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Engr 180
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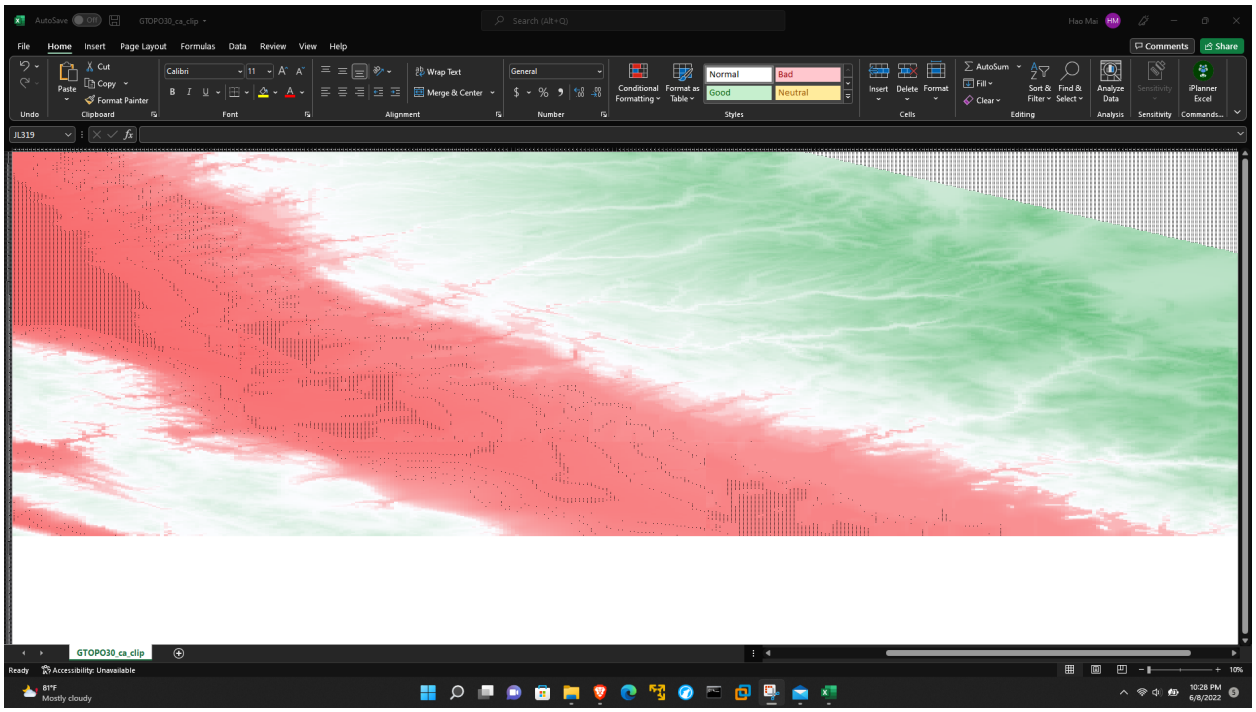
Case Study 2-1

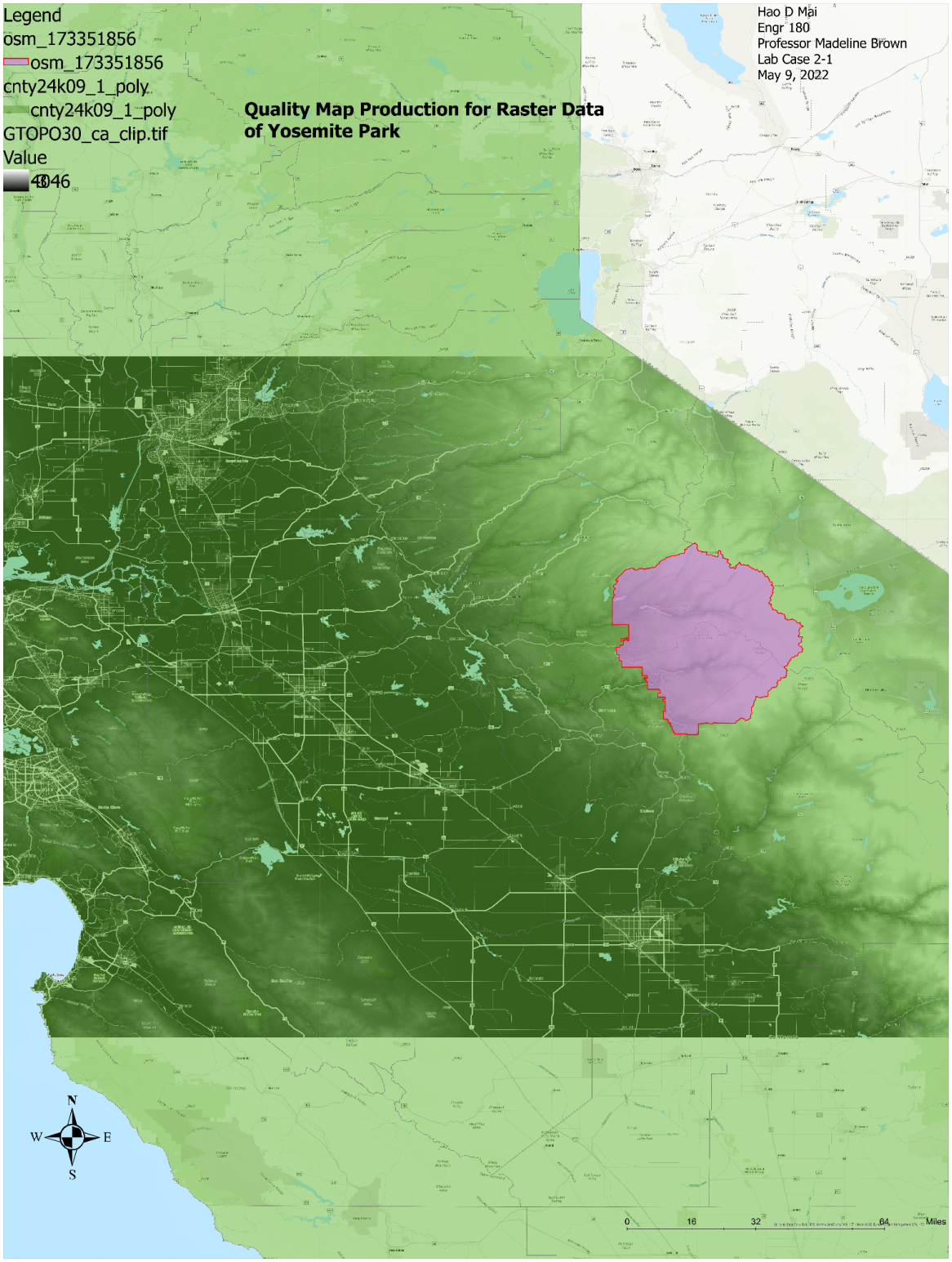
Lab Case Study 2-1
Distinguishing and Converting between Raster and Vector Data

- Zoom out screenshot of excel file:



I believe this image depicts an elevation projection of a terrain. There is no legend present, but I can infer that the region in red has a unique identity whose definition is ambiguous. Other than that, this is a large-scale projection, within the red regions, there are concentrated groups of dark areas which could indicate highest elevation points.

- Screenshot of Quality Production map export for identifying the region of Yosemite park:

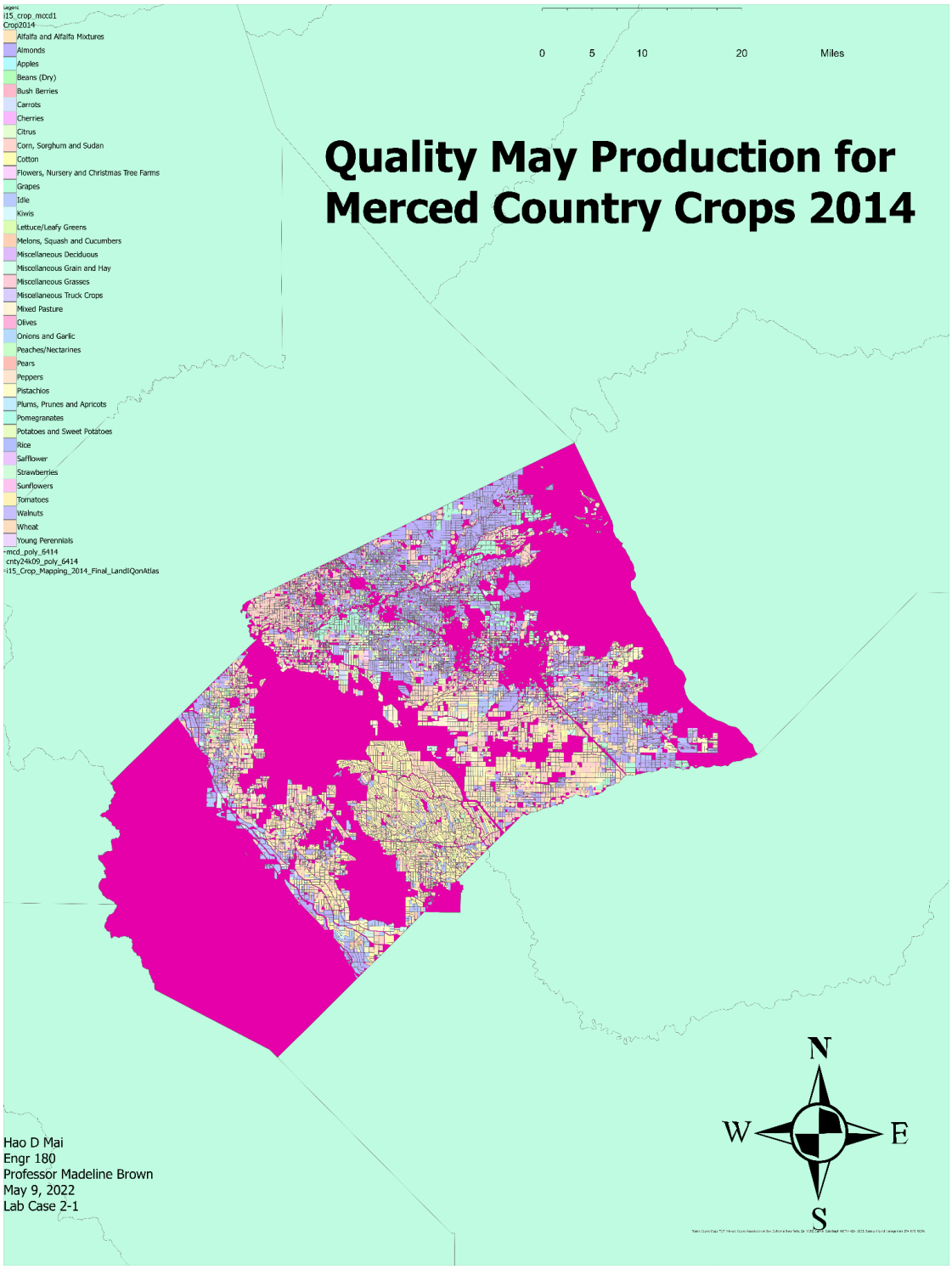


- This screenshot is of an export map composition from ArcGIS to convey the ability to import raster data and the utilization of various tools to refine and clarify the visual message delivery. Within this map, there are three layers; more specifically, the first layer is a raster data of central valley, the second layer is a shape file representing various counties within the central valley, and the last layer is a boundary class representing a medium scale vercincity of Yosemite national forest. I believe the symbolable which was set by the portrayal of the central valley could be more vivid, the transparency did not make the view any more vivid. I believe the visualization symbology of the map could be improved; though, all criteria have been demonstrated above.

Questions Bulletins

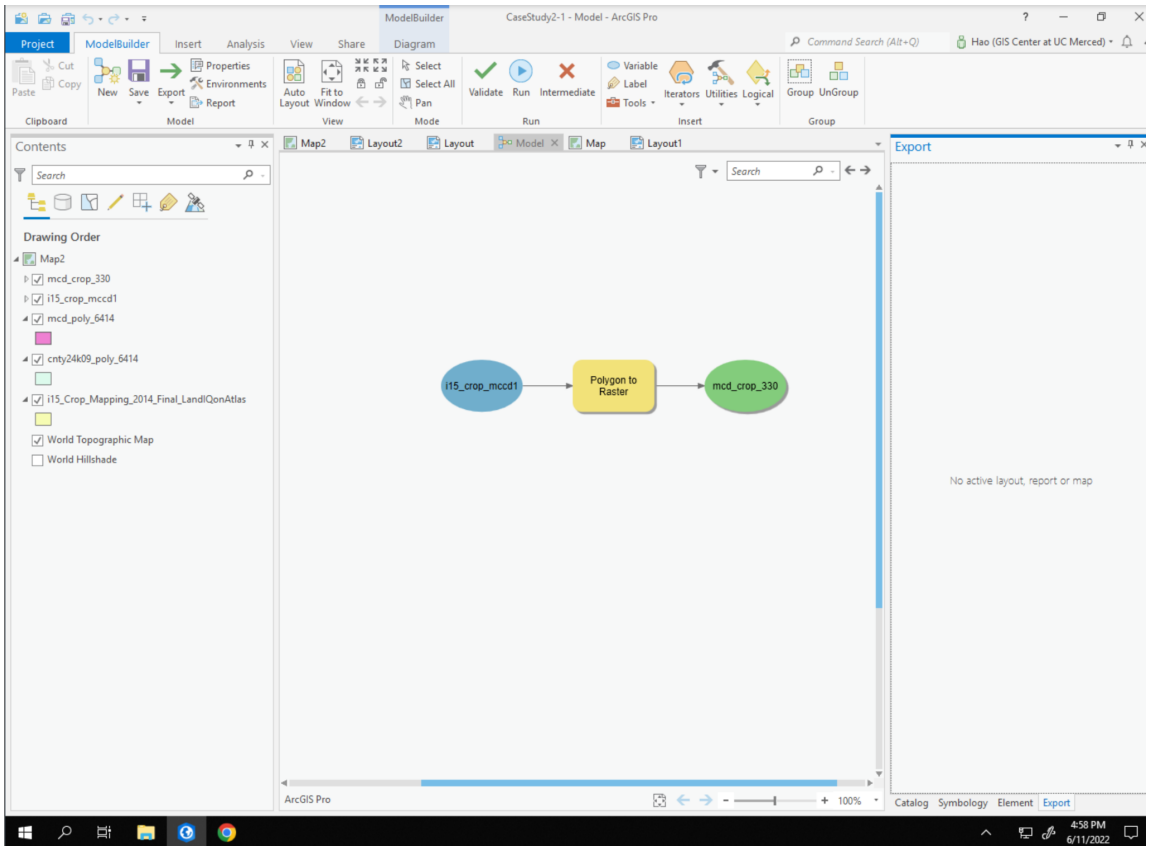
- The resolution for the raster GTOPO30 data set has a resolution of an arc-second projection.
- Arc-second is a specific resolute projection for raster data designed to calculate the cells within datasets presented in the screen's ratio. In other words, the map is input into the program's registry and projected as pixels which the program's mathematical algorithm will calculate the cells' a priori scale metric from the raster data. From a generic description, the math algorithms translate the cells into a metric known as an arc-second which will represent the longitude and latitude of the Earth.This sort of resolution allows raster data to be depicted, though distortion is always a factor which will remain to some extent. However, such resolution is a mediocre method of projecting a map, for the fact that since the projection is so tiny, nothing is conceivable by the human eyes unless blown up to scale with softwares. The human eyes are suited for arc-minute projection due to lack of focal vision to view minute angular points.
- Though, arc second may be a lousy way of projecting raster data, the features in this method of map composition allows for better layer overlay and scaling of a large area. One of the issues in map projection is distortion - in the case of raster data in which large areas are represented by cells, regions that are condensed with features in which we may want to clip will be too many and may need scaling adjustments in order to conceive.

- Screenshot of quality production quality exported from the composition of raster data representing crops within the county of Merced in 2014:



- The map above consists of three layers. The teal region is that of central valley, the region in neon is of merced, and the third layer which was clipped onto the map depicts different crops that are located within the county of Merced in the year 2014. The objective was to integrate various raster data into layers, match the data's spatial projection, create boundaries around a specified region and use the clip operational tool to create legends for specific data within a specified location. Thereby, the exported quality map above is designed to demonstrate these criterias.

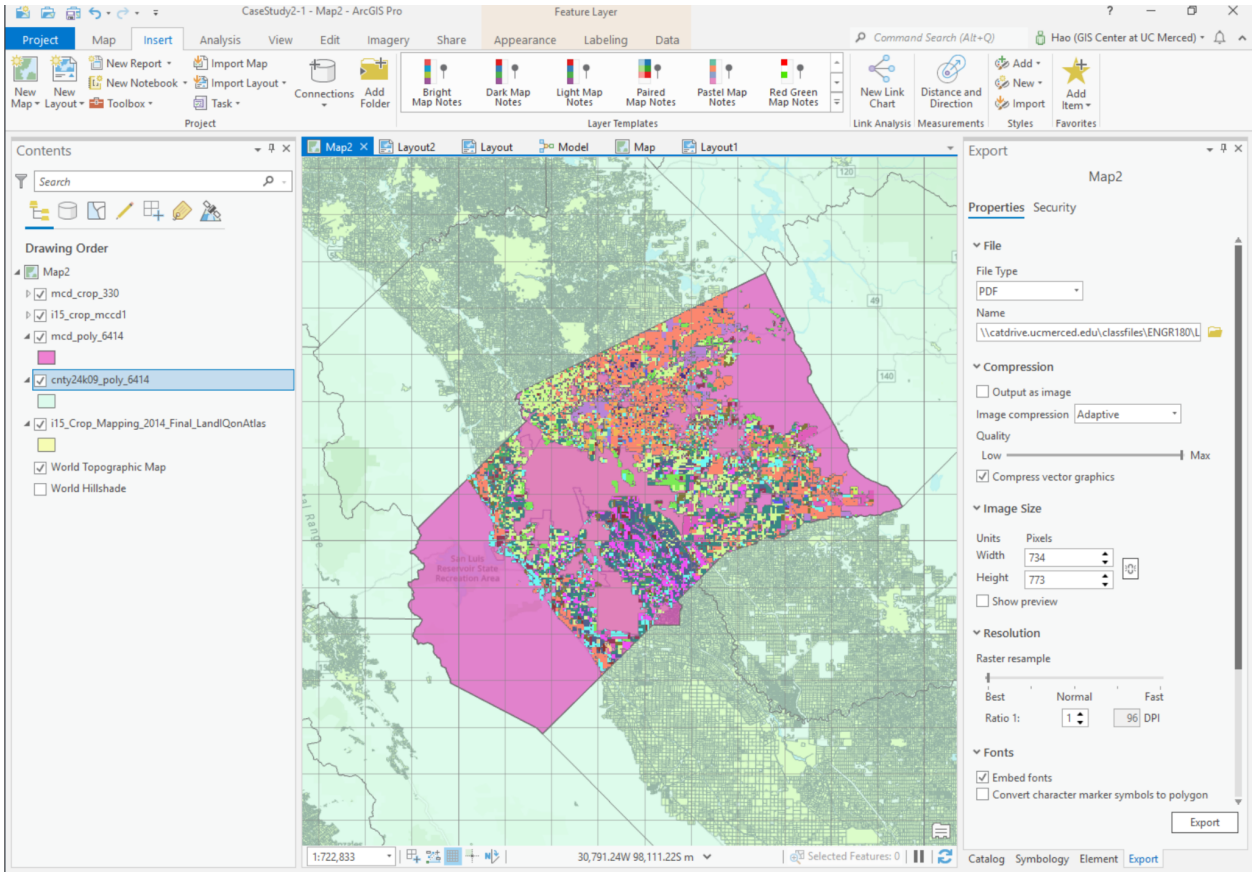
- Screenshot of model builder tool application;



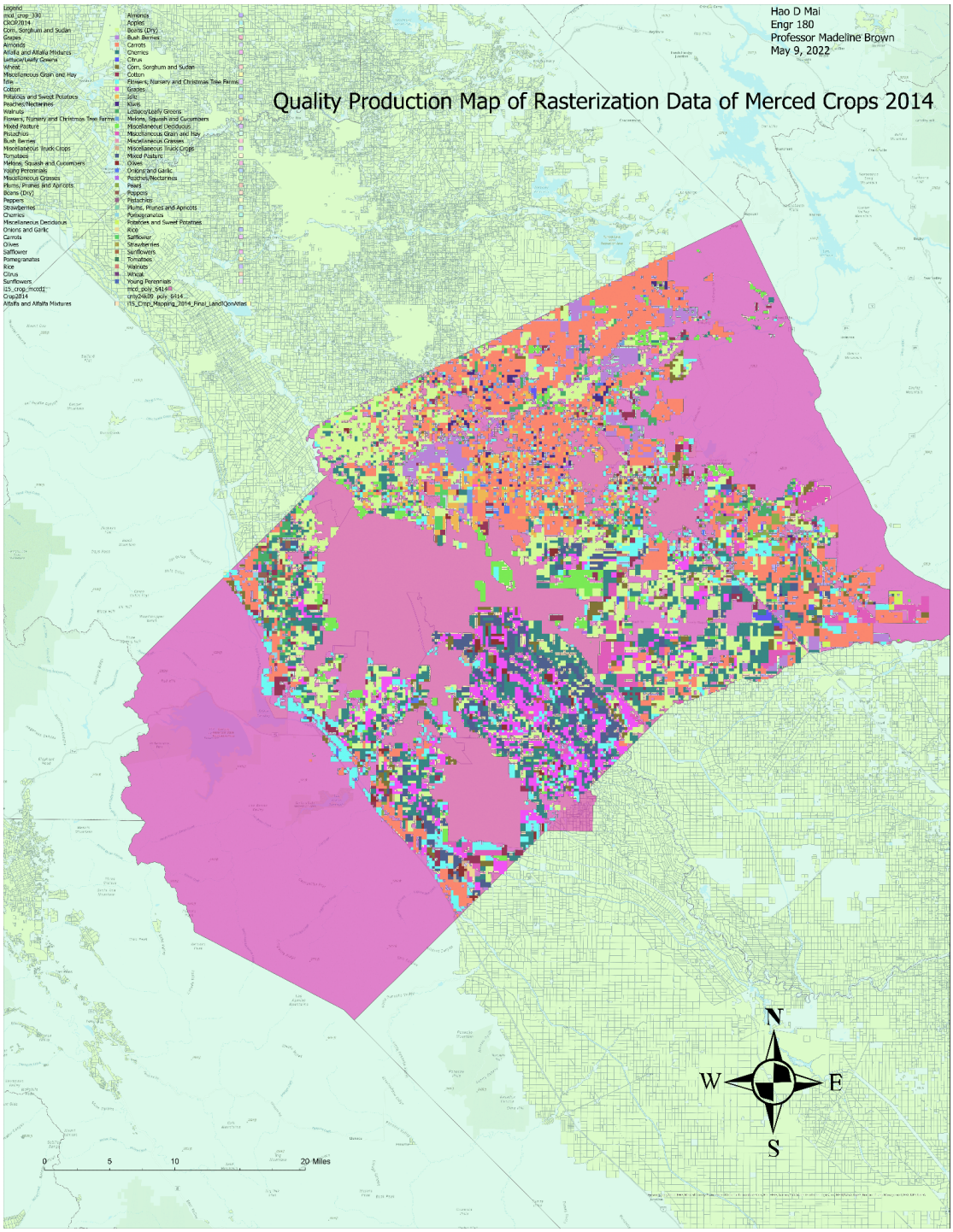
- The model builder procedure of the lap allows the user to input visual commands resembling that of a flow chart instructing how the ArcGIS program should integrate data in the sequence preferred by the user. Within the screenshot above, I am inputting the clip layer of the map of Merced which has been clipped to different boundaries of various vegetation, I am commencing the rasterization process. Thereby, from cells, the algorithm will convert these cells into a conceivable image through mathematical operations implemented within the software. The process is simple though the software crashes a lot. There is an input and output field, the value field, and there is an assigned default cell

recommended by the software as reference to the cell data contained within the selected file. The input field contains the desired field and the output field will generate another layer which we may give a specified name for to call back to. The value field gives the user the option on what particular element within the data they wish to project.

- Screenshot of rasterized data of Merced crop data in 2014:

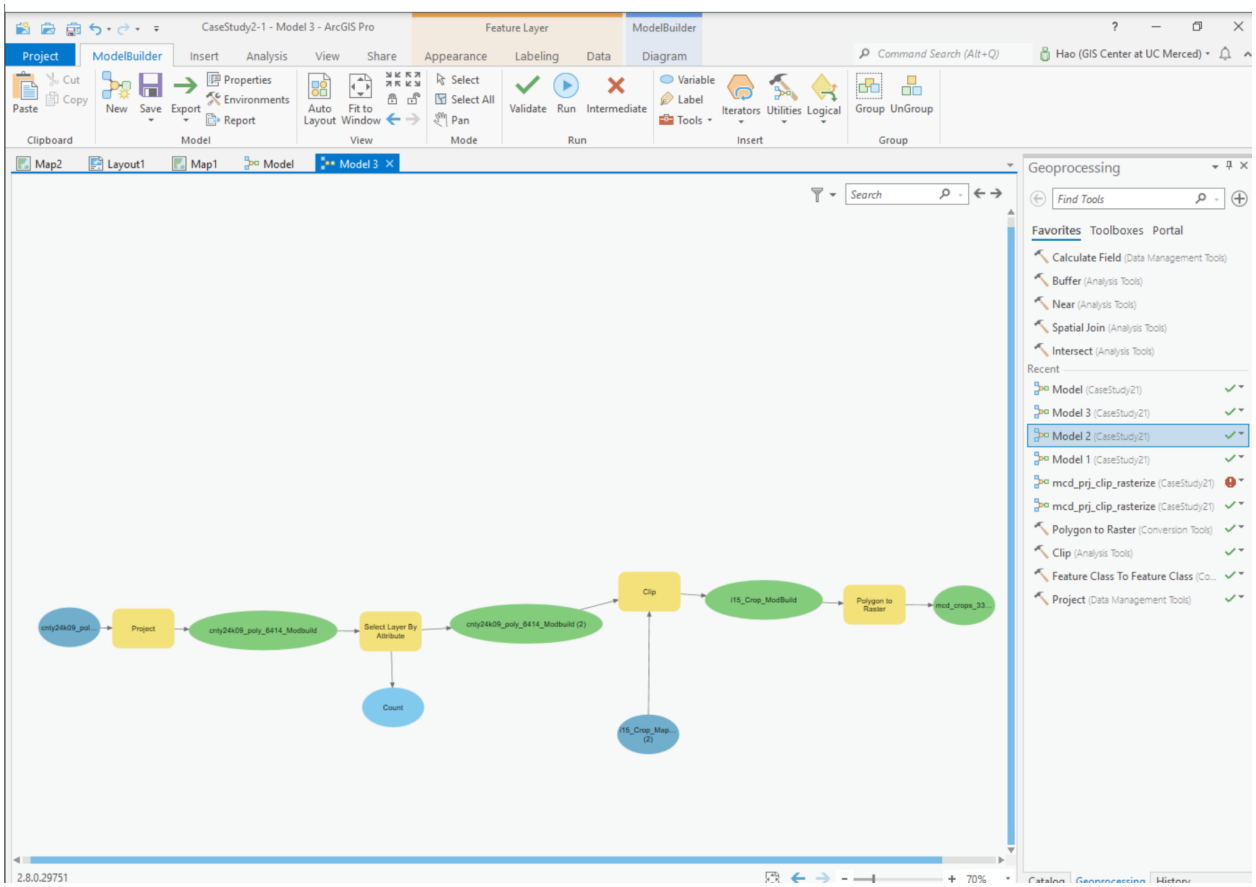


- Screenshot of quality production map of rasterized data set for crops within Merced county of 2014:

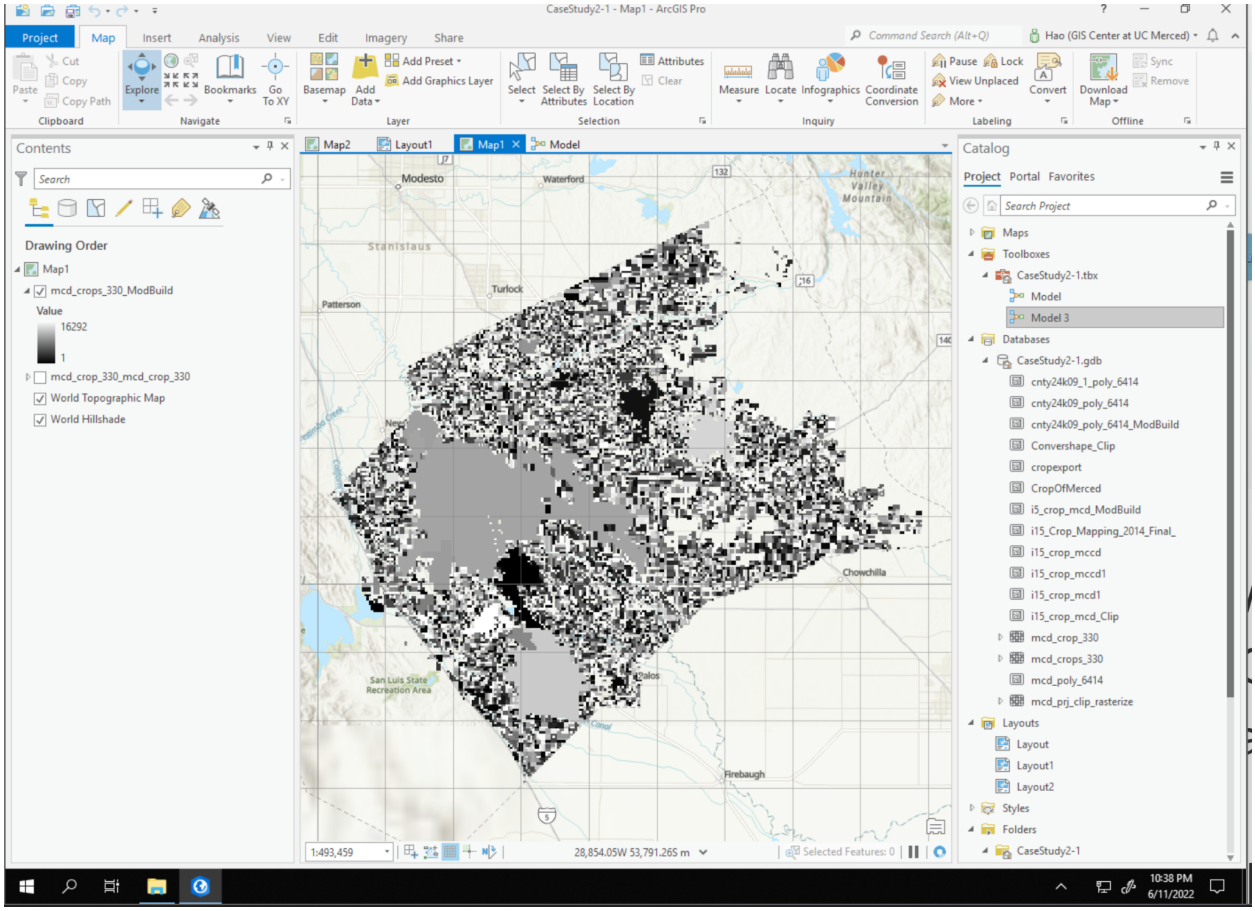


- The screenshot is the result of rasterizing the data by using the model building tool. It seems to depict regions in cell columns with the main distinguishing key bringing a color identity. By using this tool, it integrates the cell data within the crop2014 column of the data which we have excluded earlier from the atlas file that was given to us. The key identity of the data is distributed through coloring scales - there are many options within the scale panel, yet I have decided to choose the coloring scheme with the most dynamic contrast. I believe the identified regions of the map are still in shapes of squares, yet the algorithm has blended in the religion which makes the map projection a little distorted.

- Screenshot of Model created from Model Builder along with the creation of tools:



- Screenshot of model builder output from model created above along with files of ‘modbuild’ files utilized within the procedure of composition:



- I believe the model builder is the employment of the concept of a flowchart, yet a lot more interactive with operations that occur within the background which minimize the workload of the user. Ergo, within the chart, there are three color schemes - it appears to be input being the blue, operation parameter which is the yellow, and the output layer is the green. When user water to build a model, they would search for the tool and within the ribbon locates a toolbox icon that the user can input the tools that they want to use, when the tools appear within the window, interaction with the tool will open window operation that will request for input from the user such as data or coordinate projection preferences. Thereby, at this point, the program will automatically recognize the input of the user and output the requisition along with assigning corresponding color scheme. The arrow within the image indicates the procedure process of the operation.

- Quality production Map of Rasterized data of Merced County Crop of 2014: