Assignment 12

Max Wagner

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```r
library(boot)
```

```
## Warning: package 'boot' was built under R version 3.2.5
```

```r
library(stats)
library(ggplot2)

df <- scan("auto-mpg.data")
df <- data.frame(matrix(df, ncol = 5, byrow = TRUE))
colnames(df) <- c("dp", "hp", "wt", "acc", "mpg")

degree = 1:8
cv.err5 <- c() # create empty array
for(i in degree) { # loop to fill it up
  glm.fit <- glm(mpg ~ poly(dp + hp + wt + acc, i), data = df)
  cv.err5 <- c(cv.err5, cv.glm(df, glm.fit, K = 5)$delta[1])
}
qplot(degree, cv.err5, geom = "line")
```
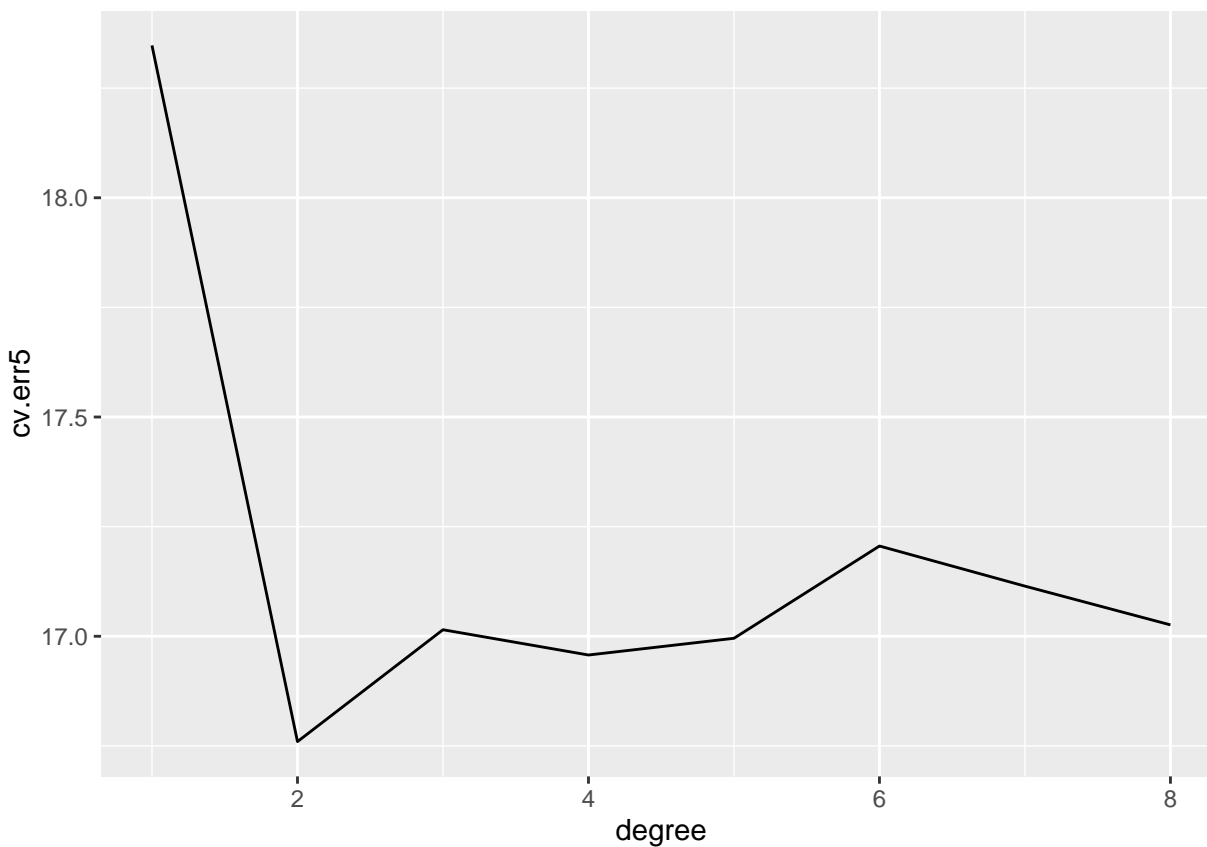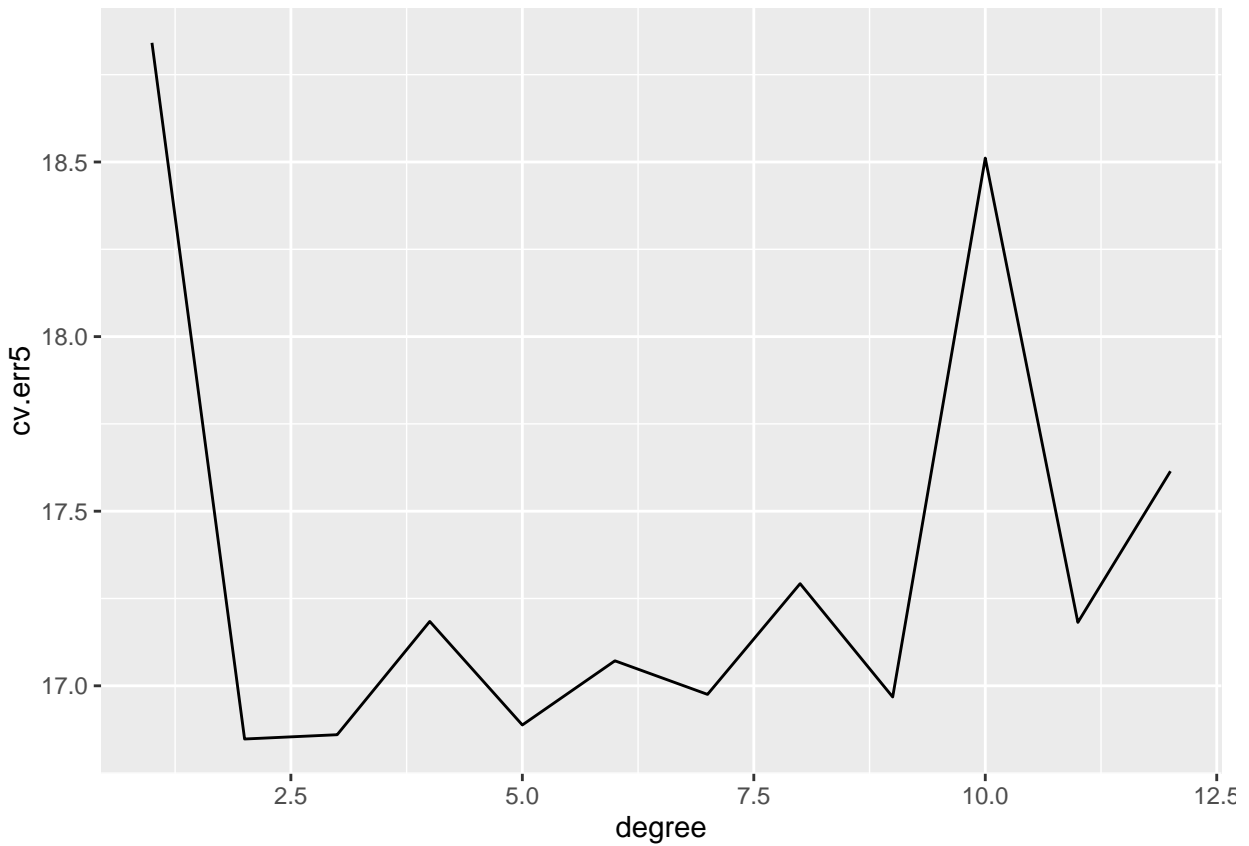
It has the general shape of a "u" but is not perfect. I can try the same thing with more points to see how it looks.

```
degree = 1:12
cv.err5 <- c() # create empty array
for(i in degree) { # loop to fill it up
  glm.fit <- glm(mpg ~ poly(dp + hp + wt + acc, i), data = df)
  cv.err5 <- c(cv.err5, cv.glm(df, glm.fit, K = 5)$delta[1])
}

qplot(degree, cv.err5, geom = "line")
```

There are still the spikes, but it appears a bit more "u" shaped. If smoothed, it would fit decently.