Budget Study: Week 1

Study overview

- the ultimate goal is to discover **actionable** things
- nobody will act unless you having a compelling presentation at the end
- think of each week as a **mini-presentation** building towards end
- "I made this plot by doing X; it shows Y; the implication is Z"
- this is very **open-ended**; as long as you produce interesting results, you have a lot of latitude to explore what interests you
- the goal it to discover things, not practice coding (that's secondary). So seek help and borrow code aggressively (always giving credit, of course!)
- this study will give you team practice. Learn about everybody's abilities and think carefully about how to share the work to maximize output

Schedule

Week	Date	Task
1	Jan 21	Form teams and learn how to use git
2	Jan 28	Select sample of city departments and read about budgeting for those departments
3	Feb 4	Plot the distribution of purchasing transactions across city deparments and vendors
4	Feb 11	Identify departments that are growing/shrinking in terms of expenditures
5	Feb 18	Measure the similarity between departments in terms of similar expenditures
6	Feb 25	Evaluate the churn of vendors relative to each department
7	Mar 4	Measure the regularity of payment transactions, by vendor, type, and department
8	Mar 11	Write report of findings thus far, considering policy implications
	Mar 18	*Spring Break*
9	Mar 25	Students generate list of their own analysis questions
10	Apr 1	Week 1 - Exploration of student questions
11	Apr 8	Week 2 - Exploration of student questions
12	Apr 15	Week 3 - Exploration of student questions
13	Apr 22	Select most interesting plots from the term and describe policy implications
14	Apr 29	Create presentation of most interesting results and implications

Week 2

- recommended readings?

What is version control?

- imagine 100 people working on the same program. How do they collaborate?
- answer: **version control** tools. We what to keep track of what each person wrote, when they wrote it, and what **feedback** received. We want a **history** so that we can go back in time if somebody messing things up.
- there are many version control tools: svn, mercurial, git, others. We'll use git.
- git is open-source, and there are many providers. We'll use github.

Git vocabulary

- commit: a checkpoint of the code in a certain state. "git commit" command creates a new commit
- branch: an easy-to-remember name for a commit (automatically follows latest)
- repo: collection of commits/branches for a given project
- clone: git command to make a copy of of a repo
- pull: git command to pull new commits from another repo to your own
- push: git command to push new commits from your own repo to another
- pull request: suggestion that the people managing a primary repo pull commits you made in your repo into the main codebase
- remote: local name for another repo

Week 1 Git Practice

- do the introduction sequence on the git visualizer: https://learngitbranching.js.org/
- create a github account
- install git on your laptop
- fork your team repo: https://github.com/tylerharter/s19-city-t1 (or t2, t3)
- clone the same repo to your laptop
- add your fork as a remote
- push a commit directly to the main repo (add a yourname.py file)
- in another commit, make a change to your file
- push this second commit to your fork
- do a pull request
- merge another student's pull request