Date: __/__/__

Week 1

Identifying business value for using Machine Learning

Introduction

* What is machine Learning?

It is a way of teaching a computer how to solve problems by feeding it examples of the correct answers.

Ex:- * You can predict how long it takes to travel from one location to another by feeding the computer examples of the completed journeys.

:- predicting weather patterns over the next few days.

* But what kind of problems should ML solve?

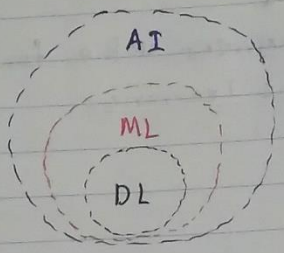
Every enterprise organization has a mission. & (promoting bussiness, attract more customers, improve customer satisfaction, Etc.). Machine learning should apply to improve the quality of those missions.

AI vs ML vs Deep Learning

Artificial Intelligence (AI)

* AI refers to machines that are capable of acting autonomously essentially machines that think.

* Machine Learning is a one branch of AI and one way to get a computer to solve a problem autonomously.



* Deep Learning is a subset of Machine Learning and refers to a specific class of Machine Learning algorithms called neural networks.

* Neural networks are used in many bussinesses ~~tody~~ today because they generally outperformed othe Machine learning algorithms. for tasks such as image classification and natural language processing. ~~and Etc~~

* Deep learning is a type of Machine Learning that works even when the data is unstructured (images, speech, video, and natural language text).

* Unstructure data don't exist as tabular format

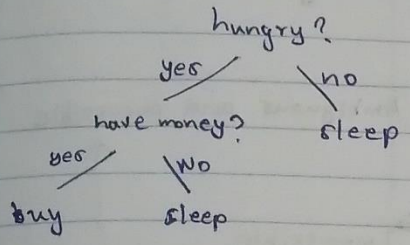
Structured data

Credit card number	Gender	Age
428- - - -	male	19
821 - - - -	female	25
157 - - - -	male	40

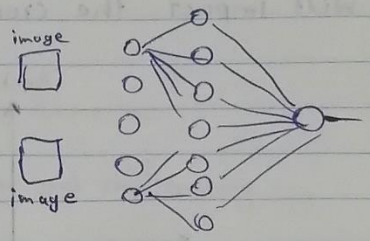
* Important note is not every machine learning ~~is~~ algorithm is Deep Learning but ~~over~~ deep learning algorithm is Machine learning.

Examples for ~~above~~ above point

Decision tree is not Deep Learning



RankBrain is a DL example



* RankBrain is a neural network used by Google search

* ML is a way to use standard algorithms to analyze data in order to derive predictive insights and make repeated decisions.

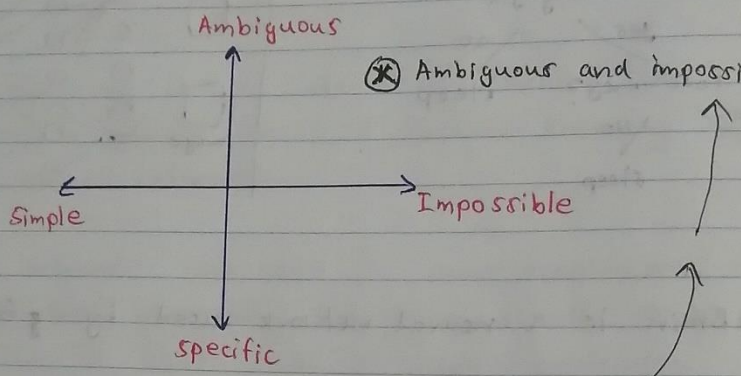
predictive insights examples :- If you search "perera", There can be different "perera"s. ML need to show you correct "perera" by your search (perera is name of person)

Assess feasibility

* Phases of ML ~~proje~~ project
  1.) Assessing the ML problem.
  2) Collecting and preparing data.
  3) Training a model using metrics and objectives.
  4) Evaluating and validating the model.
  5) Deploy the model.

Practice assessing the feasibility of ML use cases

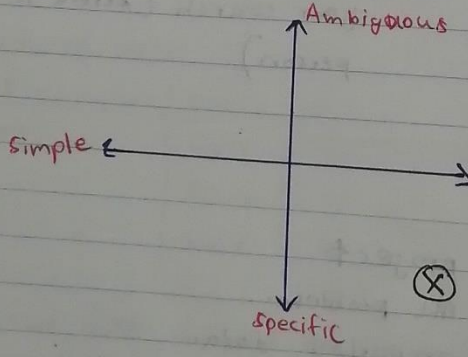
1) How might we use ML to predict which regulation will impact the credit card industry this year.



⊗ Ambiguous and impossible

* which regulations? ~~which type of credit card?~~
* Let's make above questions specific

How might we predict the number of bills that will pass by the US congress that will cause > $100M impact on the "credit card" industry each year



⊗ clear but impossible

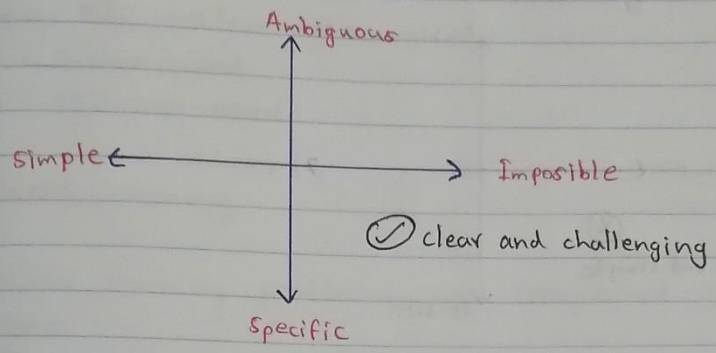
* problem is still impossible because you are trying to predict the behavior of one entity.

2)

3) P

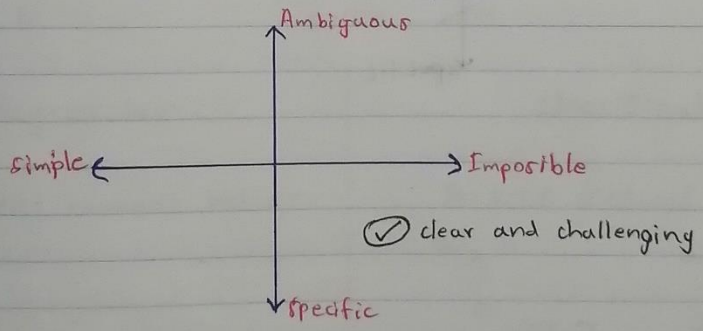
4) Us

2) How might we use ML to predict whether a transaction will be fraudulent or not

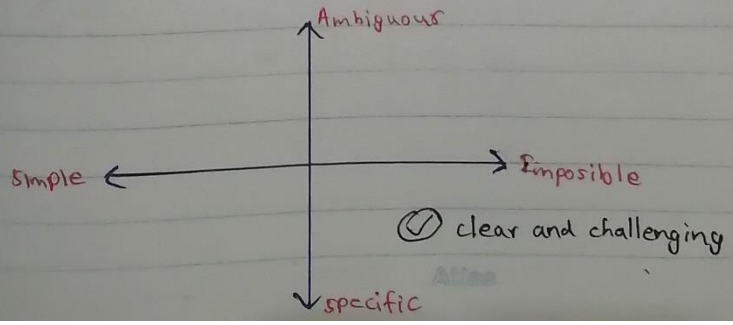


* The goal is clear and you are trying to predict the behavior of millions of users. Company has access to ~~transa~~ transaction data. So it is quite feasible.

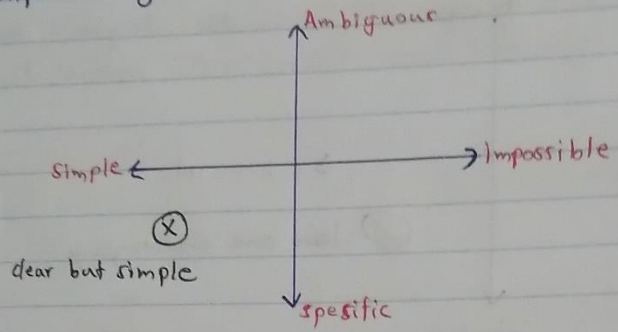
3) Predict the optimal number of months between ship maintenance cycles to maintaing good performance.



4) Use data from IoT devices on-board the ship to track device power consumption and identify malfunctioning devices



5) Predict the total revenue to be generated by a ship's cargo once it's sold.



6) Predict whether or not to be in the shipping business