ZERO DEFORESTRATION MISSION

DATA SCIENCE CHALLENGE

TEAM MANLUSHECK

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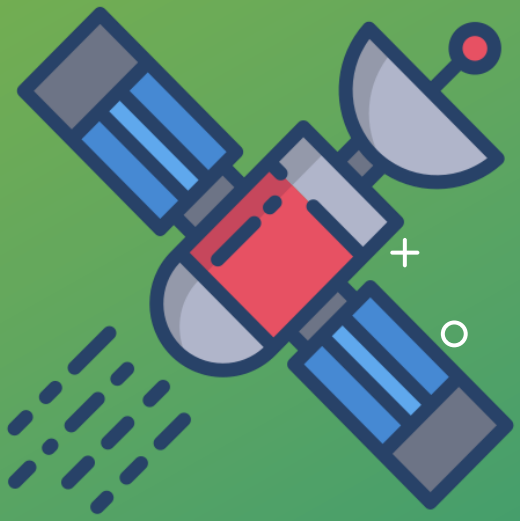
OBJECTIVE

Detect deforestration at the earliest possible stage from satellite imagery to prevent its expansion and subsequently reduce its future harmful effects

Through image classification models



What we did?

Analysis showed that

- The 3 different classes of the datasets were **highly imbalanced** and thus would have led to various problems such as overfitting
- Latitude & Longitude **did not show** any significant correlation with the different labels in our dataset

To avoid overfitting and improving model f1 score

DATA AUGMENTATION

TRAINING – CONVOLUTIONAL NEURAL NETWORK

- Started by **moving data** in different folders according to their respective labels
- Experimented with multiple different parameters and finally landed on 4 convolutional layers with the following model configuration

Result: F1 Score of 62%

- *Insufficient data to build a robust model*
- *Might not perform well with different terrains, locations other than **Indonesia**, lighting conditions, etc*
- *Possibility to incorporate location data into future models to identify location-specific classification deforestation*

Layer (type)	Output Shape	Param #
sequential_61 (Sequential)	(None, 200, 200, 3)	0
sequential_62 (Sequential)	(None, 200, 200, 3)	0
conv2d_138 (Conv2D)	(None, 200, 200, 32)	896
conv2d_139 (Conv2D)	(None, 200, 200, 64)	18496
max_pooling2d_102 (MaxPooling2D)	(None, 100, 100, 64)	0
dropout_75 (Dropout)	(None, 100, 100, 64)	0
flatten_46 (Flatten)	(None, 640000)	0
dense_88 (Dense)	(None, 128)	81920128
dense_89 (Dense)	(None, 3)	387

Total params: 81,939,907
Trainable params: 81,939,907
Non-trainable params: 0