The Vermont Lottery

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Abstract

The prevailing belief is that scratch tickets are not worth playing, and this belief is often true — but sometimes it isn't. In the Vermont Lottery specifically, we can identify times when scratch tickets are worth playing with an arbitrary level of confidence.

Contents

1 Introduction

The prevailing belief is that scratch tickets are not worth playing, and this belief is often true — but sometimes it isn't. In the Vermont Lottery specifically, we can identify times where scratch tickets are worth playing with an arbitrary level of confidence.

df1 %>% ggplot(aes(x = ticketNum, y = ExpVal)) + geom_point(aes(color = factor(X7777)))

simSapphire7Game <- function(){ tickets <- createSapphire7Tickets() nTickets <- length(tickets)

loser <- NULL seven <- NULL fifteen <- NULL twenty_five <- NULL seventy <- NULL seven_hundred <- NULL thousand <- NULL seven_777 <- NULL expVal <- NULL

for(i in 1:nTickets){ print(i) tickets <- tickets[-1] loser[i] <-sum(tickets == 0) seven[i] <- sum(tickets == 7) fifteen[i] <- sum(tickets == 15) twenty_five[i] <- sum(tickets == 25) seventy[i] <- sum(tickets == 70) seven_hundred[i] <- sum(tickets == 700) thousand[i] <- sum(tickets == 1000) seven_777[i] <- sum(tickets == 7777) expVal[i] <- mean(tickets)) }

simData <- data.frame(`Losers` = loser, `7` = seven, `15` = fifteen, `25` = twenty_five, `70` = seventy, `700` = seven_hundred, `1000` = thousand, `7777` = seven_777, `ExpVal` = expVal, `ticketNum` = 1:nTickets) return(simData) }

2 Introduction

Alex is very good with Github.

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 2. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter 4.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

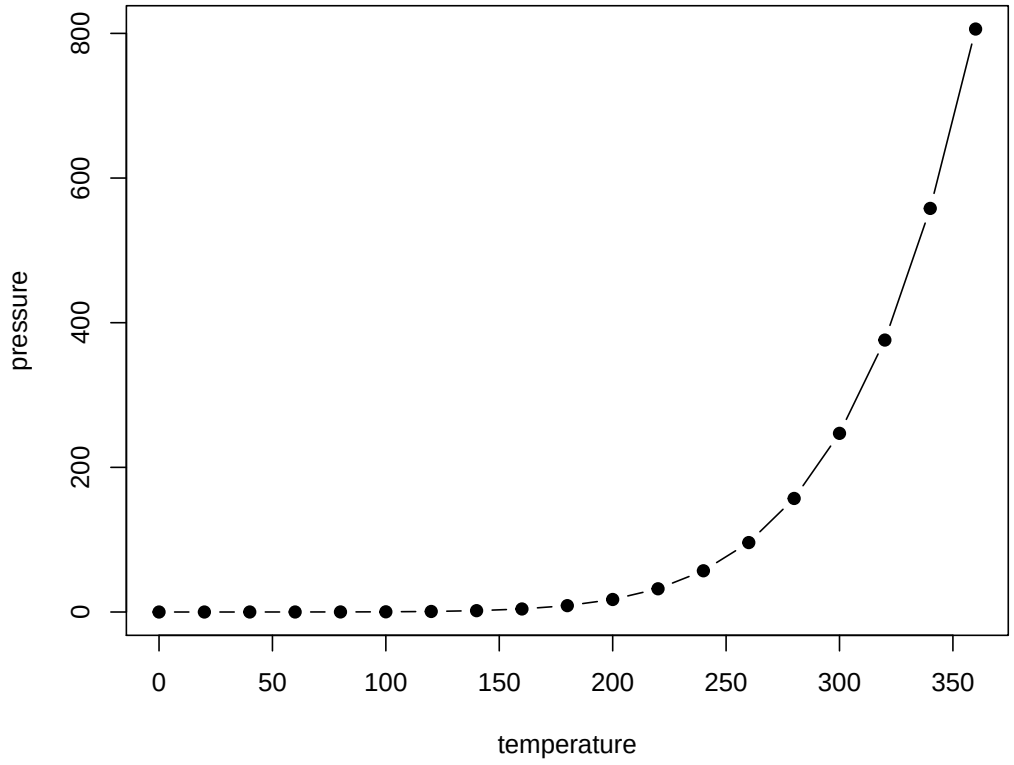

Figure 1: Here is a nice figure!

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2019) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

Table 1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

3 Literature

Here is a review of existing methods.

4 Methods

We describe our methods in this chapter.

Here are our methods.

5 Applications

Some *significant* applications are demonstrated in this chapter.

5.1 Example one

5.2 Example two

6 Final Words

We have finished a nice book.

References

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2019). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.16.