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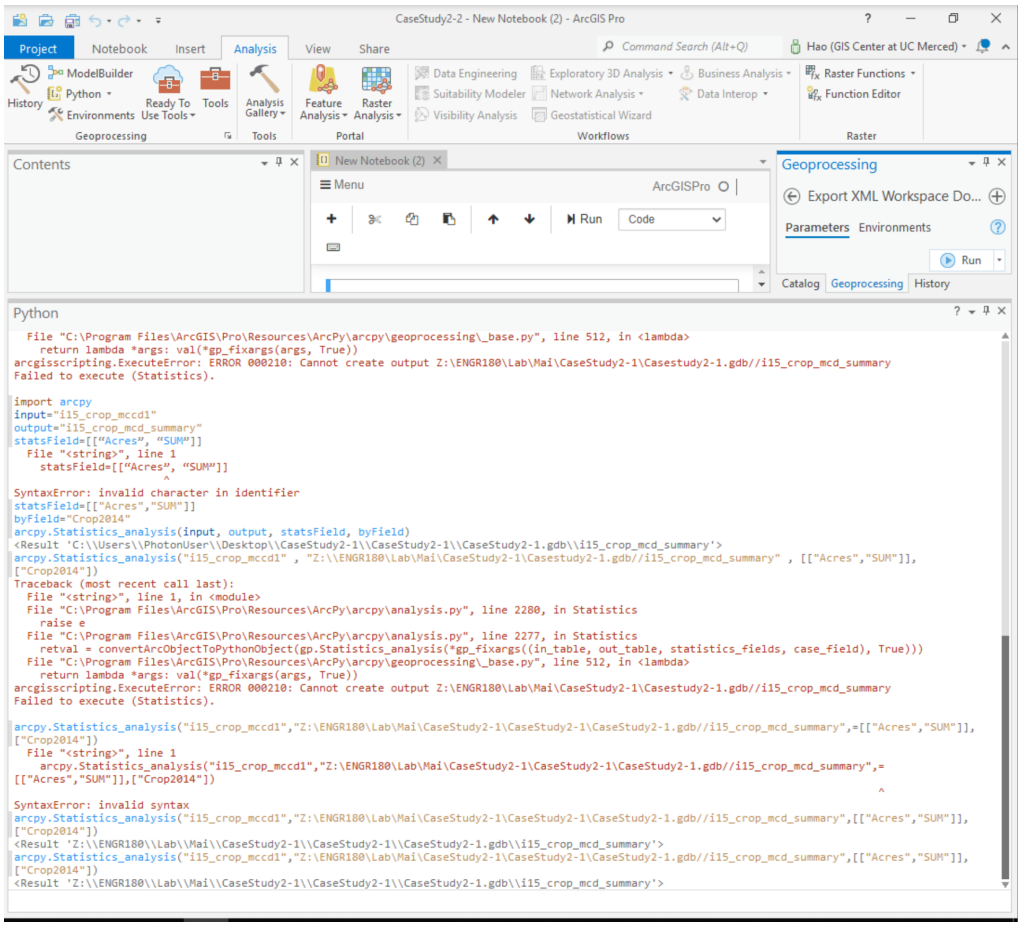
Engr 180
Professor Madeline Brown
June 14, 2022
Lab 2-2

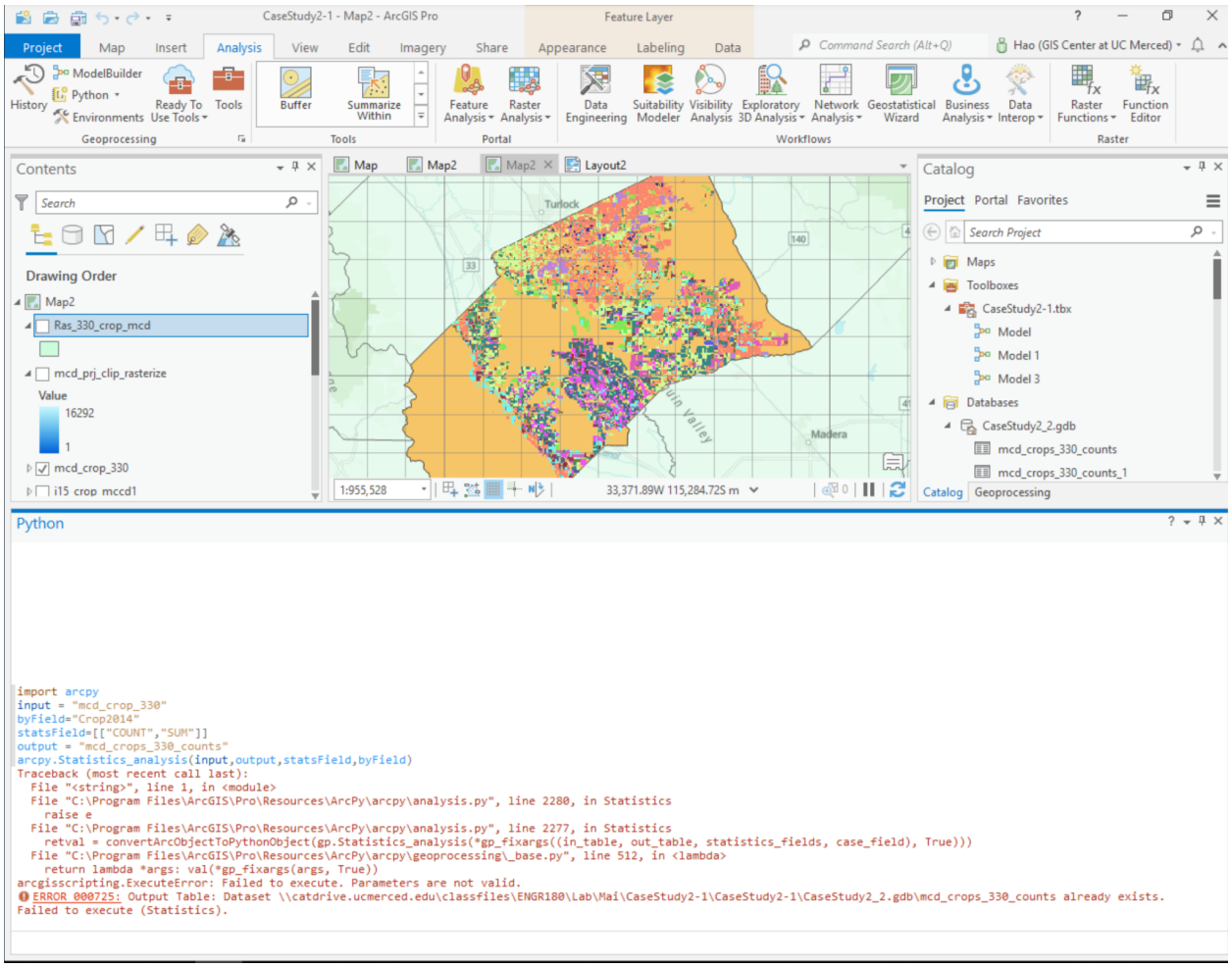
“GIS for Ag: Raster Data for Crop Cover in Merced County”

Employing Python via Arcpy Package to Summarize Vector and Raster Data - Using Model Builder to revert Raster

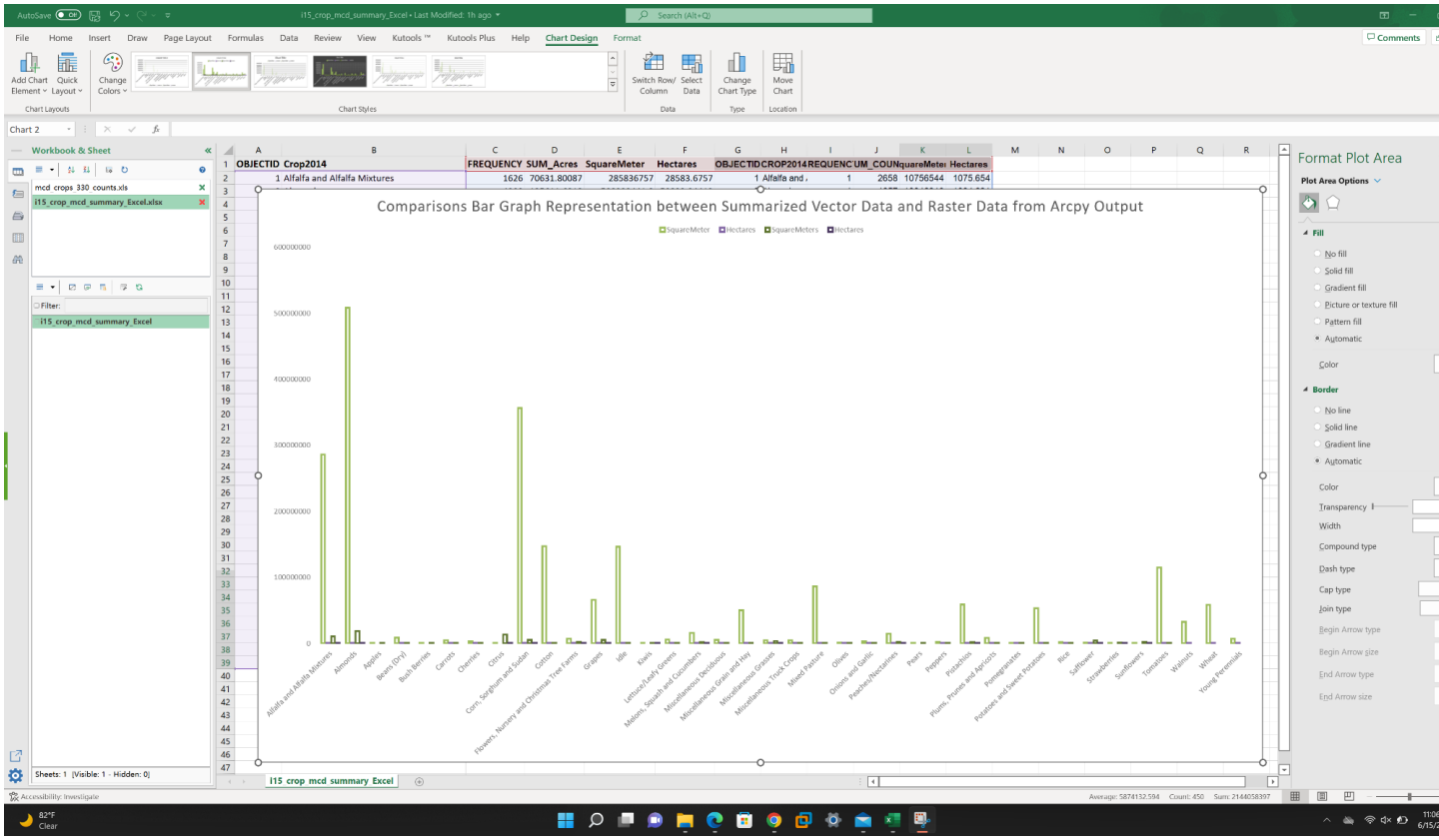
- **Screenshot of code for python via arcpy to summarize vector data:**



- **Screenshot of Python syntax for raster summarization and Output:**

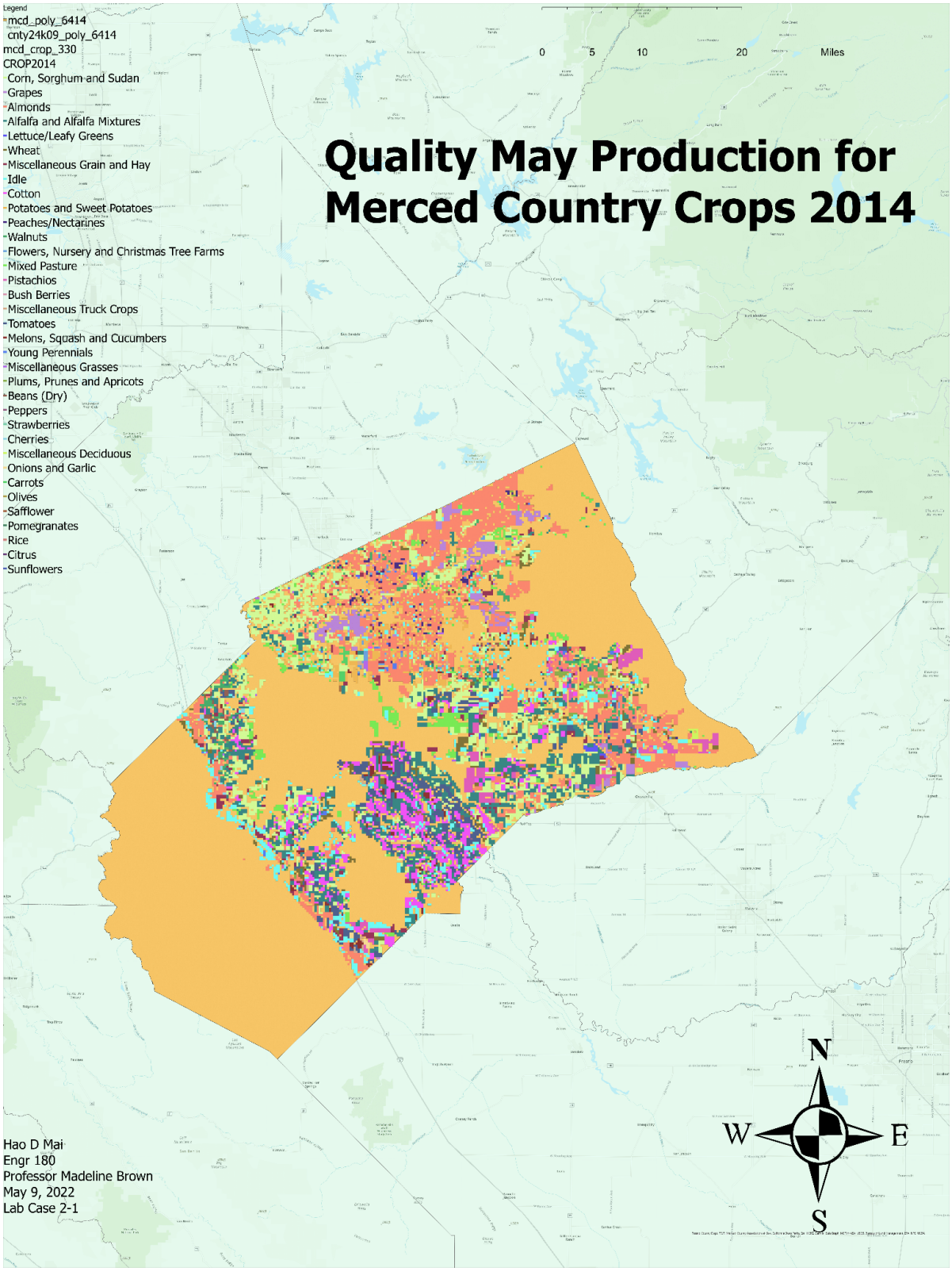


- **Screenshot of Excel bar graph showing the contrast of area summarization between vector and raster data:**

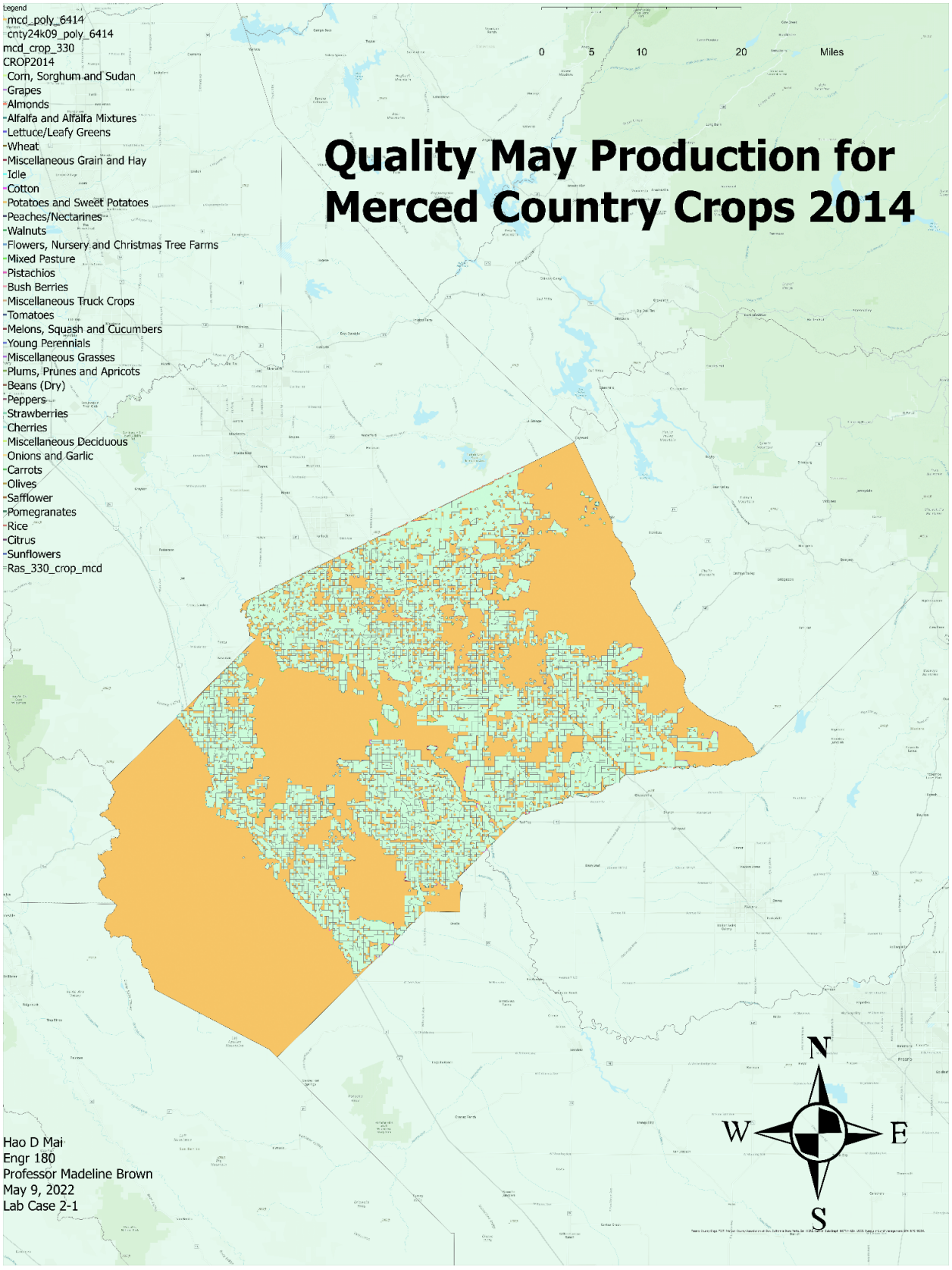


- It is apparent that the conversion of square meters and hectares for vector data is larger than that of raster data as represented within the bar graph. I believe that vector data contains more numerical information; more specifically, suited for clipping large scale areas from a map. Raster as presented within the data is significantly smaller due to the fact that it is employed to represent smaller and defined regions within a map. Nonetheless, the result of the data is quite shocking because if the percentage error of each data were to be accounted for, the number would be astronomical.

- **Screenshot of original "mcd_crop_330" :**



- **Screenshot of original "mcd_crop_330_count" :**



- I believe that comparing the original to the modified layerers of the Merced county 2014 crops clip are identical. Though the modified layer seems to distort and blur out the boundaries between the scales of the map. Furthermore, the color symbology of the layer seems to be uniform by default, so the GIS user has to reapply the symbology to distinguish between the vegetation within the map. However, on the other hand, the modified layer presents better visuals and less distortion in terms of the color scheme of the map.

- **Application of vector title:**

- Vector tiles represent data in squares, similar to that to raster but instead of cells, the squares are divided into vector data table derives which contains corresponding metadata such as street and location names. The point of perspective is positive concave - there is a base layer, a clipped layer to a specified region, and a third layer of another clipped portraying a large-scale map of an area within specified region. Vector tiles are miniscule enabling analysis and manipulation of metadata conveniently and faster. More on this aspect, since layers contain metadata zooming and adjusting the resolution of map is preferred over raster title. A scenario in which the application of vector title is most appropriate would be making a topographic map mapping routes or multiple possible routes to a destination of a terrain via a camping trip or an outing event. I can zoom in and adjust the resolution of a terrain to configure elevation and approximate distances between destinations and check points on a trail.

- **Application of raster title:**

- Raster titles are images composed by pixelated data of cell grids from raster data. Though the cells of these grinds may be of the same size, it is distinguished by the values representing the cells. Application for such titles has been employed in video games, satellite images and arts. The characteristics of this title projects numerous (could be in the millions) cells containing various symbology to convey images or pixelated graphic data. A scenario in which raster title would be optimal would be generating a map layout highlighting specific regions for multiple sets of data via weather forecast such as temperature across cities within a state. By inputting a base image and converting it into a raster title, the data which contains temperature forecasts from across cities then may be incorporated and projected. Since rastre titles are cells which are best suited for assigning variables to, we can use this feature to show various regions in which heat will be more vigorous by darker shading and vice versa.

Work Citation:

- Brown, Madeline. *GIS for Ag: Raster Data for Crop Cover in Merced County*. 1 Jan. 2022, https://catcourses.ucmerced.edu/courses/24848/files/5133584?wrap=1&fd_cookie_set=1.
- Janak, Dalibor. “What Are Vector Tiles and Why You Should Care.” *MapTiler*, MapTiler, 7 Feb. 2019, https://www.maptiler.com/news/2019/02/what-are-vector-tiles-and-why-you-should-care/.
- Services, MapData, and MapData Services. “Vector Tiles vs Raster Tiles – the Pros and Cons.” *MapData Services Tech Blog*, 22 Feb. 2017, https://mapdataservices.wordpress.com/2017/02/22/vector-tiles-vs-raster-tiles-the-pros-and-cons/.