Stat 565

Homework 4

Due in class Feb 4

Q1

Simulate an AR(1) process (you pick the parameter value) of length 30. To this simulated series, fit AR models of order 0 through 6. Which model has the smallest AIC?

Repeat the simulation 500 times, how often is the model with the lowest AIC the true model?

Repeat again with a longer time series, do things change?

Repeat with a different parameter value, do things change?

Q2

1. Find and fit an ARIMA model to the `deere2` dataset:

```
library(TSA)
data(deere2)
?deere2
```

2. Find and fit an ARIMA model to the `robot` dataset:

```
library(TSA)
data(robot)
?robot
```

You should include:

- how you chose the degrees of differencing d
- how you chose p, q
- diagnostics of your model fit
- the estimates and standard errors of your model parameters