Assignment#2

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Part 1

```
#a
str(lynx)

 Time-Series [1:114] from 1821 to 1934: 269 321 585 871 1475 ...

head(lynx)

[1]  269  321  585  871 1475 2821

?lynx
#I used str, head, and ?lynx. the lynx data set is a Time-Series from 1821 to
1934, representing the annual Lynx trappings for each year.
#b
years <- seq(1821, 1934)
#c
names(lynx) <- years
#d
lynx['1867']

1867
4254

#e
mean(lynx[1:90])

[1] 1489.633
```

PART 2

```
#a
casino <- read.csv('casino.csv')
#b
head(casino)

       Name BlackJack  Poker   Slots Roulette   Bingo
1    Andrew     50.46  41.68  262.88  -114.46  106.59
2     Betty      6.80   4.00  212.70    48.46  890.84
3     Calum    -98.29 -54.82  252.58   -66.82   38.65
4    Carlos    183.73  59.49   95.19  -115.82   15.20
5 Charlotte     43.12  38.79  -10.95  -230.82   29.88
6    Dwayne     49.40  68.40 -389.88    53.92 -577.07

#c
friends <- (casino[,1])
```

```r
#d
dim(casino)
```

```
[1] 10  6
```

```r
winnings <- as.matrix(casino[,c(2:6)])
#e
total <- rowSums(winnings)
#this vector represents the net loss or earnings for each person/row

#f
names(total) <- friends
min(total)
```

```
[1] -795.23
```

```r
max(total)
```

```
[1] 1162.8
```

```r
which.min(total)
```

```
Dwayne
     6
```

```r
which.max(total)
```

```
Betty
    2
```

```r
#Dwayne lost the most
#Betty won the most

#h
mean(total)
```

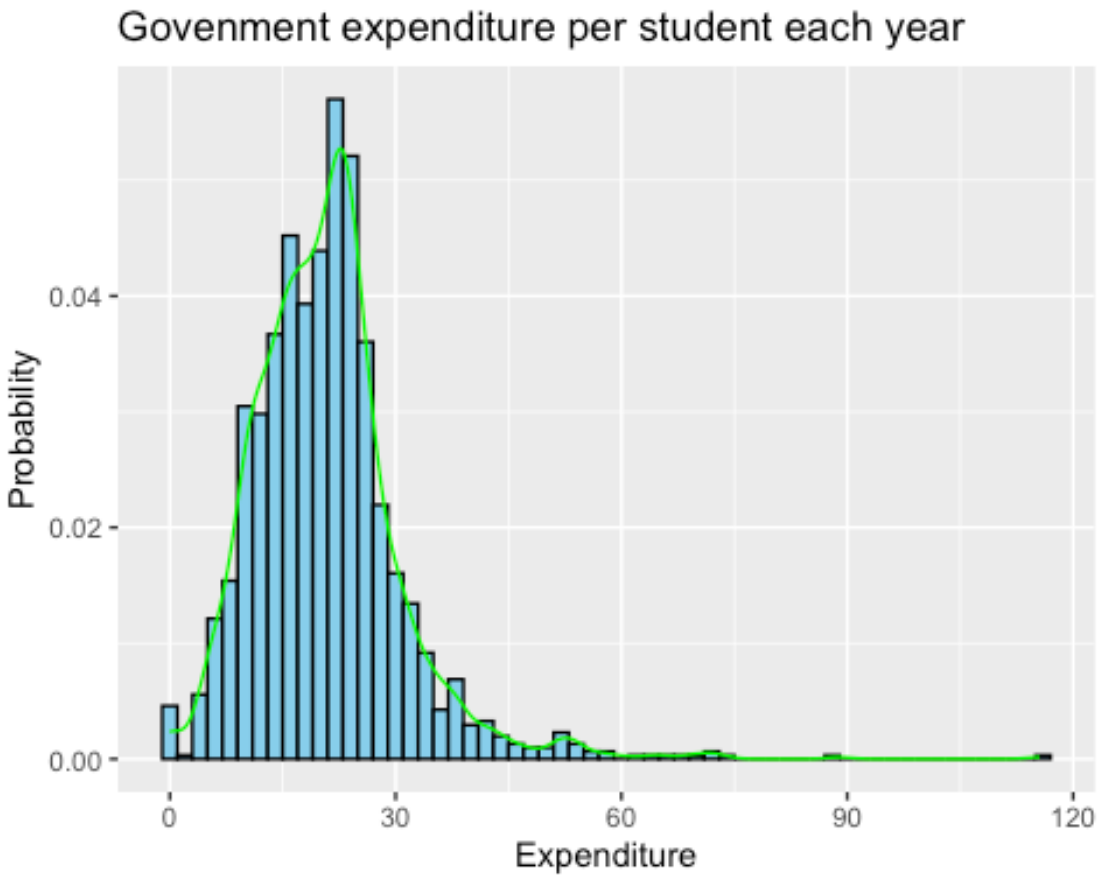
```
[1] 5.167
```

```r
#the average amount won was $5.167
```

PART 3

```r
#(a)
library(ggplot2)
govn <- read.csv('Government_expenditure_per_student.csv')
ggplot(govn, aes(x=Value)) + geom_histogram(aes(y= ..density..),binwidth = 2,
fill = "skyblue", color = "black") + labs(title = "Govenment expenditure per
student each year", y = "Probability", x = "Expenditure") +
geom_density(color = "green")
```

```
Warning: The dot-dot notation (`..density..`) was deprecated in ggplot2
3.4.0.
ℹ Please use `after_stat(density)` instead.
```




```
#(b)
#it right skewed and asymetric
```

Part 4

```
library(ggplot2)
data <- read.csv('rawgrades.csv')
f_grades <- factor(data$Grade)
t_grades <- table(f_grades) / length(data$Grade)
pie_data <- data.frame(
  Grade = names(t_grades),
  Frequency = as.vector(t_grades)
)
ggplot(pie_data, aes(x = "", y = Frequency, fill = Grade)) +
  geom_bar(stat = "identity", width = 1) +  # Bar chart, with identity (not
counting)
  coord_polar(theta = "y") +  # Convert to pie chart
  theme_void() +  # Remove background and gridlines
  labs(title = "Grades Pie Chart") +
  geom_text(aes(label = scales::percent(Frequency)),  # Add relative
frequency as labels
            position = position_stack(vjust = 0.5),     # Place labels in the
```

```
middle of each slice
             color = "white")
```