Content

M1, M2, and M3

You must include M1 to M3, with all the modifications suggested by me or by the POD in the previous submission.

M4 Data Analysis

Empirical Study Type-1

1. List the statistical tests that you will perform and explain why those tests are suitable for your data. E.g., "We will perform logistic regression because the dependent variable is categorical."
2. For every pair of independent variables with the dependent variable, compute the Pearson/Spearman coefficient, and discuss the strength of the correlation. If the correlation is strong perform linear regression and include the resulting plot.
3. Regression with all independent variables in the model:

   Logistic regression is useful when you are predicting a binary outcome from a set of continuous predictor variables. Hence, perform logistic regression with all independent variables in the model, and discuss that statistical significance of each independent variable.
4. Based on the results of the statistical tests, decide on whether you accept or reject your hypotheses.

Empirical Study Type-2

In this type of study, you collect data of several version of two or more systems to find patterns or trends in quality during the evolution of the system. For example, suppose that you are performing an study on the evolution of code smells

1. Find patterns of code smell evolution in the examined projects (e.g., stable number of code smells over time, or code smells decrease before releases). Try to associate the extracted patterns with significant events in the project's history (e.g., release dates, major design changes, and new requirements that led to redesigning part of the software).
2. Explore if the developers are aware of the code smells (based on comments in the source code, commit messages, forum discussions), and if they perform any activities (e.g., refactoring) to resolve the code smells.
3. Based on the results of your analysis, give an answer to your research questions.

Note:

The evaluation of this delivery, will be given in a scale from 100 to 0, with recommendations to be applied in the next delivery. This is won't be the final note.

The final note will be given when you make the final submission of the project.

References

Empirical Study Type-1

Lecture: Empirical Validation of Metrics

Team Assignment 1

Empirical Study Type-2

A. Chatzigeorgiou and A. Manakos, "Investigating the Evolution of Code Smells in Object-Oriented Systems", Innovations in Systems and Software Engineering (Springer), vol. 10, issue 1, March 2014, pp. 3-18.