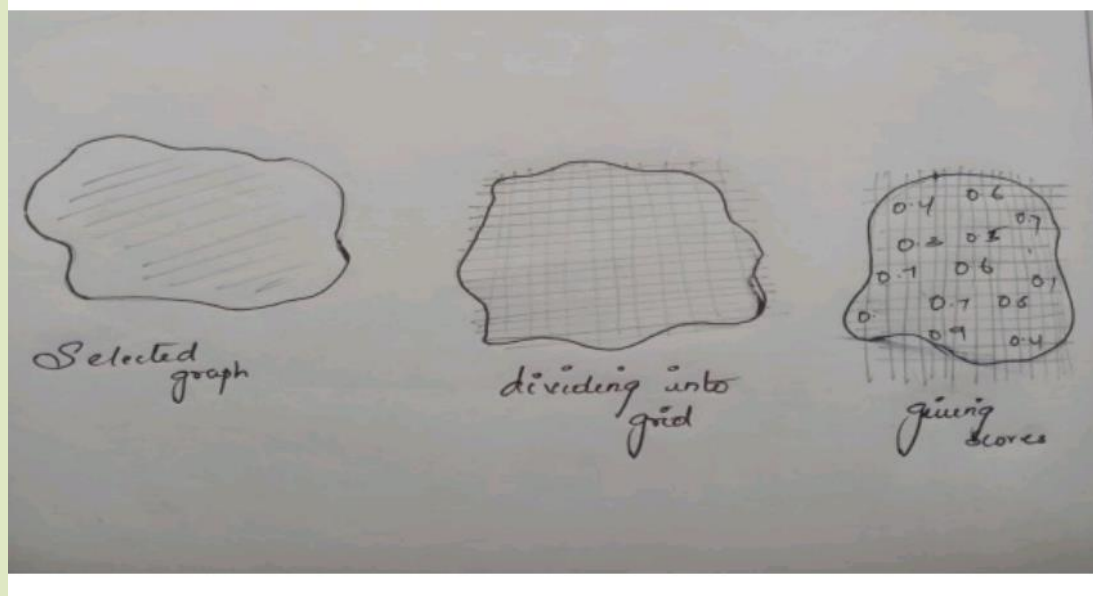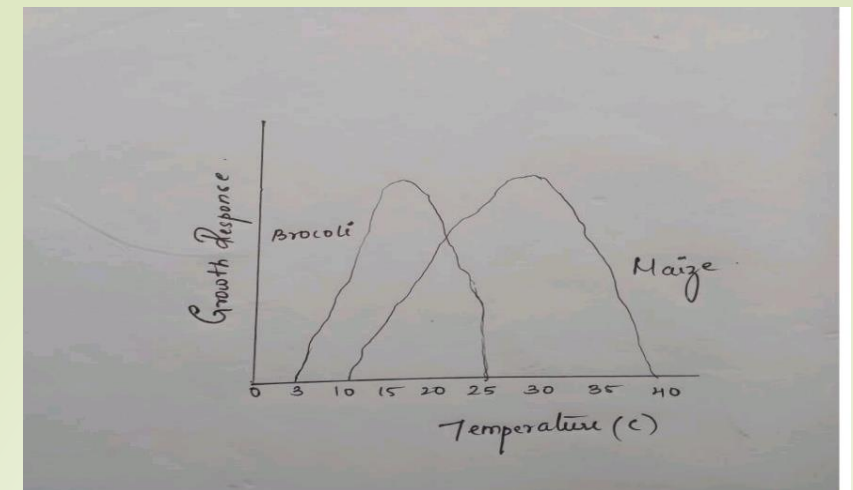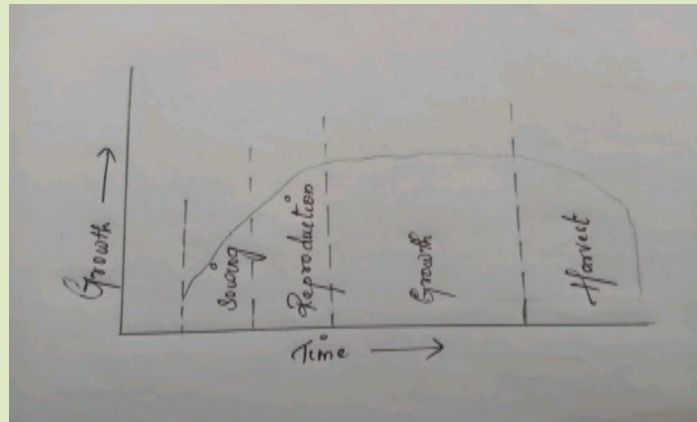## DATA EXTRACTION

- so the first stage is Extracting data. Here we used two graph. Firstly We created Color gradient map giving a score to each color.

- Barren Land will have brown color and fully grown land as dark green color.

- After selecting the land we divided it into n*n grid and assigned a score.Then the graph is drawn for the respective scores

- we further divided into multiple stages (ie) Pollination, Sowing, growth, harvesting stages,reproduction stage.

- With the help of the images taken from the satellite the graph is plotted according to the temperature, humidity and precipitation.

- This temperature graph is useful for yield prediction.

- so with the help of graph we found the relationship between each component and how they change with time.

EXTRACTION AND TESTING STAGE

- the first stage is Extracting data. And now we have performed 5 stages of test.

1 Test 1 we classified each pixel of the map into 3 stages (ie) water, vegetation, and constructed area.

2 Test 2 detects the Crop using polygon.

3 Test 3 We have Predicted the crop Yield using the NDVI spectral value.

4 Test 4 where we classify urban region, vegetation, fields and water bodies Here we classified between vegetation and fields as well.
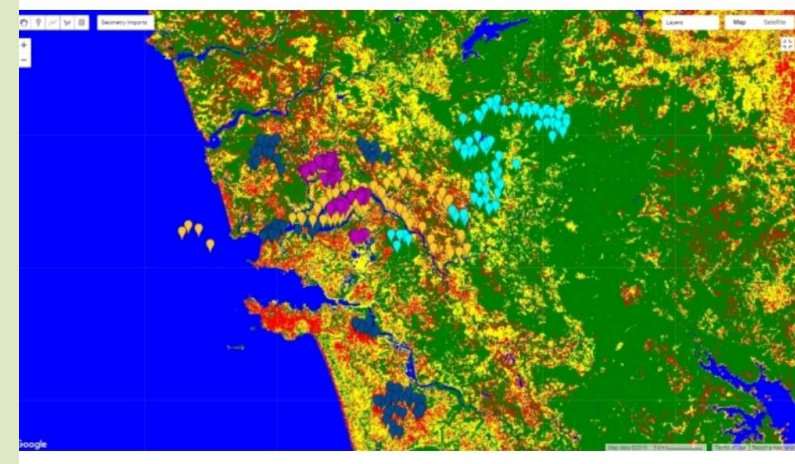
5 This is the final stage of test here we Clustered multiple region depending on their respective bands value

- TEST 1 so coming to test 1 we classified each pixel of the map into 3 stages (ie) water, vegetation, and constructed area. Red points are the Urban region Green points are for Vegetation and Blue points are for water. We then trained the classifier taking 6 values for each image from LANDSAT between jan1 2015 to dec 31 2015. This is used for Specific crop detection at a specific time.

- TEST 2 So test 2 detects the Crop using polygon. we already selected 3 regions which is bare land, vegetation land and the water body. green quadrilateral patch is water, orange is bare land and brown patch is vegetation. As already said we are using LANSAT 8 satellite which consist of 11 spectral bands average of 30m resolution.

- TEST 3 In terms of test 3 We have Predicted the crop Yield using the NDVI spectral value. The Image data from 2015-2017 was taken. For each year it shows the NDVI so the graph is drawn with respect to the time and NDVI spectral value. finally the peak in the graph indicates the harvesting season in the set region.

- TEST 4 Now comes the test 4 where we classify urban region, vegetation, fields and water bodies Here we classified between vegetation and fields as well. From the map displayed we classified the regions into 4. firstly, yellow points shows the water bodies, dark blue points are urban area, light blue points shows vegetation and finally purple poins are fields. so here comes the traing and testing stage. After completing this stage the images was displayed.

- TEST 5 This is the final stage of test here we Clustered multiple region depending on their respective bands value firstly,Sample region was selected using 4 vertices. Training data set was created. then the Input was clustered using trained cluster. And finally Cluster was displayed with random colors.

- so In this method, we have used K means unsupervised learning to assign label.

- Pixels having similar band values will be assigned to the same class.

- selected region. It has been seen that the k-mean cluster algorithm performs well in the region and shows significant results

- so thats why we have used k means algorithm