Introduction to Bayesian Data Analysis
Homework 3

This homework assignment is due by midnight of 5/5. Please submit your homework through eeclass. 50% penalty will be applied if it is submitted on 5/6. No submission will be accepted after 5/6.

1. (30 points) Using the *howell* dataset (available at https://github.com/aloctavodia/BAP) to create a linear model of the weight (x) against the height (y). Exclude subjects that are younger than 18. Explain the results.

2. (30 points) For four subjects, we get the weights (45.73, 65.8, 54.2, 32.59), but not their heights. Using the model from the previous exercise, predict the height for each subject, together with their HPDs of 50% and 94%.
   Tip1: Check coal mining disaster example in the PyMC3 documentation.
   Tip2: Use shared variables

3. (30 points) Repeat exercise 7, this time including those below 18 years old. Explain the results.

4. (30 points) It is known for many species that the weight does not scale with the height, but with the logarithm of the weight. Use this information to fit the *howell* data (including subjects from all ages). Do one more model, this time without using the logarithm but instead a second order polynomial. Compare and explain both results.

For afternoon session, please specify your teammates of the term project in your homework 3!