***GEO5990M Assignment 2- Documentation***

The model developed here is an Agent Based Model which simulates agents as 'drunk people' moving within the ‘town’ environment from pubs to their homes. The model was produced as part of an assessment of skills developed from attending the module Programming for Geographical Information Analysis- Core Skills.

This model has been developed using knowledge learnt from the practical sessions undertaken during the course and uses the first assignments model as the basis from which the ABM is further built on from.

This model:

* Reads in the environment file as 'TownPlan.txt'
* Calculates where in the town the pubs and homes are located.
* Assigns each agent to a known ‘pub’ location from which they start the model run from.
* Models the drunk agents leaving the pub they start in and reaching their homes by simulating them to move across the environment randomly until they get home.
* Once all the drunk agents are home the model stores how many drunks have passed through each point on the map.
* A density map is created from the data stored, showing the density of drunk agents passing through each point on a map.
* The model saves the density map to the file 'walked\_environment\_output.csv'.
* When the model has finished running two windows appear with a figure showing the drunk agents in their homes and a figure of the density map.
* A third window appears as a GUI with the option for users to press the ‘run’ button for an animation to occur in the window, however this does not work.

***Code source***

The files used to run this model are:

* PlanningForDrunks.py
* Drunk\_AgentFramework.py
* TownPlan.txt

These files can be found in the following GitHub repository: <https://github.com/ee16hls/PGIA-Assignment2>

The first python file contains the code to run the ABM. The Drunk\_AgentFramework.py file contains the agents characteristics which includes their starting locations and the information they need to move randomly within the environment.

The TownPlan.txt file contains the models environment which is a raster file of 300x300px with information for the locations of the pubs and homes of the agents.

***Problematic areas***

As I was building this model using the basis of what I had learnt from assignment 1 I decided to follow the same steps for creating the animation and GUI for the user to be able to run the model. However I have struggled to get this to work properly in this code. I manage to get the model to produce two figures, one showing the agents in their homes at the end of the model run and the other is the density map. The third window that appears shows the density map again and has the ‘run model’ button function available, however I was unable to get the animation to actually animate visually and am unsure of how this can be resolved.