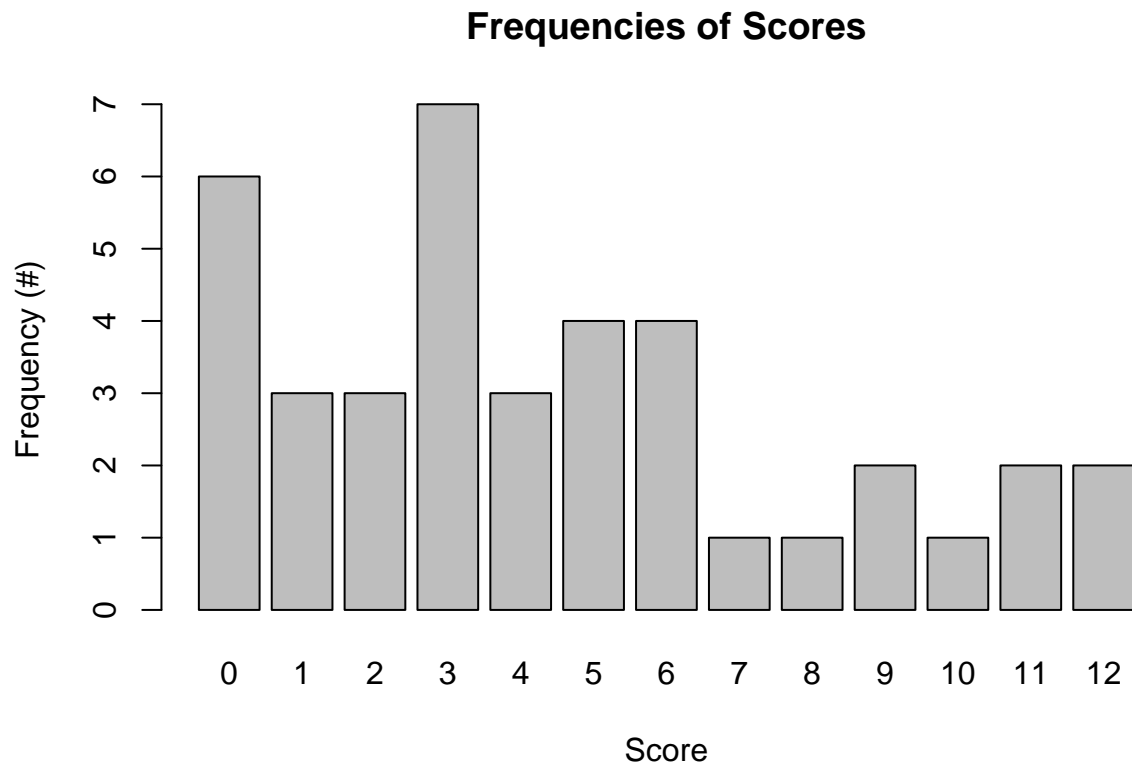
2 Probability Model

Because our game relies upon player skill to determine payout (and not just chance), our probability model is **empirical**. Video of us collecting data to create this model can be found on Google Drive, [here](#) and [here](#).

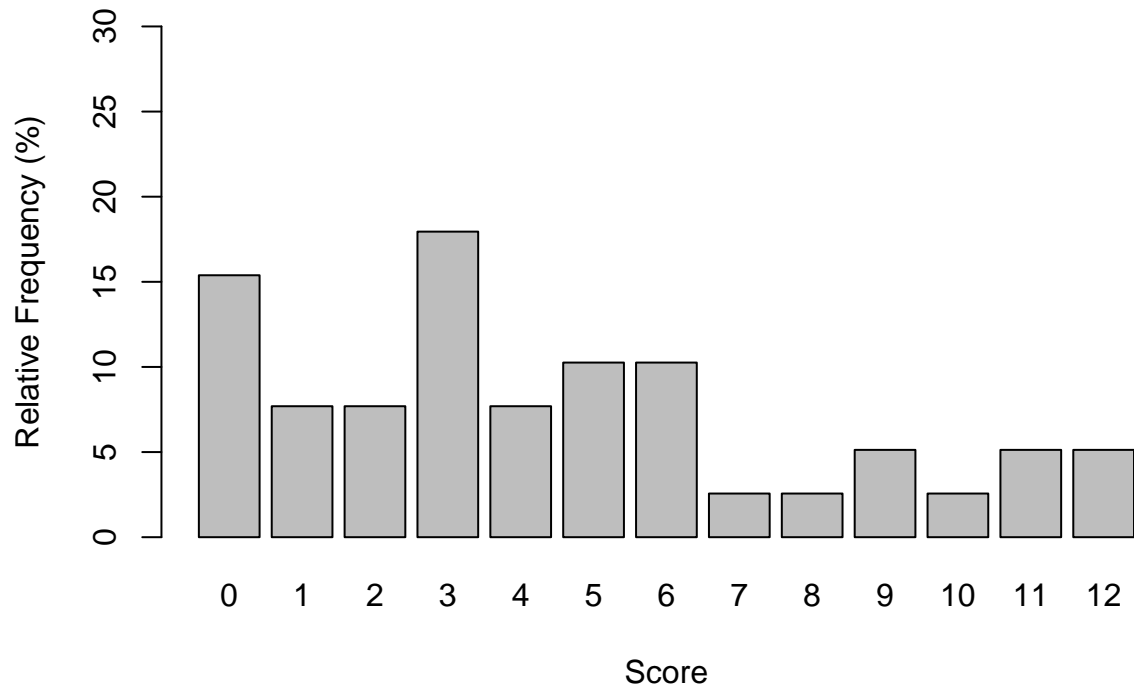
Collected Data:

```
## [1] 5 11 7 5 3 3 10 0 2 0 3 3 3 1 3 1 2 11 6 12 6 8 3
## [24] 6 1 12 9 9 0 0 4 0 5 0 2 5 4 4 4 6
```

Frequencies of Scores:



Relative Frequencies of Scores



Exact relative frequencies:

0	1	2	3	4	5	6	7	8	9	10	11	12
15.38	7.69	7.69	17.95	7.69	10.26	10.26	2.56	2.56	5.13	2.56	5.13	5.13

Expected sets:

$$E(S) = 4.49$$

SD of sets:

$$SD(S) = 3.59$$

3 Payout

Payout formula:

$$P(S) = 2 * S$$

Expected payout:

$$E(P) = 8.97$$

SD of payout:

$$SD(P) = 7.18$$

Cost to play: \$10