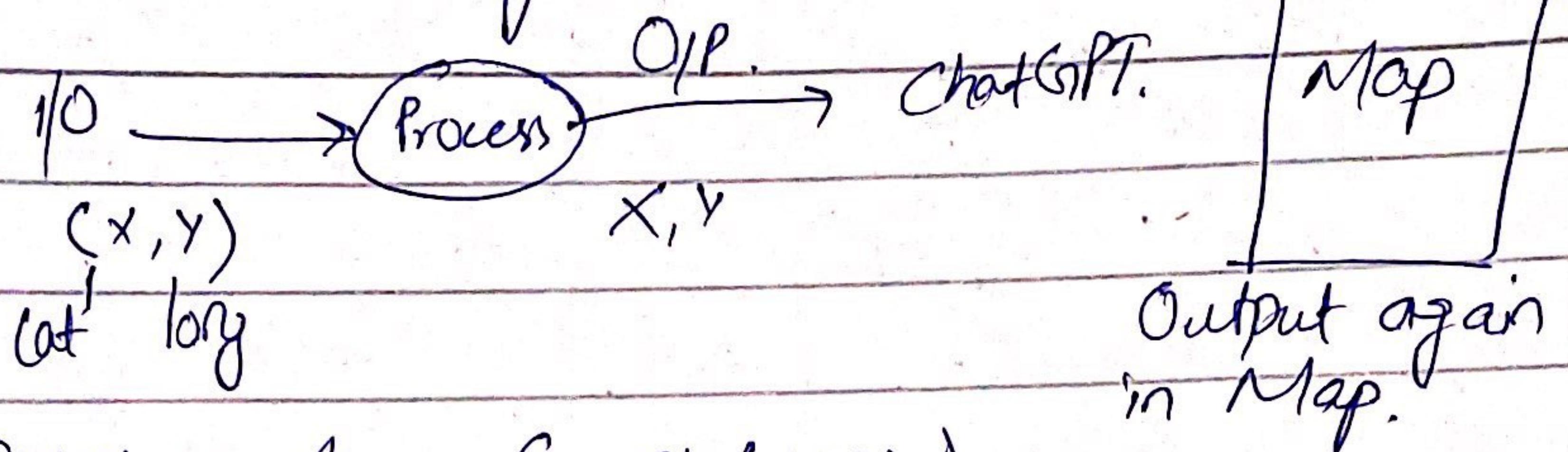


## → Software Sensing ArcGIS



→ Satellites from Google (image).

→ GIS and RS (satellite).

→ Satellite images is remote sensing.

→ GIS is process by which we can visualize, analyze and understand

→ RS: Methods commonly used for collecting physical data to be integrated into GIS.

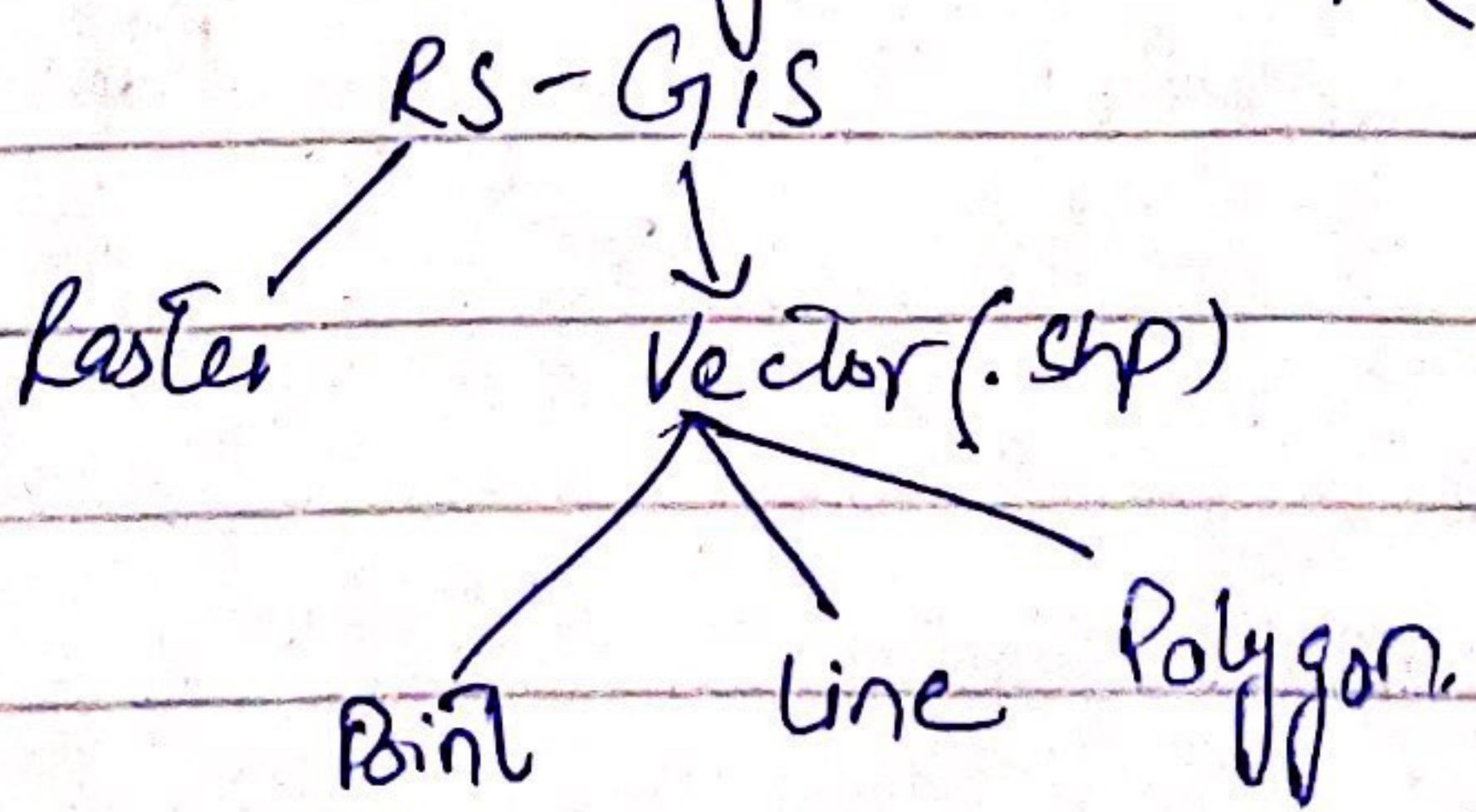
→ RS-GIS.

Satellites. GIS Take I/O and processes data it gets output and generates maps.

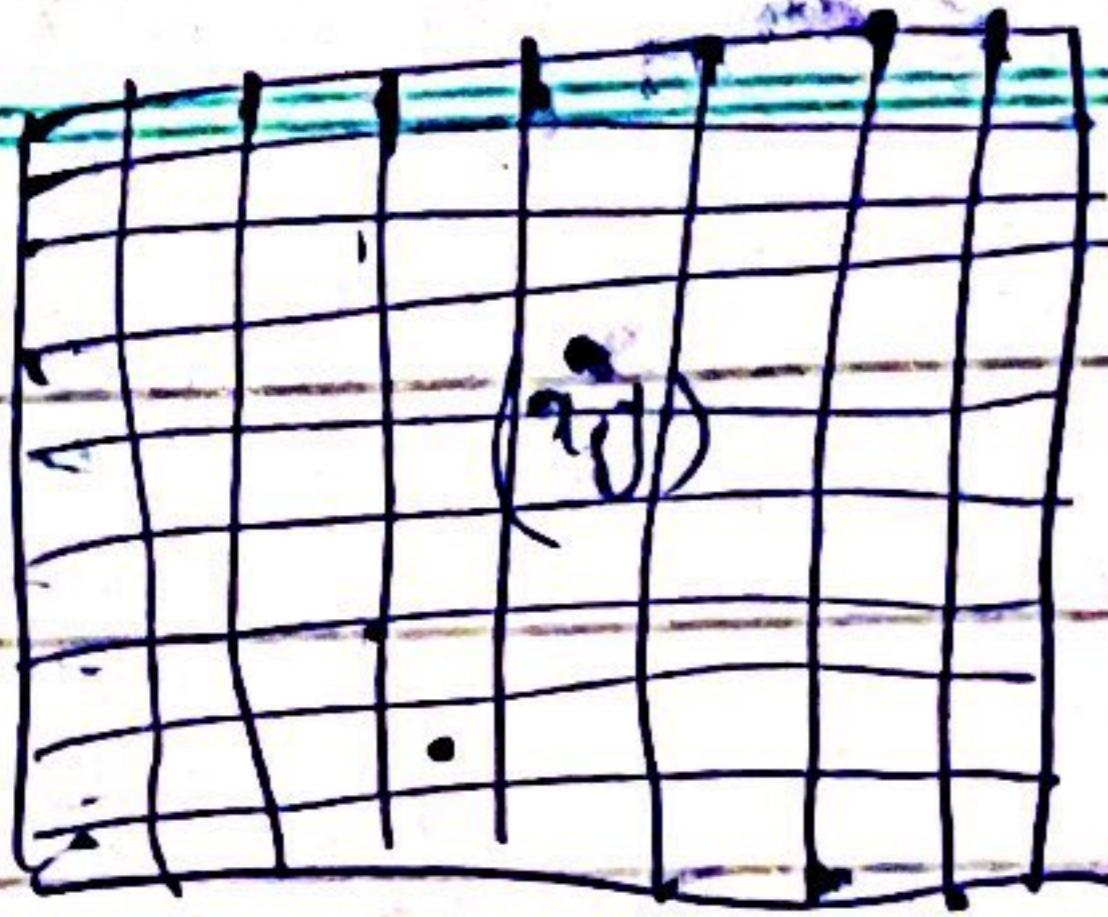
x, y  
Lat Long.

→ Different type of researchs like crop detection, disease detection is happening these days.

→ GIS has its own data types. :shp (shared file).



GIS based



Point: one location (i.e. hotel).

Line: one location to another ( $x_1, x_2, y_1, y_2$ )

Polygon: boundaries of last.

⑤ Relative

⑤ Friends.

3/02/23:

S-No	Name	Lat	Long	Remarks	Income
1	Home	-	-	-	C
2	DPS				
3	cfg				
4	NU				
5					

→ Connect to folder.

→ Geo Referencing, marking  $x, y$

→ Geo Digitizing: adding features.

- Geo Referencing, Mark first  $x, y$  on map. Prefer choosing corners
- This has been drawn with WGS 1984.

→ GCP: ground control points.

Points add Ktlo.

Polygon add Krlo.

Editor → Create new feature → add points →  
add attributes, save file file

08/03/23/

GeoProcessing:

Districts.shp.

Punjab.shp.

→ ⚡

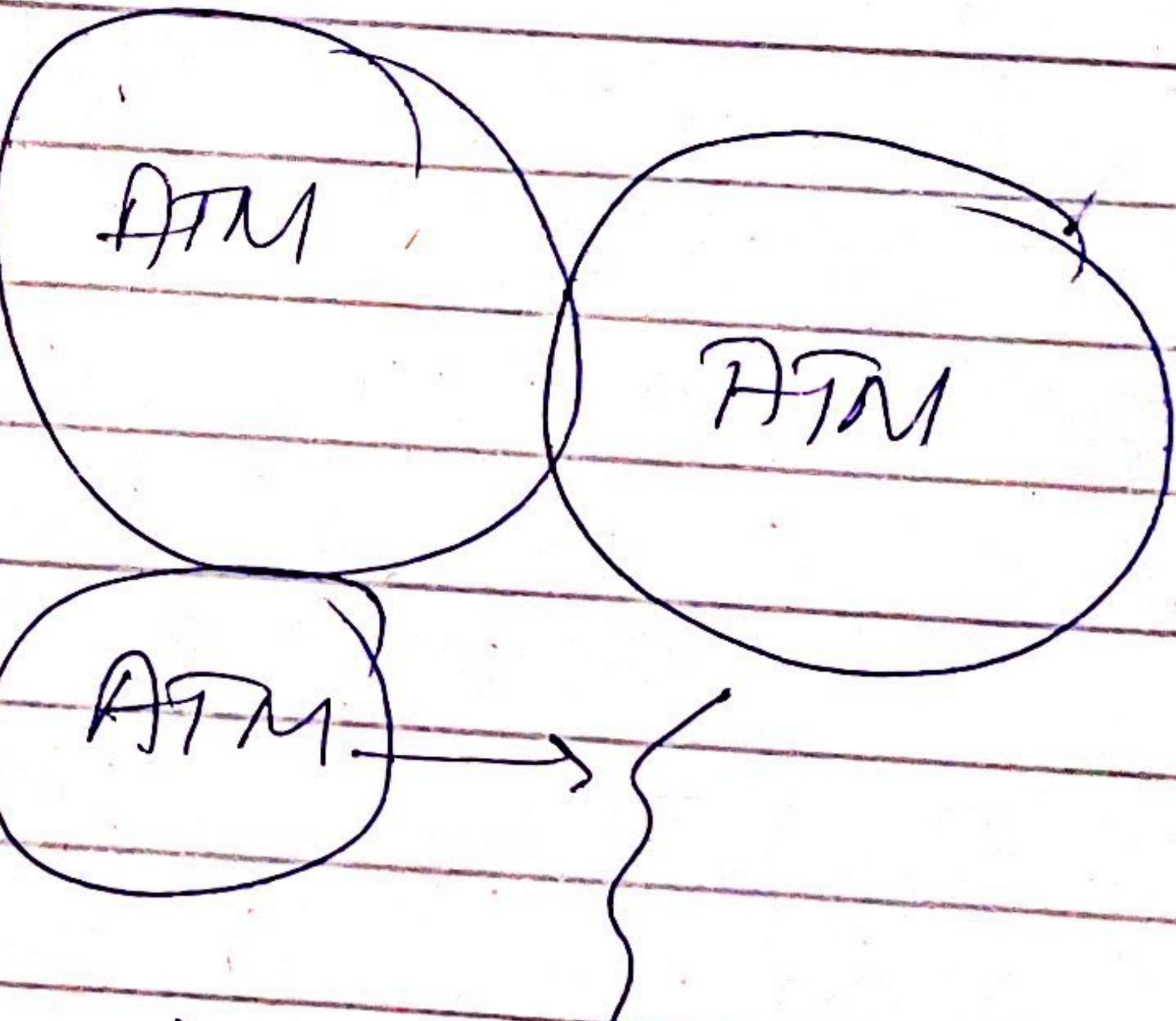
① Selection:

② Dissolve:

③ Buffer:

We see surroundings  
to decide Kramha  
Igana ho Ya nahi.

dig, Kultura



→ To reduce the extent of theme:

If want to work on Faisalabad, Then  
extract data of fsl only.

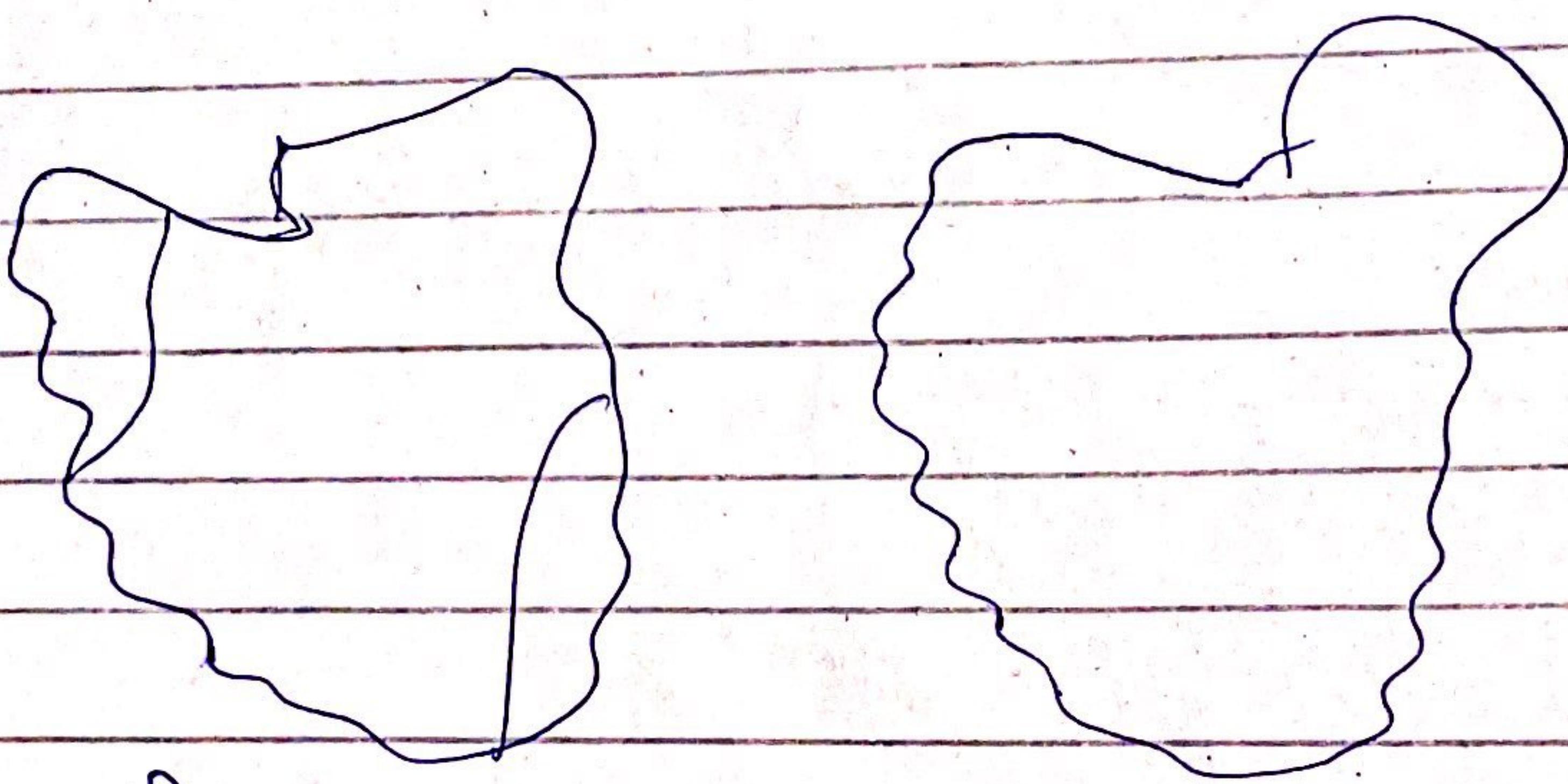
→ To combine features in two or more  
themes. one team worked on fsl and  
other on lhr then combining. — Single  
shapefile.

Reduce The Extent of Theme.

• Intersect Two Themes.

Pakistan and Punjab shapefile u. only want  
to get intersected Punjab data.

3. Dissolve feature based on an attribute:



→ no Dissolve on attribute basic degree level,  
Campus level etc.

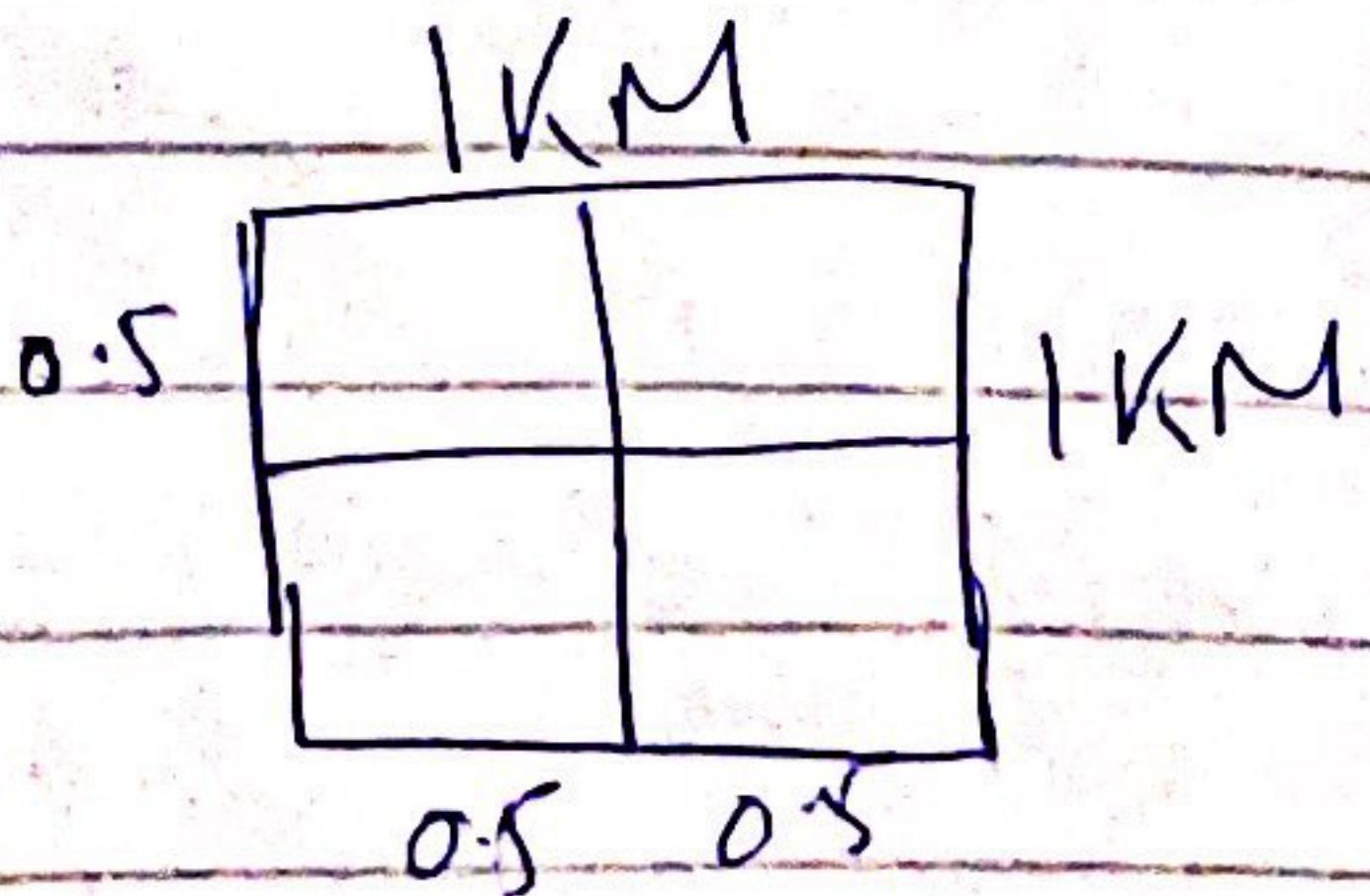
→ Search-dissolve

21-03-23

1 Spatial Resolution of image

2 spectral: No of bands: RGB.  $\rightarrow$  3 bands  $\times$  12 bands

3 Temporal: Re-visit Time: Information  $\rightarrow$  jaldi aye

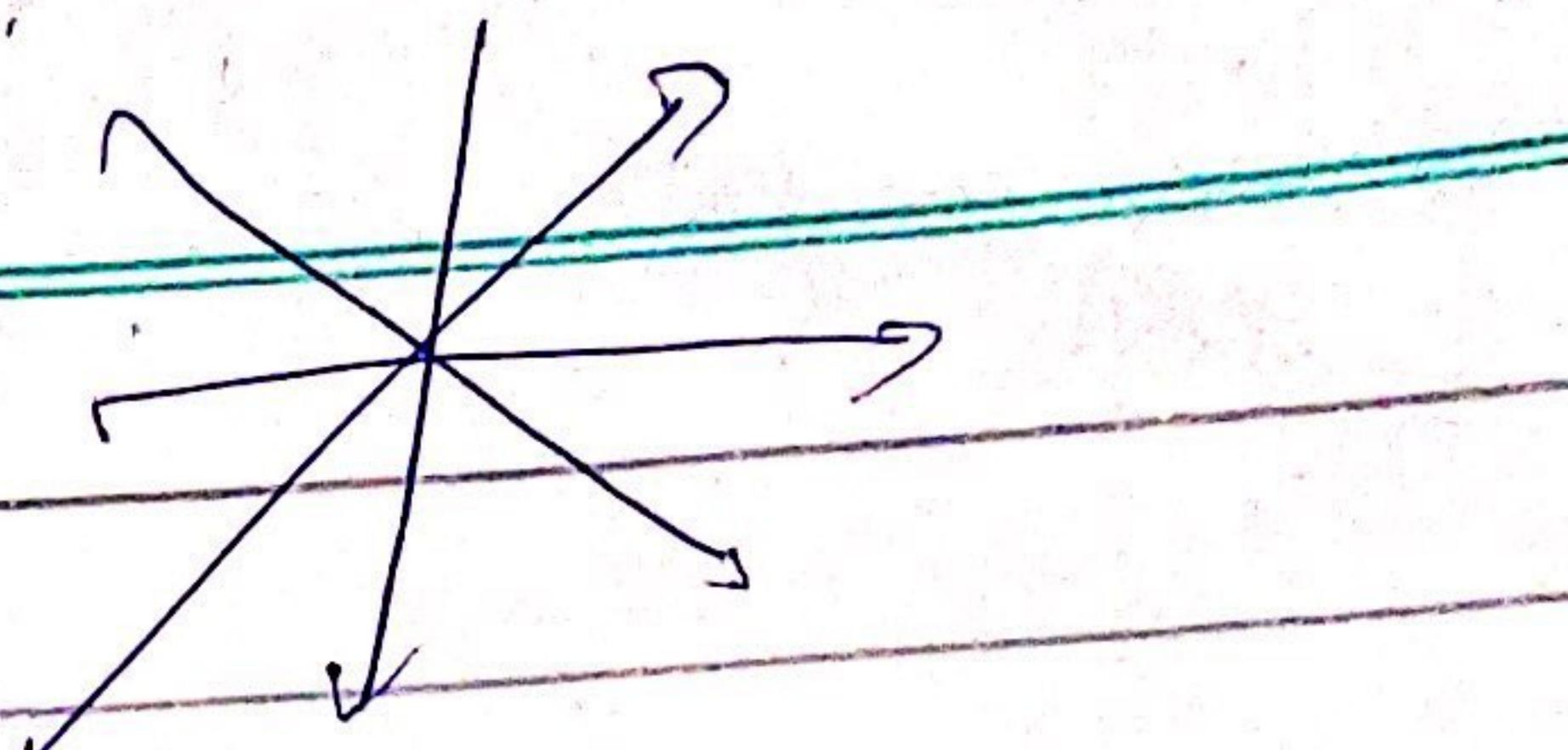


See Top 100 satellites.

Quick Bird.

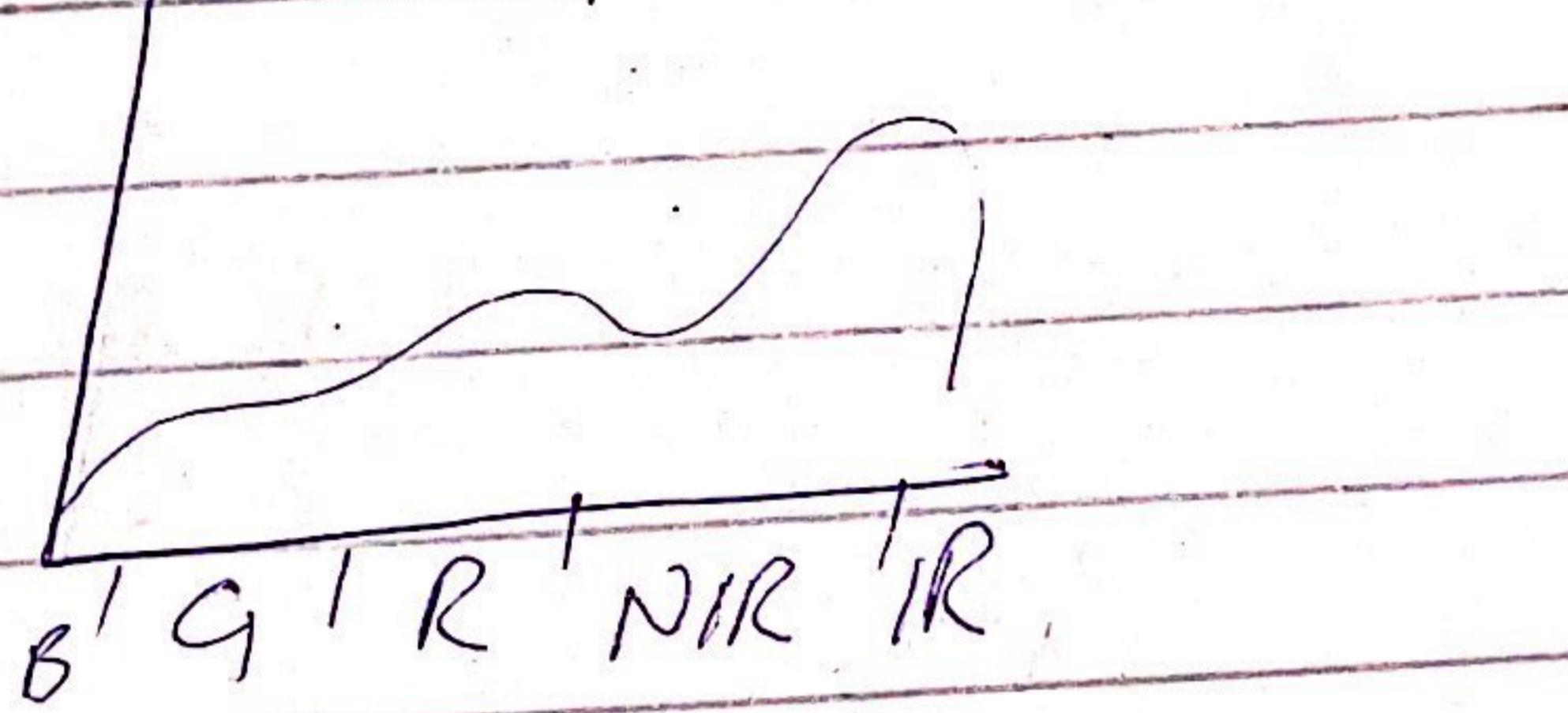
PAN + MSS

High Low  
Grayscale color.



Fegure jinhi kam utni zada achi quality.  
Kiske yaha area core ki bat hot.

No of bands = 5.



If we need more and more information, we add more bands.

23/03/23.

SRTM. Data collected through Plane.

→ Every pixel gives elevation.

→ open.tif then pak and make it hollow.

→ U can grid by mentioning 52-08 etc.

→ only add.

Search → mask - Extract by mask

→ outlet <sup>inc</sup> general search → fill

→ flow direction search → flow direction

→ Flow accumulation

→ CON

→ Raster to polyline.

$>= 65000$

$>= 65000$

Layer to kmL.

28-03-23.

Model → Add data

Add srtm and abd - Boundary and made

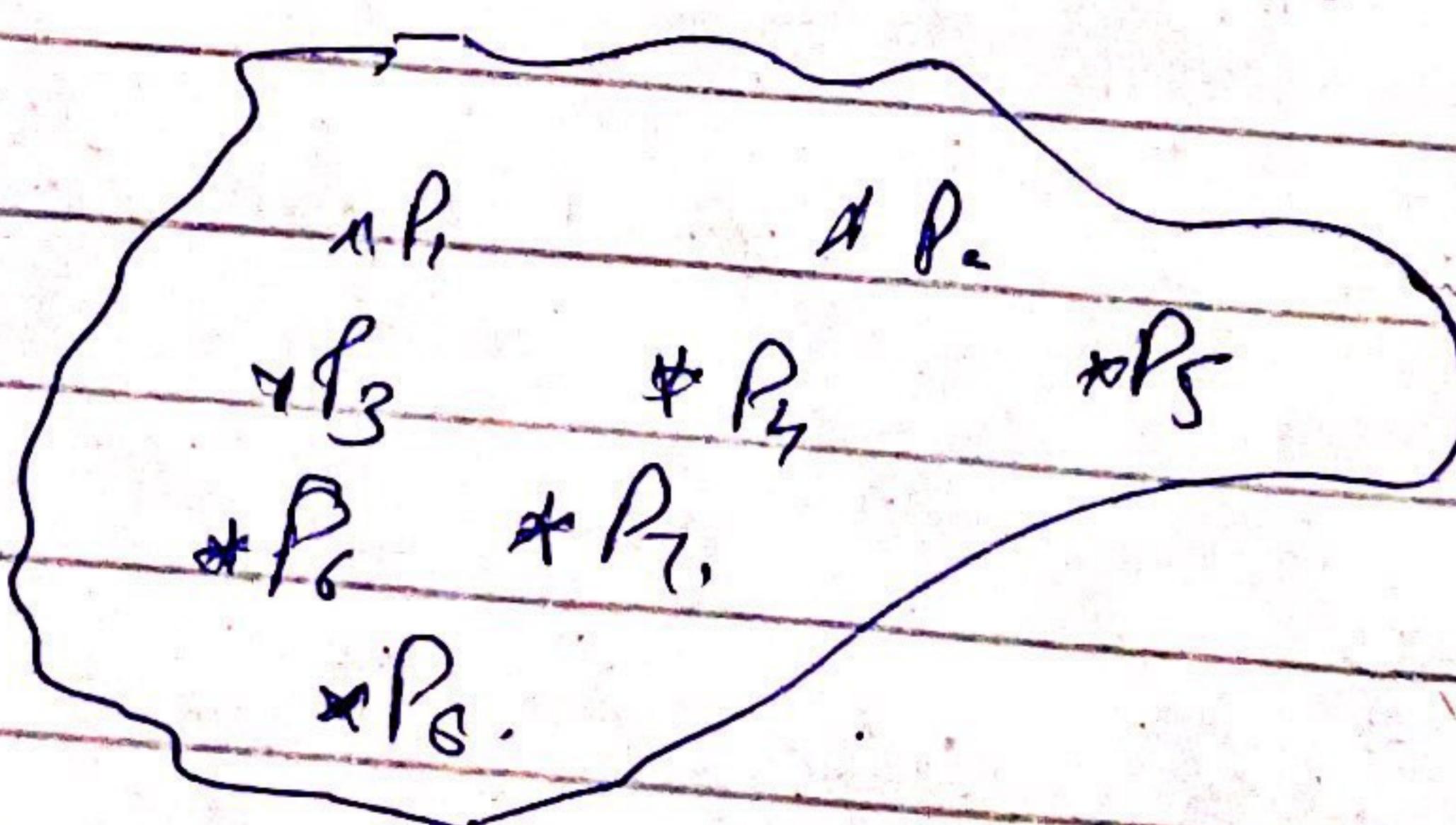
Extract-Tif3. — Then fill → teaflow  
direction accumulation → flow direction — output  
accumulation

30-03-2023.

Join Data

→ 18-04-23.

→ Interpolation. To find unknown values on the  
basis of known values.



Any value can be stored against these points.  
i.e Temperature,

ID	Nutrient	Pt	Incidence	Soil
1	P <sub>1</sub>	20	1.5	70k 26.

→ Root Mean Square Error

## Technique

search → DW. — Attribute select and ok.

→ extract ~~top point~~ values to point.

→ Value in elevation populated in attributes table.

ENVI

29/04/23.

(QGIS, GrassGIS)

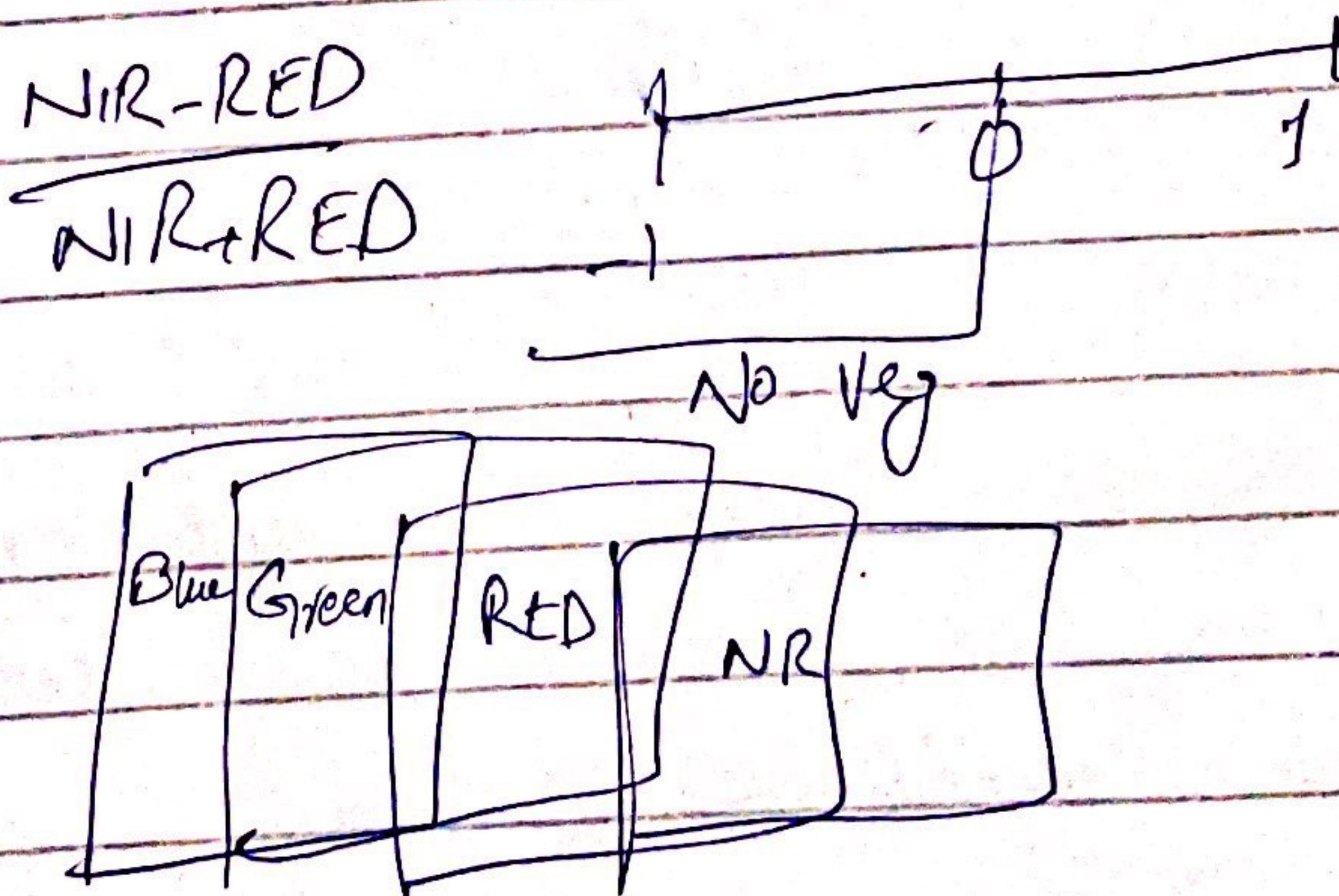
→ For large data we use ENVI.

→ For data: search NVS Tutorials.

→ search: sentinel data download.

→ open image in ENVI. - Grey Scale and RGB.

$$NDVI = \frac{NIR - RED}{NIR + RED}$$



If 7 bands Then 7 layers in 1 Pixel.

$$50 - 40$$

$$\frac{50 + 40}{}$$

SREFCAL → Speer — ~~Select Spec~~ Vegetation D<sub>r</sub>

I want to use some specific subset.

- Select Input file - ~~specific subset~~ — full scene.  
- Export to shapefile.

02/05/23.

ENVI Tutorial — Data

↳ Classification (Phoenix-A2).

Pattern - etm (Landsat

Spectral → spear Tools → vegetation tools folder

04/05/23.

Classification: Supervised & unsupervised. — machine selects  
from params  
you set training data.

5, 7, 12, 13, 6. — 88, 90

$$\frac{90-5}{5} = \frac{85}{5} = 17.$$

→ It can differentiate different ~~read~~ objects in one class. i.e water body, river, Lake.  
→ Remote Sensing cannot take data.

Ans