Thesis Structure

# Introduction

## Background

## Problem

## Purpose

## Goal

## Methodology

## Stakeholders

## Delimitations

## Outline

# Theoretical Background

1. CNN
2. Tensorflow Mobile vs Lite.

# Engineering Related Content, Methodologies, Methods

(Is this really necessary)?

# The work

1. Get acquainted with Tensorflow environment. Reading documentation, etc.
2. Understanding work done until that point. Model aims to take a picture of credit card and return a picture with all the noise removed, only the place where the numbers are is shaded. Train the model to perform better.
3. Export Tensorflow model graph to as a Tensorflow Lite flatbuffer. (file to be used on mobile device)
4. Export Tensorflow model graph as a Tensorflow Mobile protobuffer
5. Development of testing application: Design of app: library of images, settings view, chart view. The app runs the two models (Tensorflow Lite and Tensorflow Mobile) iteratively over a set of images, and plots the inference time of the tow models in a chart. One can export the collected data to a file afterwards.

# Result

1. Tests are run with different image sizes on different telephones, specifically:
   1. 160x160 px, 240x240 px, 320x320 px
   2. Moto G 5 +, Samsung Galaxy S4, Samsung Galaxy S5, Samsung Galaxy S8, Pixel 2
2. Surprisingly enough, tests show that Tensorflow Lite is aprox 2 times slower than Tensorflow Mobile
3. Google Pixel 2 when ANN API activated.

# Conclusions

1. CNNs run still quicker in Tensorflow Mobile than in the recently launched Tensorflow Lite. Probably due to the early stage of development of the library.
2. The size of the image has a linear dependence with the inference time for both tflite and tfmobile.

# Bibliography