Basically, instead of running the current set TS of test suites once for a given commit, some subsets of TS are run more than once on the commit for a different combination of <Ruby version,GEM configuration>

This potentially leads to inefficient test execution:  
- If a given test suite T1 in TS, when it fails, always fails on all combinations, then technically that test suite should only be scheduled once, for one <Ruby version,GEM configuration>, instead of for all the combinations.  
- If a given test suite T1 in TS fails only for specific Ruby versions, and does that on all GEM configurations, again less executions are necessary.  
- The same for if a given test suite fails for a specific GEM, across all Ruby versions.  
- Perhaps there are other patterns as well?  
  
So, the goal of the project could be to address the following RQs:  
1. How common are the above cases of test execution redundancy?  
2. Can existing test selection approaches be made <Ruby,GEM>—aware in an efficient way?  
3. Can existing test prioritization approaches be made <Ruby,GEM>—aware in an efficient way?  
  
You could use Ruby on Rails to do the evaluation, but just would need to check how explicit the test suite execution/success/failure data is in the build logs (which you would need to download).

Dear Prof. Adams,

I am writing to request your permission for deferring submission of my final project, including proposal and final project presentation.

I have used the data from <https://github.com/elbaum/CI-Datasets> and added the config data (ruby version, GEM) crawled from api.travis-ci.org. Algorithms for test suite selection and prioritization mentioned in the paper 2014 was simulated on 100000 test suites, considering failure window, test suite execution time, whether the test suite is new, and version combination information. However, the result is not satisfactory as expected. I am on my way adjusting simulating algorithm.

I sincerely apologize for this inconvenience.

Best Regards,  
Chunli

Dear Prof. Adams