To run the package a folder named “data” must be available in the project and mi\_polygons.shp and tract.shp files must be located in the data folder for the function to pick up the latitude and longitude. county\_reference and tract\_reference csv files need to in the data folder to map the county, PIHP, CMHSP and tract names when GEOID is provided.

These files are generated by using the get\_acs function from the tidycensus package. To the county dataset PIHP and CMHSP are added using if else conditions manually and stored in mi\_polygons.shp shape file. The scripts can be found in data\_retrival.R script.

The Package consists of 2 functions static\_map and dynamic\_map. The package can map the county, PIHP, CMHSP and tract names when GEOID is given. When a GEOID is being passed to the function then the column names should be as the following

County level dataset – column name for the ID must be “countyid”

Census tract level dataset – column name for the ID must be “tractid”

The following are the instructions to use the functions.

**static\_map:**

The static map works as a basic map function whereas by selecting the map type and providing the summarized dataset the function builds a county or PIHP or CMHSP or census tract map.

The following are the arguments that are used by the dynamic map function (map\_type, df, col\_pallet, addtiles, border\_col, legend\_label)

map\_type

The comparison is ignore case hence the comparison is of map\_types are not case sensitive

By passing county in the map type argument the function creates a county level map of Michigan

By passing pihp in the map type argument the function creates a PIHP level map of Michigan

By passing cmhsp in the map type argument the function creates a CMHSP level map of Michigan

By passing tract in the map type argument the function creates a tract level map of Michigan

df(Data Frame)

Appropriate summarized dataset must be given in the df argument and the column names must be name and summary i.e..name column should contain county or PIHP or CMHSP names and summary column should contain the summarized units.

*For example:* County level summarized dataset must be provided when County is selected in the map type. PIHP level summarized dataset must be provided when PIHP is selected in the map type and CMHSP level summarized dataset must be provided when CMHSP is selected in the map type.

col\_pallet

Choose a color palette of any choice to populate the summarized data.

Viridis is set as the default color pallet

Addtiles

Add a tile layer from a known map provide.

Stamen.TonerLite is set as the default provider tiles.

border\_col

Fill the border color with your preferred color.

White is set as the default color

Bins

Give the bins range in a collection.

legend\_label

Label of the legend.

**dynamic\_map:**

The dynamic map works similar to the opioid application map. The map can draw county boundaries, PIHP boundaries, CMHSP boundaries and census tract boundaries. When PIHP is selected in the map type and CMHSP data is filtered data the map highlights the PIHP boundaries and draws the selected CMHSP boundaries internally of the PIHP.

The following are the arguments that are used by the dynamic map function (map\_type, df, pihp\_filter, cmh\_filter, col\_pallet,addtiles, border\_col, bins, legend\_label)

map\_type

By passing County in the map type argument the function creates a county level map of Michigan

By passing PIHP in the map type argument the function creates a PIHPlevel map of Michigan

By passing CMHSPin the map type argument the function creates a CMHSPlevel map of Michigan

By passing tractin the map type argument the function creates a tractlevel map of Michigan

df(Data Frame)

Appropriate summarized dataset must be given in the df argument and the column names must be name and summary i.e.. name column should contain county or PIHP or CMHSP names and summary column should contain the summarized units.

*For example:* County level summarized dataset must be provided when County is selected in the map type. PIHP level summarized dataset must be provided when PIHP is selected in the map type and CMHSP level summarized dataset must be provided when CMHSP is selected in the map type.

pihp\_filter

Single PIHP filtered data must be provided in the pihp\_filter argument.

*For example:*

pihp\_deaths\_filt<-

drug\_death %>%

filter(PIHPname == input$select\_pihp) %>%

group\_by(PIHPname) %>%

summarize(

deaths = sum(deaths, na.rm = TRUE),

deaths\_per\_100k = round(mean(deaths\_per\_100k),digits = 2)

)

cmh\_filter

Single CMHSP filtered data must be provided in the cmh\_filter argument.

cmh\_deaths\_filt<-

drug\_death %>%

filter(CMHSP == input$select\_cmh) %>%

group\_by(CMHSP) %>%

summarize(

deaths = sum(deaths, na.rm = TRUE),

deaths\_per\_100k = round(mean(deaths\_per\_100k),digits = 2))

col\_pallet

Choose a color palette of any choice to populate the summarized data.

Viridis is set as the default color pallet

Addtiles

Add a tile layer from a known map provide.

Stamen.TonerLite is set as the default provider tiles.

border\_col

Fill the border color with your preferred color.

White is set as the default color

Bins

Give the bins range in a collection.

legend\_label

Label of the legend.