# Lab 7 Activity

We will be looking at the `Chirot` data from the `car` package again. As a reminder, this is data on the the 1907 Romanian peasant revolt. Find a descriptions of the variables in the table below:

| Variable | Description |
|---|---|
| **intensity** | Intensity of the rebellion |
| **commerce** | Commercialization of agriculture |
| **tradition** | Traditionalism |
| **midpeasant** | Strength of middle peasantry |
| **inequality** | Inequality of land tenure |

run the following code to name the data you will be using as `dat`:

```
library(car)
dat <- Chirot
```

**1.** Treat `intensity` as the outcome and all the other variables in the dataset as predictors and run a multiple regression. What is the $R^2$ of this model?

**2.** We want to rank the predictors in order of importance based on their unique contribution on the total $R^2$. Run a dominance analysis. How much does each predictor contribute to the total $R^2$? (HINT: use the `$` operator on the `dominanceanalysis` object to extract each predictor's contribution without using the `sumamry()` function)

- Does `inequality` conditionally dominate `midpeasant`? Motivate your answer based on the appropriate dominance matrix.
- Does `inequality` completely dominate `midpeasant`? Motivate your answer based on the appropriate dominance matrix.

**3.** Although `tradition`, on average, was the second predictor that contributed the most to $R^2$, it was not significant in the full regression. Conduct a retrospective power analysis to evaluate how much power there was to detect a significant effect of `tradition`. Follow the steps below:

- Calculate the $\Delta R^2$ between the full regression and the regression without `tradition`.
- calculate $f^2$.
- calculate power (you need to specify the correct $df_2$ through the `v =` argument and leave the `power =` argument empty).