Capstone Project Proposal

Notes:

- This should take no more than one hour to complete – the clearer you are about the business problem you're working to solve with your ML-driven solution, the easier your proposal will be to complete
- This will be uploaded to your repo, which will be a part of your final submission
- Due date for submission is 12/9

Instructions:

1. Download this document as a Word Doc
2. Answer each question using a few sentences, at most
3. Save your completed proposal as a PDF
4. Create a project GitHub repo (if you have yet to do so)
5. Add your instructor as a collaborator (username `nickmccarty`) to your project repo
6. Add your mentor as a collaborator
7. Push your proposal PDF (created in Step 3) up to your repo
8. Copy the URL corresponding to the location of the PDF in your repo
9. Submit the copied URL using this link

Car License Plate Detection

Business Understanding

- What problem are you trying to solve, or what question are you trying to answer?
  I'm trying to detect car license plate by using Deep Learning
- What industry/realm/domain does this apply to?
  This project applies to transportation industry, especially parking and traffic
- What is the motivation behind your project? (Saying you needed to do a capstone project for flatiron is not an appropriate motivation)
  Car is one of the most popular vehicles in the world, especially in the US. We can track cars with license plate. That is the motivation to use Deep learning to identify car much easier with images or video.

Data Understanding

- What data will you collect?
  I collect data from public dataset like Kaggle and by myself
- Is there a plan for how to get the data (API request, direct download, etc.)?
  I download dataset online and take photo by using my phone
- Are the features that will be used described clearly?
  Object detection will be used in the project

Data Preparation

- What kind of preprocessing steps do you foresee (encoding, matrix transformations, etc.)?
  I need to make bounding box of plate in image for training and testing
- What are some of the cleaning/pre-processing challenges for this data?
  Annotation takes a lot of time and challenges for this data

Modeling

- What modeling techniques are most appropriate for your problem?
  Object localization is most appropriate for my problem
- What is your target variable? (remember - we require that you answer/solve a supervised problem for the capstone, thus you will need a target)
  My target variable is location of car license plate in photos
- Is this a regression or classification problem?
  This is object detection

Evaluation

- What metrics will you use to determine success (MAE, RMSE, etc.)?
  I will use F1 score to determine success

Tools/Methodologies

- What modeling algorithms are you planning to use (i.e., decision trees, random forests, etc.)?
  RetinaNet, Single Shot Multi-Box Detector (SSD), and You Only Look Once v3(YOLO v3)