Reflection

In this section, you will provide brief feedback about each group member. Write the name of each group member (including yourself) in one of the columns and enter a value that corresponds to your assessment of each of the criteria using the following scale:

1 – Strongly disagree	2 – Disagree	3 – Neutral	4 – Agree	5 – Strongly agree

	Name:Warren Keil	Name: Will Cranford	Name:
Cooperated with other group members	5	5	
Completed their work in a timely manner	5	5	
Communicated effectively	5	5	
Was well prepared for meetings	5	5	
Contributed to group discussions/planning	5	5	
Performed a fair share of the work	5	5	
Contributed to the overall success of the project	5	5	

Proceed to the following pages where you will provide more detailed comments about each of your group members as well as yourself. Please write your answers in complete sentences. As you continue, do not feel constrained by the space provided. Feel free to use additional space if you have a lot that you would like to share. Do not worry about the resulting formatting of the document.

Also, please do not forget to upload your completed log to the Dropbox as well!

Here, you are able to comment freely about each of the group members you were working with. Describe any issues that might have occurred, and discuss how each group member contributed to the project. Outline any behaviors that were particularly valuable or detrimental to the group. Enter the name of the group member and then enter any comments you have. Your answers will remain confidential and will not be shared with anyone.

Name: Warren Keil

Warren was very helpful in getting the variables and data frames coded correctly. Warren also contributed to the ideas of the project.

Name: Will Cranford

Will also was very enthusiastic about the project and brought the group many good ideas. Will also spent a lot of time working on his section of the project.

Finally, you will provide a more detailed self-reflection. Please take time to thoughtfully answer each of the following questions:

1. Describe your role within the group.

I helped get all of the code working from the start. I helped created all the predictors based on time and/or location. I am responsible for all the the time series analysis and the locational stacked model.

2. What challenges did you face while working on the project and how did you resolve them?

We had to clean almost all of our data before using it. All of our data was numerical but we got it as factors. We had to convert non standard time formats to something we could easily calculate and run in loops. We had to call certain rows like running a query in SQL many times. We did this manually with loops and logical statements. We also had to decide how to take a problem that involve time, size, quantity and location and reduce it down to a regression or classification problem. We did this by tackling the problem with 3 or more different approaches.

3. Do you feel like your group successfully answered the research questions that you set out to answer?

Yes. Our analysis showed we can safely point to injection well drilling as the cause of the increased seismicity. We successfully answered the questions of: have earthquakes increase over time? Given an earthquake, can we predict its magnitude ? Can we predict the location of big earthquakes in a given year?

4. What do you think went well with the project? What went poorly?

Our coding went very well. Our data cleaning went well. Our results went well. Our algorithms performed well. We had trouble predicting earthquakes

5. What did you learn from the experience?

I learned a lot of additional coding tips. I learned a lot about ARIMA modeling. I learning a lot more about R. I learned about meta ensemble. I learned about just how many different options there are when trying to apply machine learning techniques to a dataset.

6. What would you do differently if you were to do the project again?

I would spend more time at the start to designate roles. This would potentially save us from redoing work.

7. Did you enjoy the research experience? Has your opinion on conducting research changed at all during the course of the project?

I did enjoy this research experience. I felt it was very beneficial to tackle a real world data set and try to run analysis on it.

8. Is there anything else that you would like me to know about?

LOG

Oct 22- Met at library. Finalized our decision to do the earthquake project.

Oct 28- Met at library. Study ggplots. Learned how to use google maps as a part of ggmaps.

Oct 29 - Studied other map packages. Learned how to plot coordinates on maps.

Oct 30 - Ran various test algorithms on data.

Nov 5 - Discussed how to set up project.

Nov 7 - Researched the spherical distance function. Implemented one into my code.

Nov 12- Spent all day converting time format and creating time based variables.

Nov 13- Devised a way to make my data consists of 540 different locations.

Nov 14 - Tried to run various ML algorithms on my data.

Nov 15 - Created 20 data frames based on different years; saved them each as csv files.

Nov 16 - Saved the results of random forest for each year and saved it to each subsequent yr.

Nov 17 - Ran various combinations in stacked model with SVM as main algorithm.

Nov 18 - Decided to add a time series approach to model.

Nov 19- Met at library. Worked on models.

Nov 21- Researched changepoint analysis. Implemented it in code.

Nov 21 - Studied both links that professor sent out regarding ARIMA models.

Nov 22 - Coded different variations of ARIMA model in R.

Nov 23 - Continued studying the ARIMA model. Revised my ARIMA model.

Nov 26- Compared our different models. Started presentation together.

Dec 3- Made final adjustment to model. Practiced actual presentation.

Dec 10 - Spent 10 hours working on final write-up with group.