**Assignment 2: Goals And Questions**

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**Question 1: How Number Of Authors For a File Affect Number Of Issues In Source Code?**

**Goal:**

As manager the Google Chrome project, we will like to see if increasing number of software developer contributor does affect the number of bugs. Because multiple developers may think in multiple different ways and leaves risk of misunderstanding of each others’ logic.

We will measure **outcome** by the ratio of no of defect vs no of contributors.

Our **direct measure** will be:

1. Number of Defects in Bug repository per file.
2. On the other hand we will directly Measure the Number of contributors per source file.

We will be using the following measure as to control the **confounds** factors:

1. Ownership of source code, to a specific senior, experienced developer.
2. Code review by the owner prior merging commit/pull requests to reduce conflicting logic understanding and maintains consistency.

**Hypothesis**: Increased number of authors for a source code file results in increasing number of issues found

**Q2: How the number of commits or commit frequency relates to number of bugs reported in a file?**

**Goal:**

As a manager of the Google Chrome project, we would like to see whether frequency of the commit affects the number of bugs reported in a file. Because increased number of commits may generate the dependencies among the various program modules.

**Outcome:** ratio of commit frequency vs number of bugs reported.

**Direct Measure:**

1. Number of bugs per file.
2. Number of commits per file.
3. Timestamp of the commits and bug reports.

**Confounds factors:**

1. Make sure new features are covered with unit tests.
2. Make sure the codes reviewed by other developers.

**Hypothesis:** Increased commit frequency generates increase number of reported bugs.

**Question-3 : How does unit testing affect the correct function of the software?**

**Goal:**

As the manager of Chrome, it is important for us to understand if unit testing will lead to more accurate functions used by the customer.

Our outcome measure of quality will be the number of customer reported incorrect functions per file.

Our direct measure will be the number of unit tests.

We will also include controlling measures such as the level of expertise of the developer, communication of the development team, to control for confounds. We suspect that higher expertise and more communication will confound testing making increased unit testing less important.

**Hypothesis**: An increasing number of unit tests will lead to a decreasing number of incorrect functions reported by customer.