- **Basic Info**

  Title : Make dat $$$

  Team : Edward Ekstrom (u0579294), Andrew Tsai (u1038596), Farhan Nasrullah (u1146617)

  Github : https://github.com/atsai1220/cs5630-team-project

- **Background and Motivation.**

  Background: Launched in 2008. Stack Overflow is a popular website that serves as a platform for users to ask and answer questions on topics mostly related to computer programming and systems. Internet users, through membership and active participation, get to vote questions and answers up or down and edit questions and answers in a fashion similar to a Wiki or Digg. It is one of the largest platform of its kind, with more than 2 million registered users, most of whom are broadly interested, learning or working in the domain of software development.

  Each year since 2011, Stack Overflow has asked developers about their favorite technologies, coding habits, and work preferences, as well as how they learn, share, and level up. The survey results are quite significant and interesting as they reveal a lot of insights on the state of the industry, technology and trends.

  Our visualization project is based on results of the Stack Overflow survey for the last five years, 2013 to 2017.

  Concisely there are two motivations for us to choose this as our project:
  - As aspiring developers, the survey results are relevant to us since most of us in this class will probably be seeking a career in web/software development. We are curious to know what is in demand and how much we can expect to make after graduation.
  - Stack Overflow's presentation of the results are lengthy and offers very limited interactivity.

- **Project Objectives.**

  In a nutshell, we will be dealing with the following questions:
  - How different languages/technologies are gaining popularity over the years.
  - What is the correlation between language/technologies amongst different demographics (age, role) and their distribution in geography?
  - Which competencies are most sought after and have the most opportunity.
  - Which roles and technologies get the most salary?
  - What technologies are dying?
  - Are there any technologies that have been around for a long time but only gaining popularity now.
  - What languages do engineers love and hate the most?

  Thus from a top level sense, we are trying to unearth the story of what is the present state of the development industry and where it is headed in terms of demand and compensation.

We expect we will contribute in the following ways:

- Focus on a selected domain of the survey and enable the audience to use the website in an easy manner unlike the lengthy Stack Overflow webpage with too many sections.
- Provide an easy and interactive tool to publish the insights related to demands and compensation of various technologies and roles in the development industry.
- Aspiring developers should find the insights critically useful to aid decisions of their career and learning.

- **Data.**

  We are getting the data from Stack Overflow's website in CSV format by downloading them. We download report of each year separately.
  URL: https://insights.stackoverflow.com/survey/

- **Data Processing.**

  Not really, we will plan on doing some aggregation because the data from Stack Overflow has rows for each user response and we want to look at aggregated features. Also, some questions over the years have changed and the responses related to our focus might not be available for all data entries. We will most likely use Python to do the cleanup.

- **Must-Have Features.**

  - Dropdown menu.
  - Bar graph.
  - Line chart.
  - Highlights on mouse-over action.
  - Color Scale.
  - At least two interactive features, like clicking part of a graph to select the underlying data and change another graph etc.

- **Optional Features.**

  - Geographic map.
  - More than two levels of interaction between graphs.
  - Transitions.
  - Tool-tips.

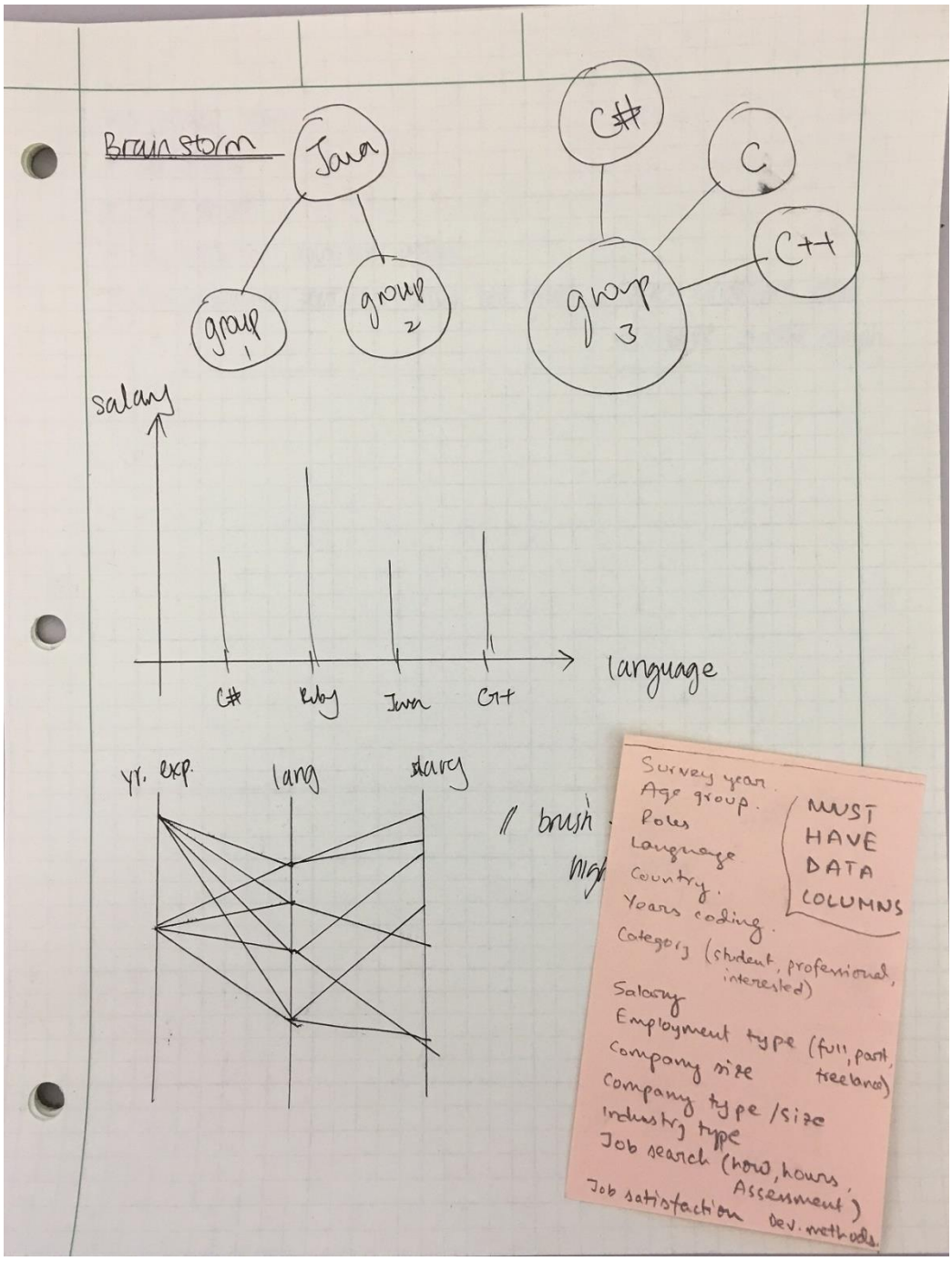
- **Project Schedule.**

Action Points	October	November				December
	27-Oct	Week 1	Week 2	Week 3	Week 4	1-Dec
Project Proposal						
Meeting with TA						
Peer meeting in Class						
Data Cleansing						
Page layout, Graphs						
Project Milestone						
Interactive features						
Complete development						
Final Project submission						

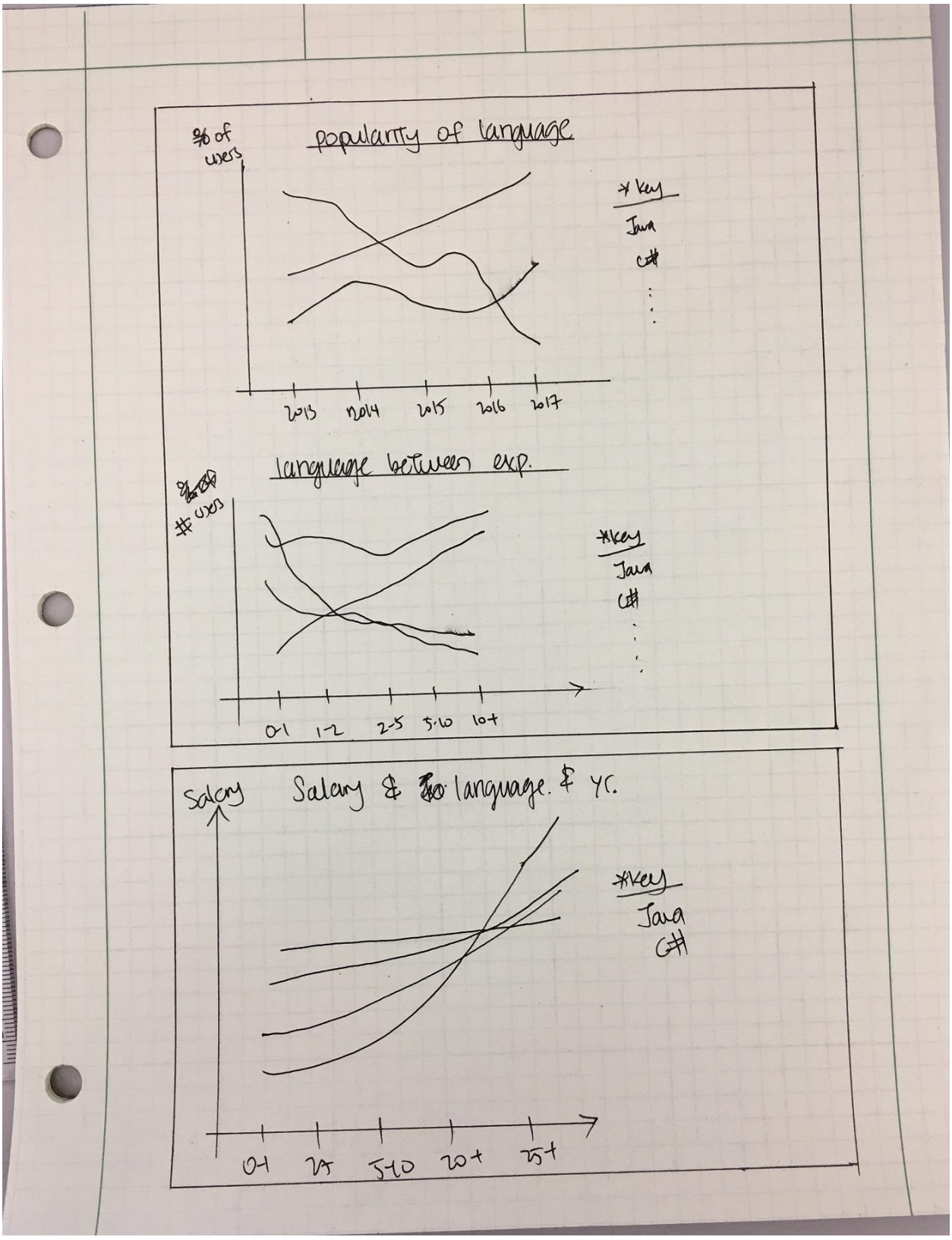
Make sure that you plan your work so that you can avoid a big rush right before the final project deadline, and delegate different modules and responsibilities among your team members. Write this in terms of weekly deadlines.

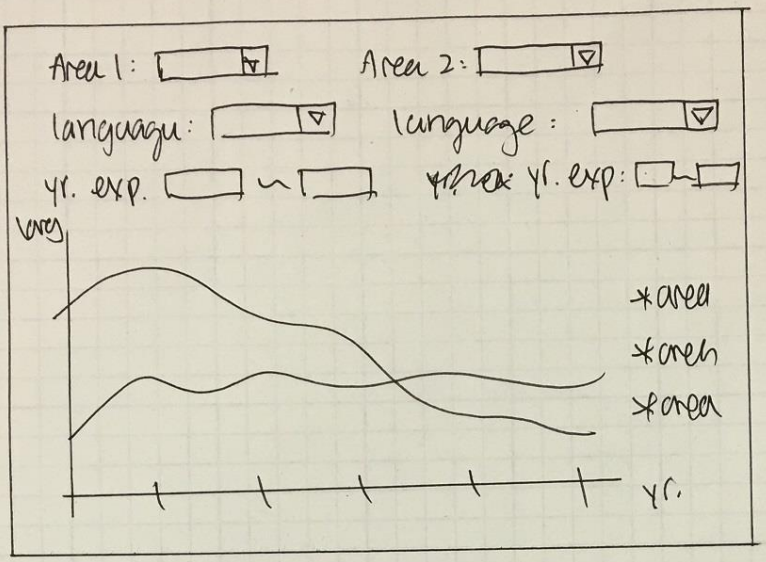
- **Visualization Design.**

Brainstorming:



Initial Designs





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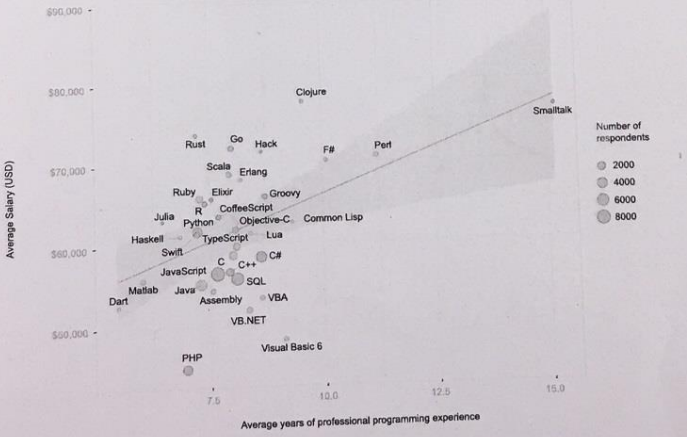
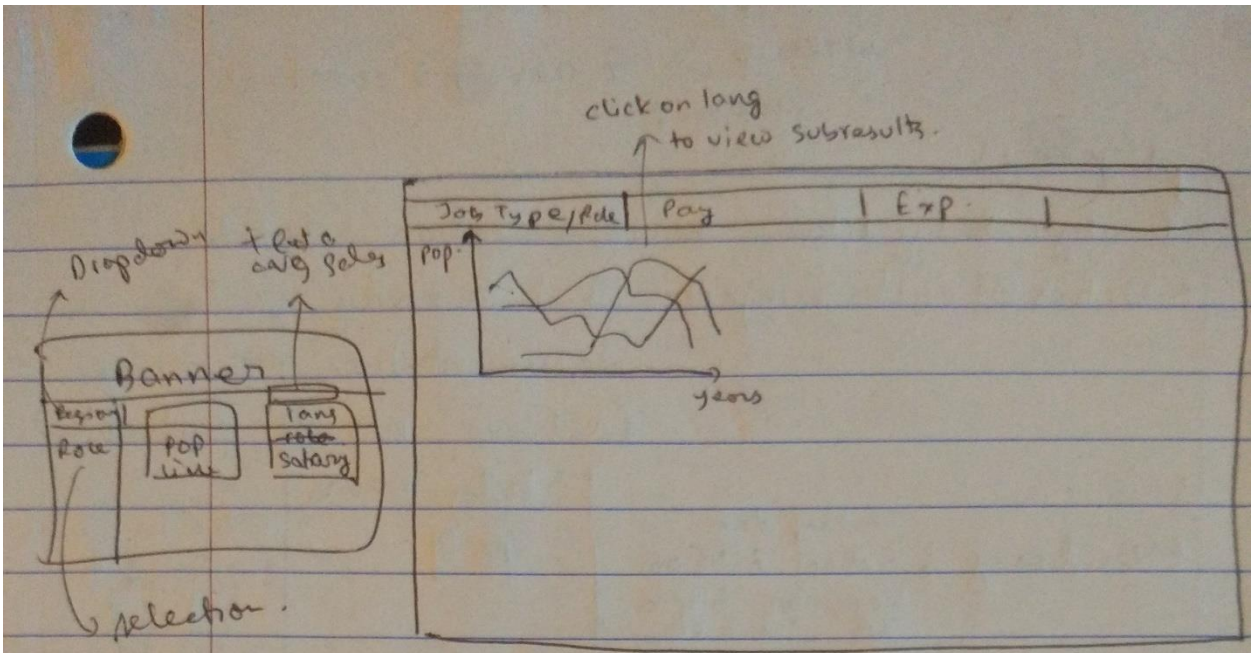
Salary and Experience by Language



Developers using languages listed above the blue line in this chart such as Go, Rust, and Clojure are being paid more even given how much experience they have. Developers using languages below the blue line like PHP, however, are paid less even given years of experience. The size of the circles in this chart represents how many developers are using that language compared to the others.



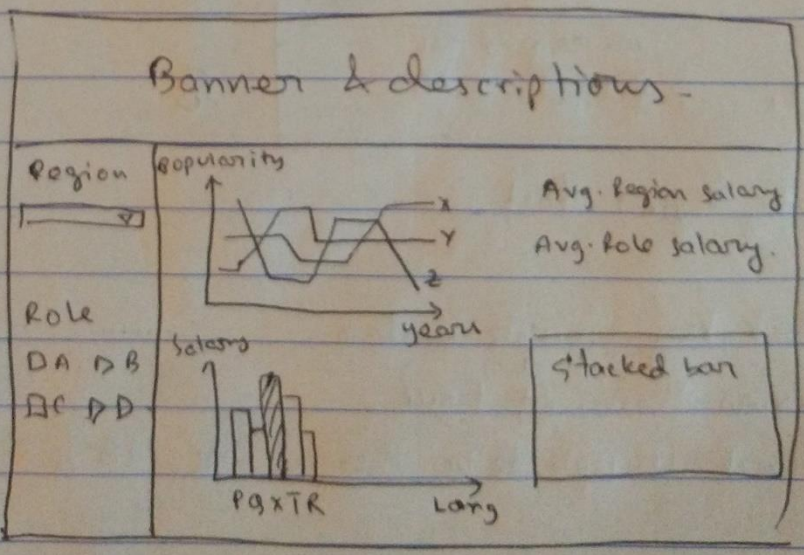
Lang vs. occupation. (select lang, horizontal bar of oc

Lang. pop over years.

most paid languages.

most paid roles.

role - age - salary dist.



Realization Design

* dropdown menu
* Bar graph
* Line chart
* Highlights on mouse-over action
* two interactive feature : click one graph, select underlying data to change another graph.
* Colorscale