

# Springboard

## Capstone Project

### Initial Project Ideas

- Project 1

Identification of payment defaulters through financial history

**Problem Statement:**

To identify companies which have a high probability of defaulting on their payments based on available financial audit information.

**Who would care and why:**

1. Service Empliance information services - End to End 3rd party compliance management firm.
2. Organizations that are clients of Empliance information services.

An automated system to flag vendors based on their financial history can provide a significant financial benefit to the 3rd party compliance firm as it would cut down time and effort for manual assessment of vendors. Quick and accurate assessment of defaulters would prevent banks and service providers to avoid NPA's and deferred payments.

**Collection of dataset:**

A data set of vendors with various financial parameters is available with the Empliance information services along with a history of defaulting.

**Initial thoughts on Problem Solving:**

To use logistic regression to predict the probability of outcome of defaulting payments. The independent variable will be 'payment\_default (yes/no)', a binary categorical variable.

The dependent variables will be financial data such as numerical variables - revenue, net profit, assets, time till last default etc. and categorical variables such as 'past\_defaulter (yes/no)'.

## ● Project 2

Image recognition program for drones.

**Problem Statement:** To identify a specific type of vehicle on a highway during flight.

**Who would care:**

1. Rudraksche Scientific Engineering: An IIT bombay drone startup that is optimizing drones for police patrolling.
2. Highway traffic patrol
3. Highway travellers

An accurate image recognition program for highway patrolling drones would assist highway patrol in identification of law breakers as well as quickly locating accident locations. The second aspect can prove to be critical in case major accidents involving severe injuries.

**Collection of dataset:**

The data set to train the model of a specific vehicle is easily available on the internet. A collection of different images of the same vehicle with different backgrounds and colors taken from different angles can be obtained from search engines and used for training the model

**Initial thoughts on Problem Solving:**

Although it's too early in the course to be able to grasp the technology and procedures involved in image recognition, I estimate that it would be done using neural networks.

## Project 3

Recommendation engine for automobile servicing

**Problem Statement:** To give timely recommendations for servicing of vehicles to owners based on vehicle data such as kilometers since last service, vehicle age, accident history etc.

**Who would care:** Startups offering vehicle services at home/ pickup from home

**Collection of dataset:** The data can be obtained from the company 'throttll.com' which is a startup engaged in 2-wheeler and 4-wheeler servicing

**Initial thoughts of Problem Solving:**

The problem is that of binary classification and can be achieved using logistic regression. We can predict based on the different features if the car requires servicing at a given time period or

not. We can also try clustering a see what different patterns emerge with vehicles with similar feature data.