Finalize one Capstone idea based on the feedback you got from mentor(s) and peers on your Section 1 submission, and also based on your newly acquired understanding of the R ecosystem. Think of the following questions:

* What is the problem you want to solve?
* Who is your client and why do they care about this problem? In other words, what will your client DO or DECIDE based on your analysis that they wouldn’t have otherwise?
* What data are you going to use for this? How will you acquire this data?
* In brief, outline your approach to solving this problem (knowing that this might change later).
* What are your deliverables? Typically, this would include code, along with a paper and/or a slide deck.

**Submission Instructions:**

1. Write a project proposal - a short (1-2 page) document **written in R Markdown**covering the questions above.
2. Create a github repository for your Capstone Project.
3. Add this proposal to the github repository for your project.
4. Submit a link to this repository.
5. Once your mentor has approved your proposal, please share the github repository URL on the community and ask for feedback.

R features a bunch of functions to juggle around with data structures:: \* seq(): Generate sequences, by specifying the from, to, and byarguments.  
\* rep(): Replicate elements of vectors and lists.  
\* sort(): Sort a vector in ascending order. Works on numerics, but also on character strings and logicals.  
\* rev(): Reverse the elements in a data structures for which reversal is defined.  
\* str(): Display the structure of any R object.  
\* append(): Merge vectors or lists.  
\* is.\*(): Check for the class of an R object.  
\* as.\*(): Convert an R object from one class to another.  
\* unlist(): Flatten (possibly embedded) lists to produce a vector.

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**Project: S**ingle Proton Emission Computed Tomography (SPECT)

Diagnosing of cardiac “single proton emission computed tomography (SPECT) “ by analyzing SPECT images and identifying Normal and abnormality among patients with myocardial perfusion.

**Data Details:**

The source of the dataset is UCI.edu. The dataset of SPECT describes the diagnosing of cardiac SPECT images. Each of the patients is classified into two categories: normal and abnormal. Two hundred and sixty seven SPECT image sets (patients) were processed to extract features that summarize the original SPECT images. As a result, 44 continuous feature patterns were created for each patient. The CLIP3 algorithm was used to generate classification rules from these patterns. The CLIP3 algorithm generated rules that were 77.0% accurate (as compared with cardiologists' diagnoses). SPECTF is a data set for testing ML algorithms; it has 267 instances that are described by 45 attributes. Predicted attribute: OVERALL\_DIAGNOSIS (binary)

**The Target Client:**

This project is primarily designed for cardiologists and cardiology fellows as the second-opinion computer-based diagnostic tool. SPECT imaging is used as a diagnostic tool for myocardial perfusion for patients. From the medical point of view, the main goal is to semi-automate cardiac SPECT diagnostic process in order to assist a cardiologist in diagnosing cardiac SPECT images, to make this procedure easier, more consistent, and efficient.

**Deliverables:**

The deliverables for this project will be the R markdown and the output of the markdown as a PDF. I chose this as the deliverable since the R markdown can have the code but the PDF doesn't need to have the code visible with the writen explanation of the analysis and prediction.

The deliverables for this project will include a report of all the findings, a slide deck and R code, all of which will be published on GitHub.