Experiment Design for Computer Sciences

Week 4 – Pre-class Notes

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Exercise 1: Mini-experiment

Thanks for submitting the first exercise

Many of the submissions were extremely interesting!

Popular Themes

- Physical exercise: 3
- Computer exercises: 2
- Interviews: 4
- Games: 2
- Cooking: 4
- Sleep: 2
- Online Data Collection: 1
- Biology: 1

Exercise 1: Mini-experiment

Warnings

Some common mistakes:

Forgetting Name, ID and Title

A very large number of students did not include their Names, ID or a title for the report... Why?

Not performing an experiment

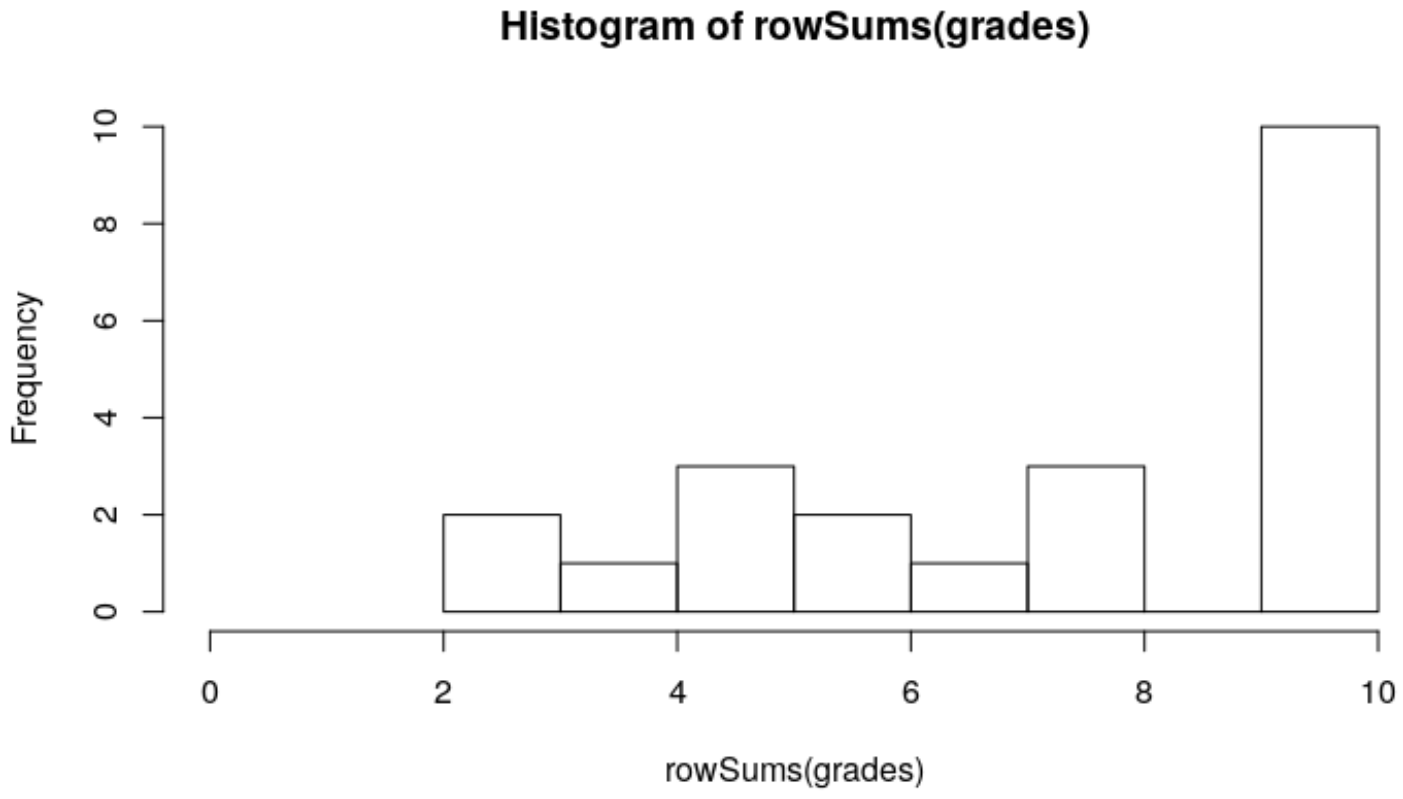
Quite a few students suggested an experiment, but did not perform it. The goal of the exercise was to **execute** an experiment.

Citing your sources

A few people used pictures or tables copied from other places without attribution. Don't do that!

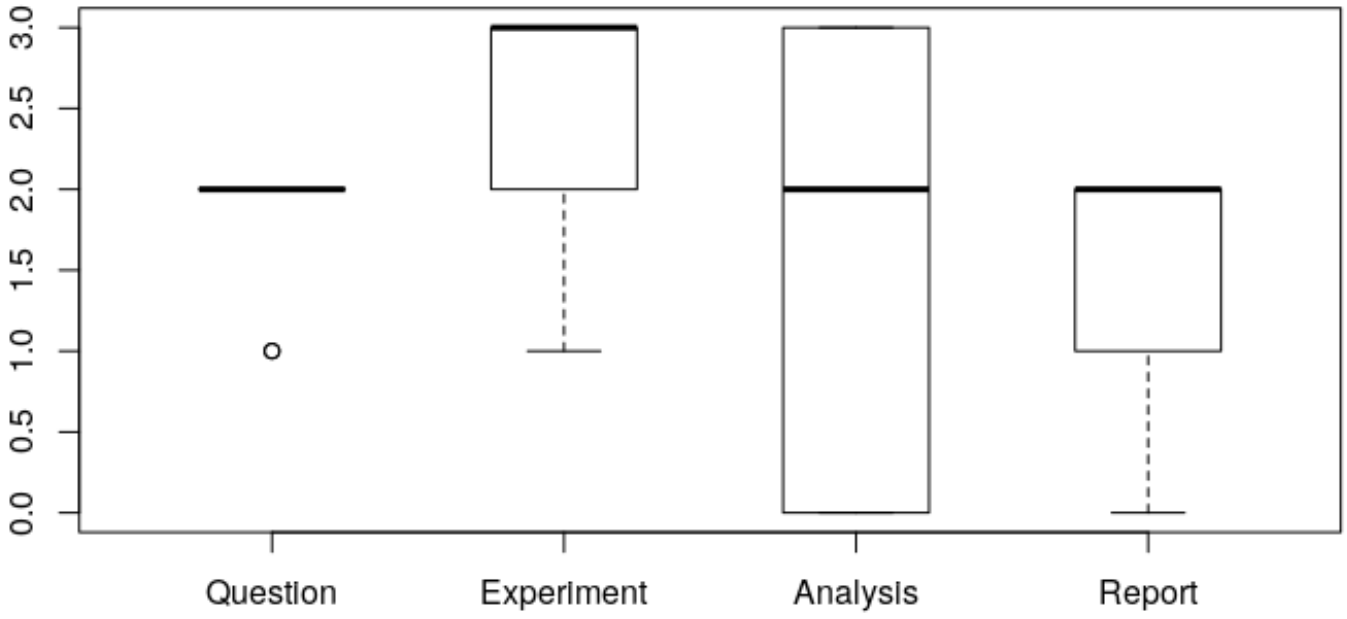
Exercise 1: Mini-experiment

Grades



Exercise 1: Mini-experiment

Grades



Exercise 1: Mini-experiments

Thoughts

- Some very good reports;
- Almost all reports were active experiments (one observational);
- It is important to notice that experiments always bring questions that were not included in the original design;
- Hypothesis building in the “question” section (today’s class!);

Chapter 5: Statistical Inference

Report 2: Report on your own research

Applying what you have learned

Report Description

Write a description of **your current/planned research work**, focusing on the experiment design aspects learned in this course. Identify:

- Questions of interest and relevant hypothesis;
- Experiments and pre-experiments necessary;
- Factors and sources of uncertainty of the experiments, and write suggestions of how to deal with them;
- Assumptions of your experiments, and how to validate them;

- **Executing an experiment** and **data analysis** are not necessary.
- The report should be a PDF file with 2-4 pages maximum.

Report 4: Group Experiment

Report 1's big sister

Report Description

Choose an experiment idea, and perform all the steps in experimental research: Definition of the hypothesis, design of the experiment, data collection, analysis and description of the results. Prepare a report and presentation about your experiment.

- Groups of up to 2 people
- Using the same experiment idea as the first report is OK.
- Report will be graded on experiment quality[a]
  - Quality of the Hypothesis
  - Quality of the Data collection
  - Quality of the Numerical and Graphical Analysis
  - Reproducibility of the results

Later I will upload a report template to MANABA

[a] and report/presentation quality too