FA9_GROUP9

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https://github.com/pywen1004/FA9_GROUP9.git

Lap Time Data

```
lap_times <- c(
  10.23, 52.41, 17.85, 39.49, 12.21, 14.86, 8.47, 4.46, 14.40, 10.51,
  12.04, 1.98, 50.13, 12.27, 5.62, 21.16, 46.71, 26.69, 10.25, 6.53,
  53.06, 6.17, 5.17, 36.05, 1.86, 11.58, 40.17, 5.42, 8.89, 24.29,
  5.28, 13.00, 10.21, 10.83, 5.06, 3.54, 28.42, 49.70, 24.34, 14.14,
  42.93, 28.43, 1.39, 6.05, 2.76, 69.41, 72.57, 28.69, 26.07, 1.02
)
```

Frequency Distribution Table

```
breaks <- seq(0, ceiling(max(lap_times)/10)*10, by = 10)
freq_table <- table(cut(lap_times, breaks, right = FALSE))
freq_table
```

```
##
##  [0,10) [10,20) [20,30) [30,40) [40,50) [50,60) [60,70) [70,80)
##      17      14       8       2       4       3       1       1
```

Mean and Standard Deviation

```
mean_time <- mean(lap_times)
sd_time <- sd(lap_times)

mean_time
```

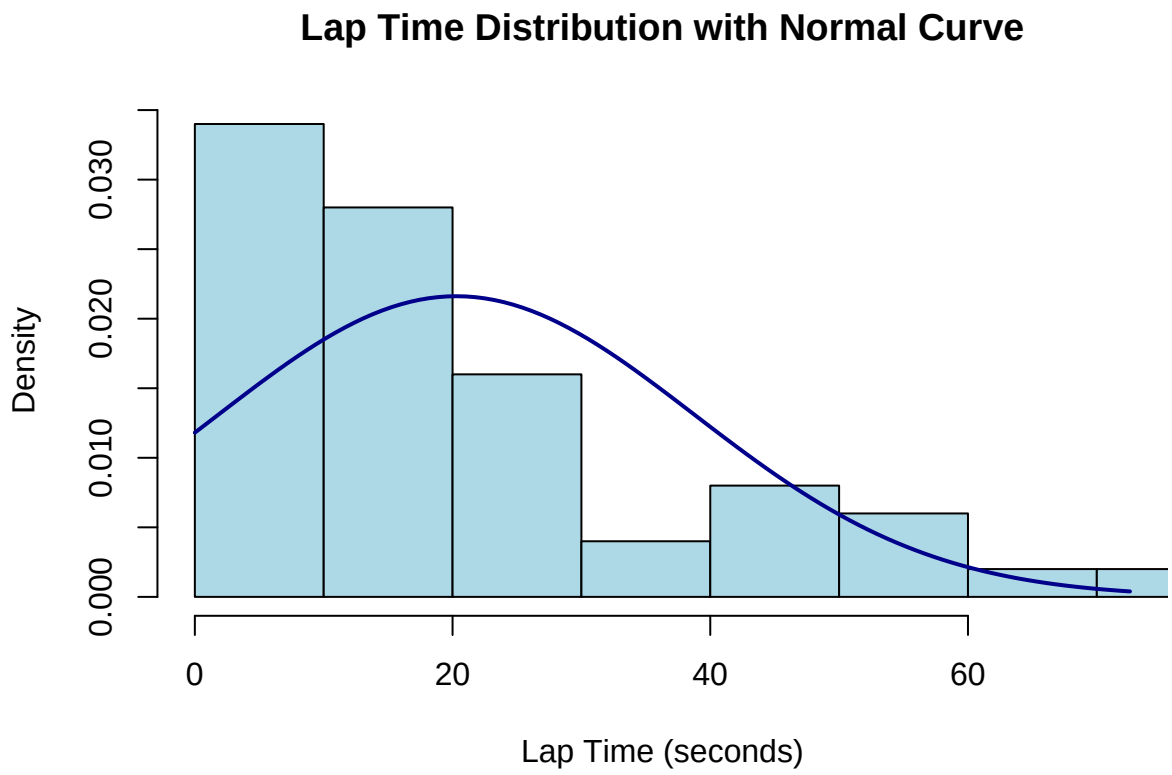
```
## [1] 20.2954
```

```
sd_time
```

```
## [1] 18.45504
```

Histogram and Normal Distribution Curve

```
hist(lap_times, breaks=10, probability=TRUE, col="lightblue",
     main="Lap Time Distribution with Normal Curve",
     xlab="Lap Time (seconds)", xlim=c(0, max(lap_times)))
curve(dnorm(x, mean=mean_time, sd=sd_time), col="darkblue", lwd=2, add=TRUE)
```



Percentages Within 1sd, 2sd, and 3sd

```
within_1sd <- sum(lap_times > (mean_time - sd_time) & lap_times < (mean_time + sd_time)) / length(lap_ti
within_2sd <- sum(lap_times > (mean_time - 2*sd_time) & lap_times < (mean_time + 2*sd_time)) / length(la
within_3sd <- sum(lap_times > (mean_time - 3*sd_time) & lap_times < (mean_time + 3*sd_time)) / length(la

percentages <- data.frame(
  Range = c("Within 1 sd", "Within 2 sd", "Within 3 sd"),
  Percentage = round(c(within_1sd, within_2sd, within_3sd) * 100, 2)
)

percentages
```

```
##         Range Percentage
## 1 Within 1 sd         76
```

```
## 2 Within 2 sd         96
## 3 Within 3 sd        100
```