Business Problem

Implement an AI solution for plant disease detection in large Farms where disease detection at the last stages leads to crop loss and farmer suicides. A predictive Deep Learning model trained on dataset for ultra fast training will enable us to develop an extremely efficient, reliable and cost effective solution for plant disease detection. To create a Telegram bot(PlantDoctor_bot) which uses this model to suggest solutions for preventing the disease to spread in the farm and thereby improving the crop yield.

Issue

- The naked eye observation of experts is the main approach adopted in practice for detection and identification of plant diseases. However, this may not be too helpful and requires too many experts which might be prohibitively expensive in large farms.
- Due to fear of attack of pests/diseases, agriculturalist uniformly sprays pesticides/fertilizers in whole farm which may lead to damage of soil as well as plant. The usage of excess fertilizer alters the soil by creating too high of a salt concentration.

Solution

- So, we created a Telegram bot that takes leaf images as input and returns the output whether the given input leaf is healthy or it is infected by any disease.
- If the leaf has any disease, then our bot prescribes the remedies according to it.
- This makes the agriculturalist to spread the required pesticide/fertilizer at a specified target area where either pest/disease is present or maybe an occurrence of attack in future.

Impact

- This helps agriculturists to detect the plant diseases at the early stage which minimises crop loss caused by diseases.
- Increases annual monetary revenue of agriculturists.
- Minimizes the usage of excess fertilizer.
- Minimizers the crop loss caused by excessive use of pesticides/fertilizers.
- Minimizes hurting the beneficial microorganisms.