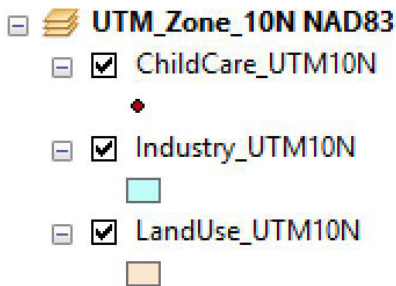


Lab 04: Projections and Geo-Positioning in ArcGIS 10.7

Question 1: Define the projection/
datum for 3 different shapfiles as UTM_
Zone_10N NAD83 meters.



For figure 1, 2 & 3 I used the tool Define Projection on layers childcare, industry and landuse that originally had unknown projection. I projected these layers to NAD_1983_UTM_Zone_10N in meter unit.

I then put these newly defined layers into an empty dataframe and defined the dataframe to NAD_1983_UTM_Zone_10N as well.

Figure 4: dataframe in NAD_1983_UTM_Zone_10N NAD83 in meters.

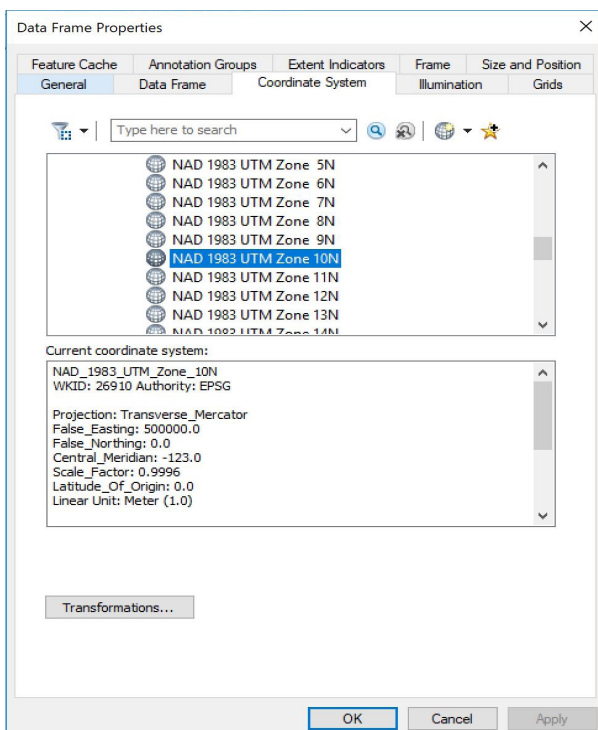


Figure 1: childcare.shp to UTM_Zone_10N NAD83 in meters.

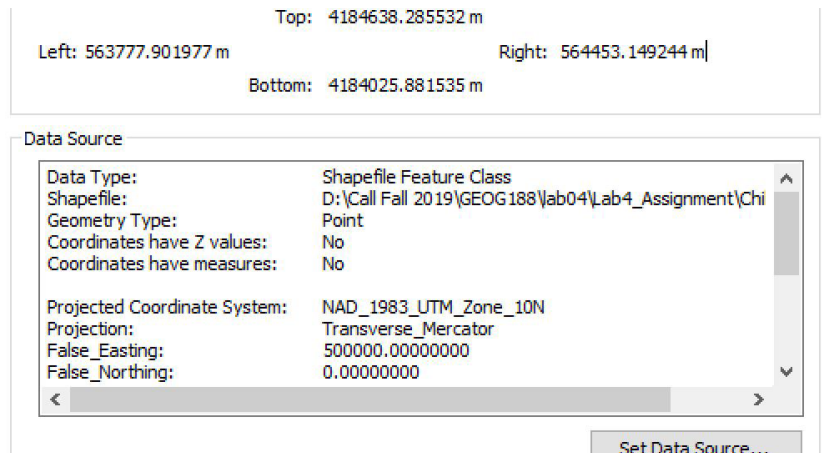


Figure 2: industry.shp to UTM_Zone_10N NAD83 in meters.

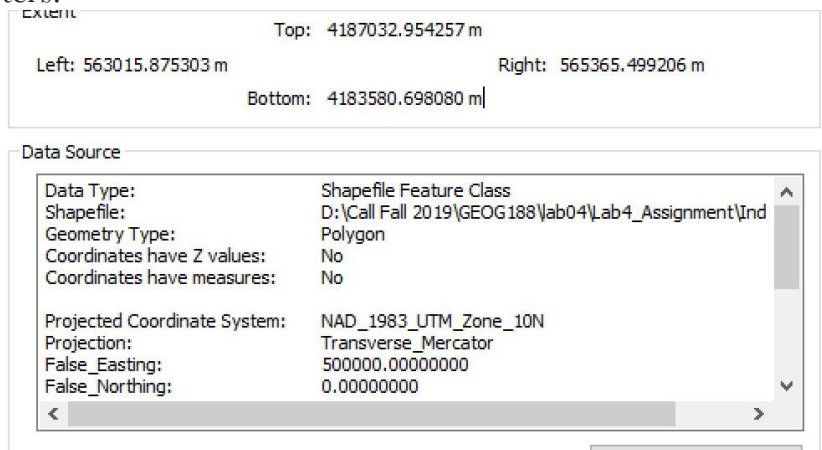
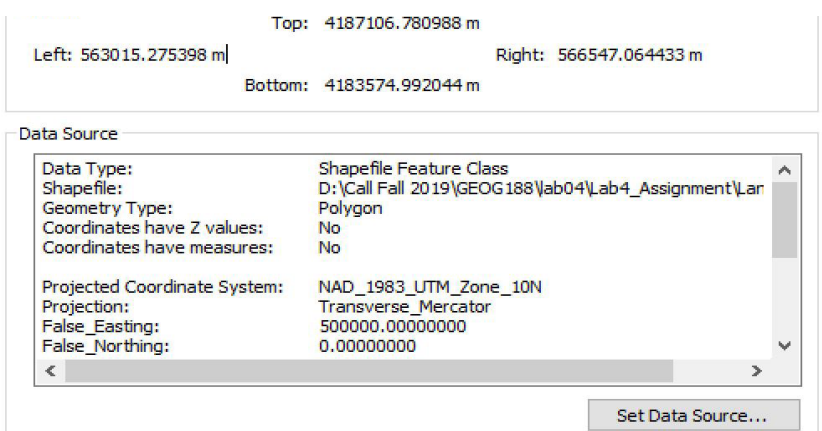


Figure 3: landuse.shp to UTM_Zone_10N NAD83 in meters.



Question 2:

a. How do we usually refer to the X and Y axis when we discuss this projection?

We refer to X as the latitude for North - South direction.

We refer to Y as the longitude for East - West direction.

b. Project three defined shapefiles from Q1 to GCS using NAD 1983 datum.

Figure 5: Three shapefiles in NAD_1983_UTM_Zone_10N and its Childcare shapefile data source

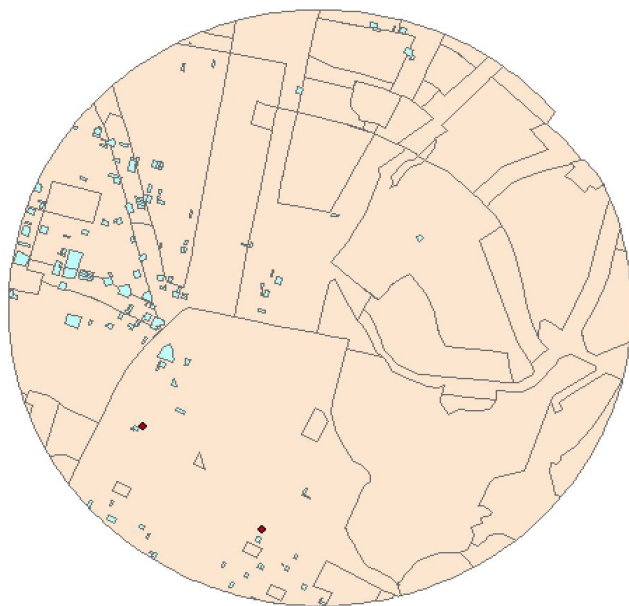
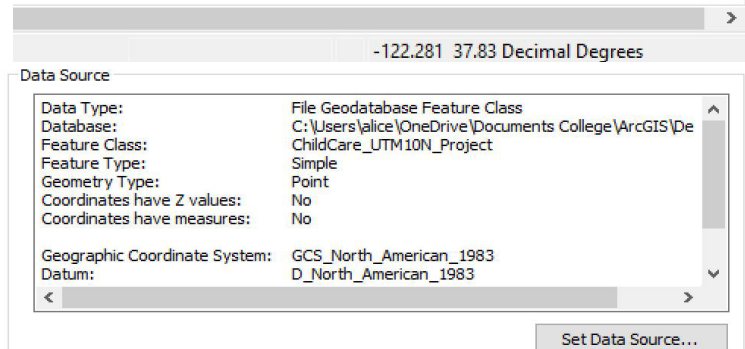
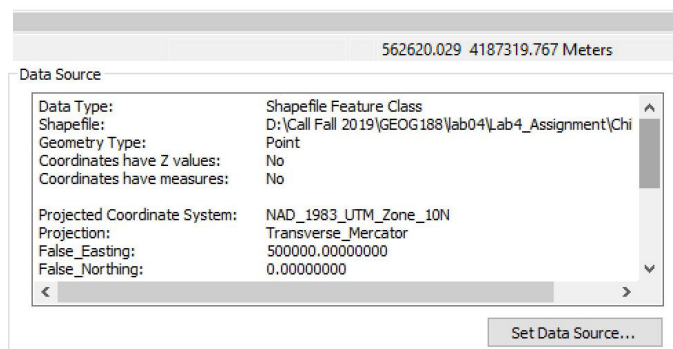
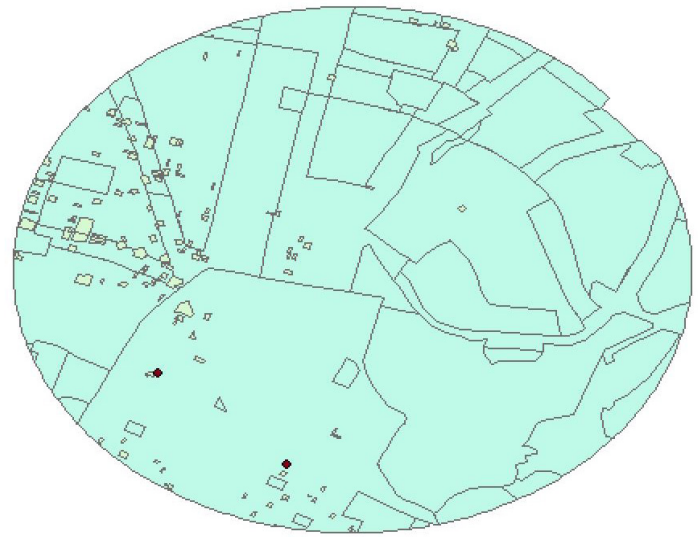


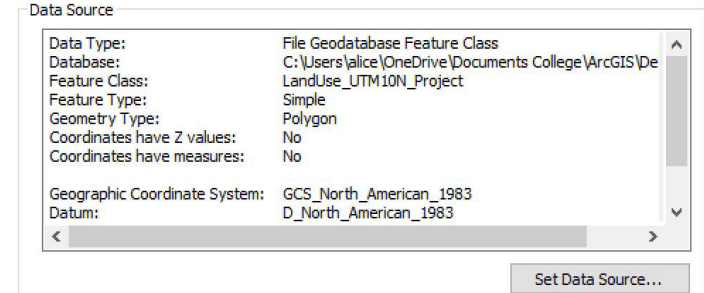
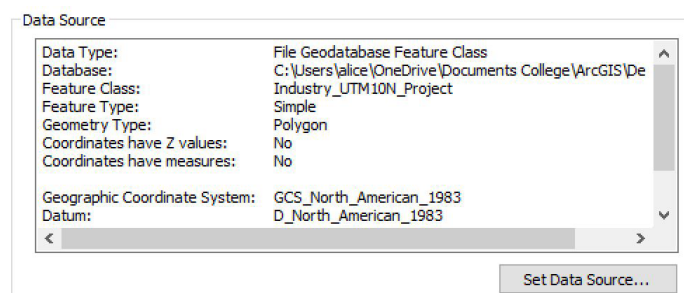
Figure 6: The same three shapefiles in GCS NAD83 and its Childcare shapefile data source.



c. Discuss the difference between UTM 10N and GCS NAD 1983.

The output shape of the UTM shapefiles is round and NAD is oblong. The UTM layers are in meter unit where as GCS layers is in degree unit. Compared to UTM 10N, the data points in GCS NAD 1983 are horizontally stretched.

Figure 7 & 8: Industry and Landuse shapefiles in GCS NAD 1983



Question 3: a. Project each of the 3 shapefiles to California State Plane Zone III, NAD 83 feet.
b. Compare State Plane to Undefined.

Insofar as shape goes, the two shapes are round, similar to each other. They are also similar in size. The undefined layers have unknown unit and the CA State Plane Zone III layers have unit in Feet. Also, when activate one dataframe over the other, the undefine shape rotates left slightly and vice versa.

Figure 9: Three shapefiles undefined and its Child-care shapefile data source

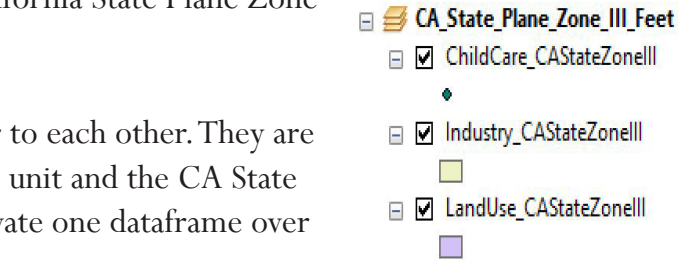
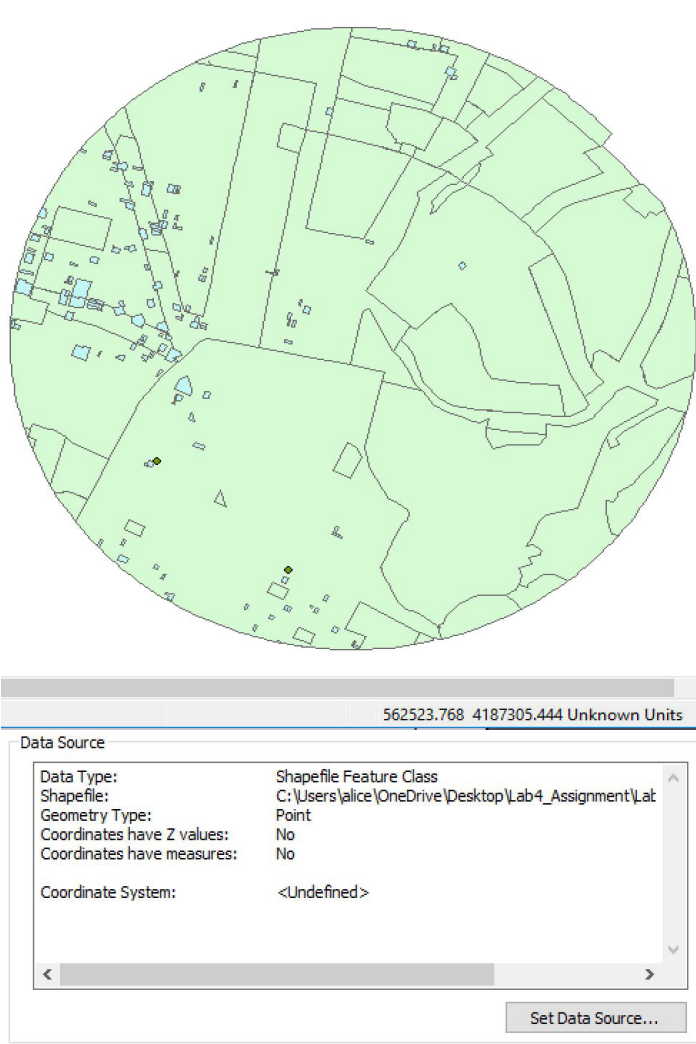


Figure 10: The same three shapefiles in CA State Plane Zone III, NAD83 (Feet) and its Childcare shapefile data source

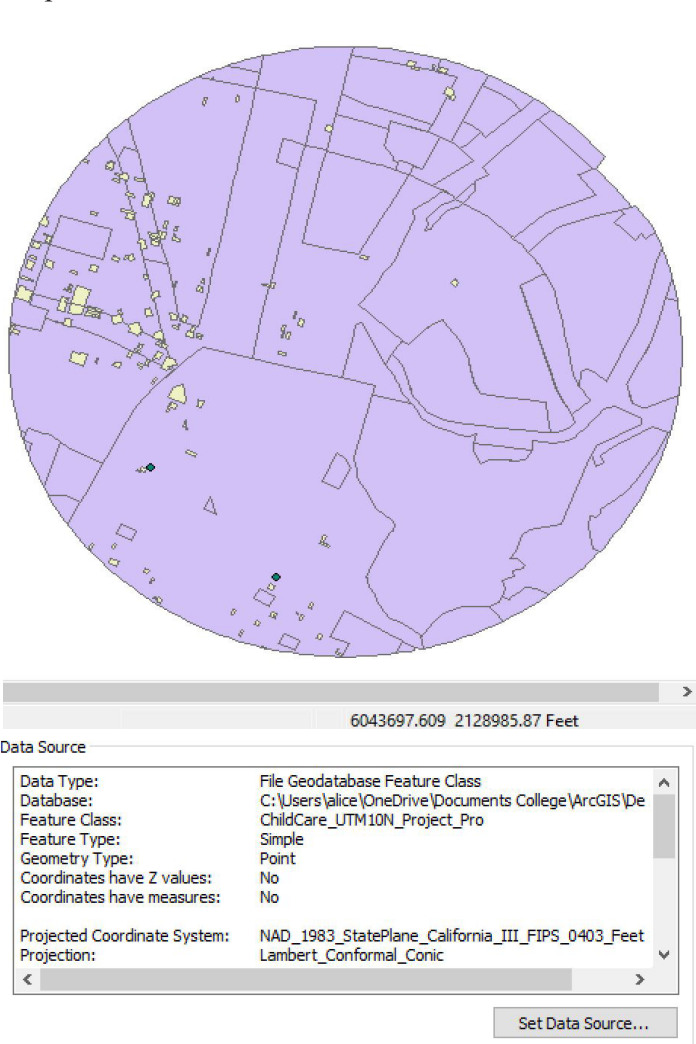


Figure 11 & 12: Industry and Landuse shapefiles in CA State Plane Zone III, NAD83 (Feet)

