IPSA - BlackJack_analysis

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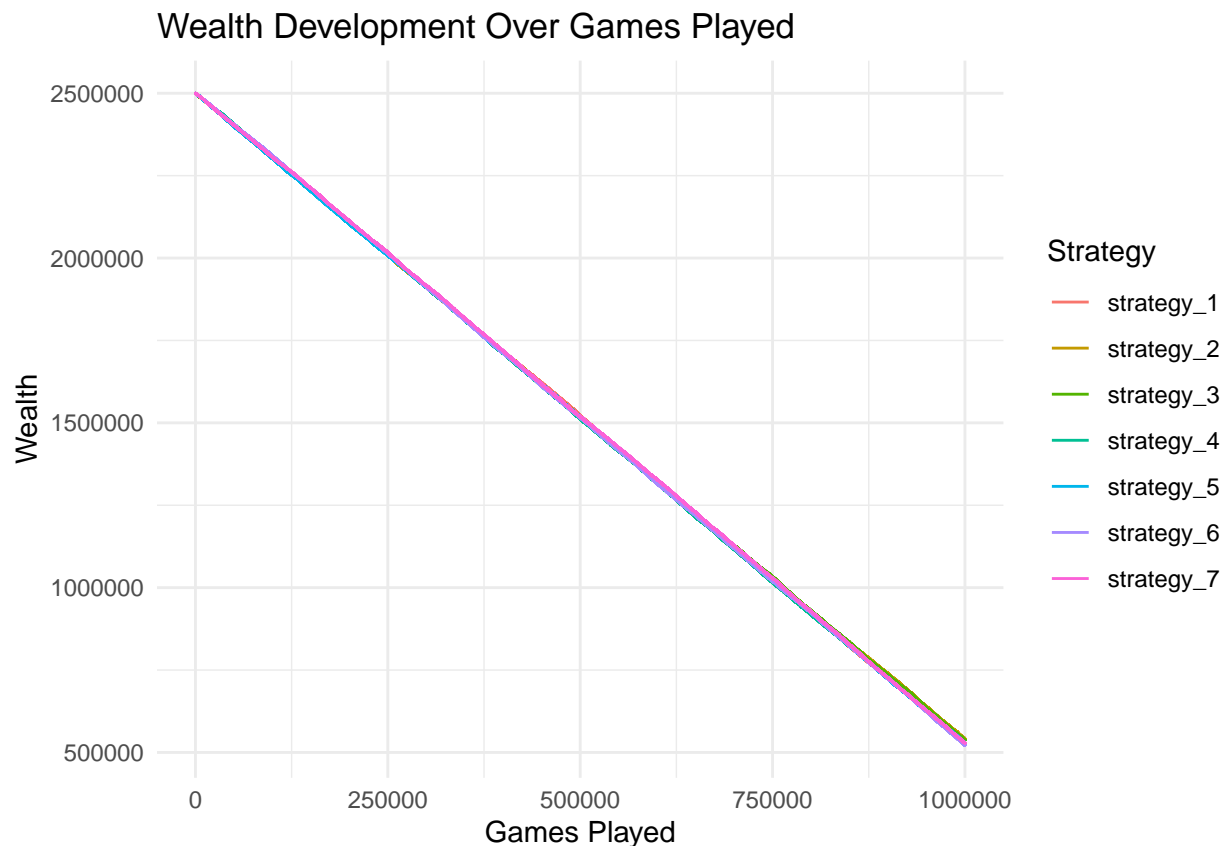
```r
setwd('.')

#import data
# Load in .csv logfiles, into one dataframe
temp = list.files(path = "logfiles/.", full.names = T, pattern="*.csv")
# Load them all in
df <- map_dfr(temp, read_csv)
```

```
## New names:
## Rows: 1000001 Columns: 6
## -- Column specification
## -------------------------------------------------------- Delimiter: "," chr
## (1): strategy dbl (5): ...1, wealth, game_ending, games_played, player_bet
## i Use `spec()` to retrieve the full column specification for this data. i
## Specify the column types or set `show_col_types = FALSE` to quiet this message.
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## * `` -> `...1`
```

```r
ggplot(df, aes(x = games_played, y = wealth, color = strategy)) +
  geom_line() +
  labs(title = "Wealth Development Over Games Played",
       x = "Games Played",
       y = "Wealth",
       color = "Strategy") +
  theme_minimal()
```


Wealth Development Over Games Played

```r
black_jack_lm_model <- lm(wealth ~ games_played * strategy, data = df)

summary(black_jack_lm_model)
```

```
##
## Call:
## lm(formula = wealth ~ games_played * strategy, data = df)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7056.5 -1855.1   -29.9  1773.4  7042.7
##
## Coefficients:
##                                Estimate Std. Error   t value Pr(>|t|)
## (Intercept)                   2.506e+06  5.074e+00  493844.4   <2e-16 ***
## games_played                 -1.975e+00  8.788e-06 -224786.5   <2e-16 ***
## strategystrategy_2           -5.379e+03  7.175e+00    -749.7   <2e-16 ***
## strategystrategy_3           -4.809e+03  7.175e+00    -670.2   <2e-16 ***
## strategystrategy_4           -1.710e+03  7.175e+00    -238.3   <2e-16 ***
## strategystrategy_5           -4.465e+03  7.175e+00    -622.3   <2e-16 ***
## strategystrategy_6            7.334e+02  7.175e+00     102.2   <2e-16 ***
## strategystrategy_7            1.386e+03  7.175e+00     193.1   <2e-16 ***
## games_played:strategystrategy_2  1.462e-02  1.243e-05    1176.3   <2e-16 ***
## games_played:strategystrategy_3  1.227e-02  1.243e-05     987.3   <2e-16 ***
## games_played:strategystrategy_4 -4.258e-03  1.243e-05    -342.6   <2e-16 ***
## games_played:strategystrategy_5  3.697e-03  1.243e-05     297.5   <2e-16 ***
## games_played:strategystrategy_6 -5.948e-03  1.243e-05    -478.6   <2e-16 ***
## games_played:strategystrategy_7  1.612e-03  1.243e-05     129.7   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2537 on 6999993 degrees of freedom
## Multiple R-squared:      1,  Adjusted R-squared:      1
## F-statistic: 2.712e+10 on 13 and 6999993 DF,  p-value: < 2.2e-16
```