Big Question: What are the main challenges of learning programming?

Types of challenge?
- Career search
- Using the tool
  - package installation
- motivation
- time constraints
- money constraints
- Learn the language
  - understanding/conceptualization
  - Learning resources
    - instructors
    - peers
    - community
  - debugging
    - syntax errors
    - logic errors

Who get challenges?
- where are the users in their life stage and career?
  - students
  - professional in CS
  - professional not in CS
  - freelancer
- What's the motivation of the users?
  - career change
  - self improvement
  - personal interests
- usage
  - freecodecamp users — code survey data — Clusters of learning profiles
  - external users

Everyone who reads the the blog post
- Coursera
- freecodecamp
- External users

How to find their problems?
- Behavioral data
  - During the course
    - Attempt on the coding problem itself — API data
      - numbers of attempts
      - time of attempts
    - Attempt to search external resources — Blog post reading
      - Metrics
        - # of recommendation
        - reading ratio
      - relationships between posts
        - e.g. group by similar reading ratio
        - e.g. group by the learning topics, such as recursion problem, Big O notation
  - Drop the course — places people stop working
- Survey data — Questions raised in the community

Goal: Apply blog reading data to understand learners' problem of programming

Assumption: Reading the post is an attempt to solve the programming problems they encounter

Methods: Use clustering model to gain insights to identify common problems