CAPSTONE OUTLINE

1. Introduction
   * Overview of the yoga industry
   * Applications of image recognition in the fitness industry
   * High-level description of what the app would look like and do
2. Background
   * Brief history of image recognition methodologies
   * Image recognition using neural nets
     + Brief history of neural nets
       - Past neural net frameworks and interpretations
       - Why are neural nets so popular now?
     + Applications of neural nets
     + High-level description of Inception Architecture
   * Pose recognition
     + Difference between image recognition and pose recognition
     + Typology of pose recognition models
     + Applications of pose recognition models
     + Model Architecture
       - DeepCut
       - DeeperCut
   * Brief comparison of image recognition and pose recognition models
   * Project goals
3. Methodology
   * Data collection
     + Web scraping
     + Description of pose choices and search terms
   * Data cleaning
   * Growing the data set
     + Adding artificial noise: what type of noise, why that type of noise, how
     + Additional image sources?
   * Method 1: Building neural net (image-to-label classification)
     + Convolutional Network Basics
     + ResNet Basics
       - allows us to train deeper networks (up to 101 vs 10 convolutional layers)
       - enabled by identity connections (preserving gradients)
   * Method 2: Image-to-joint-to-label (pose recognition + classification)
   * Pros and cons of both methods
4. Results
   * Method 1 results
   * Method 2 results
   * Discussion of various success metrics, justify ultimate model/method choice
5. Implications of model choice for future work
6. Future Use Case - more detailed description of use case from intro