**About**

* All code is based in a single file
* While or after running, information on the latest/last generation can be found in the debug folder (path is DesktopApp1\bin\Debug\WriteSolution)
* Map file can be found in debug folder (path is DesktopApp1\bin\Debug\Map1)
  + To alter polygons, be sure input is in form of the following, including punctuation 🡺 Point1X,Point1Y;Point2X,Point2Y;…PointNX,PointNY
* A single path takes the form of a series of smaller lines between points located on the polygon vertices ( PointX, PointY) 🡪 (PointY, PointZ)… etc.

**How To**

* Install
  + To install begin by downloading source files off of my website, then load into Visual Studios (I used 2015) and use those files as the project. Run as normal through the debugger tool.
  + As another option, run the .exe/application file inside the project folder (path is DesktopApp1\bin\Debug)
* Use
  + Once running, change the variables of the genetic algorithm via the selector boxes in the lower right of the window. These will allow for changes to how the algorithm performs. Then click apply button for changes to take effect.
  + Once variables are selected, hit the Start button to run the algorithm once. If a message box pops up, it means that it has gone through ten generations, click yes to continue or no to stop.
  + Reset screen button will clear any drawn lines to the display resetting to default map.
  + Reset variables button sets all variables to default values and submits them for change.
* Hints
  + The number of Elite should be considerably lower than the population size
  + Max number of generations if to small will result in higher probability of not being able to find a good solution due to no evolution
  + Higher mutation rate will decrease the rate of convergence of solutions and increase variability of genes

Main Activity

ResetScreen()

Start

DrawMap()

Map1.txt (input file)

Get all polygon points

Draw map to Screen

Genetic Algorithm

BuildMatrix()

List/Matrix initialization (connectivity)

Pass GA function and variables

DNA

Population

GenUpdate()

NewPopulation()

Crossover, mutate, or generate

Finished?

OutputGeneration() to WriteSolutions.txt

Return to Main Activity