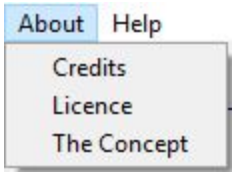
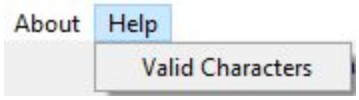
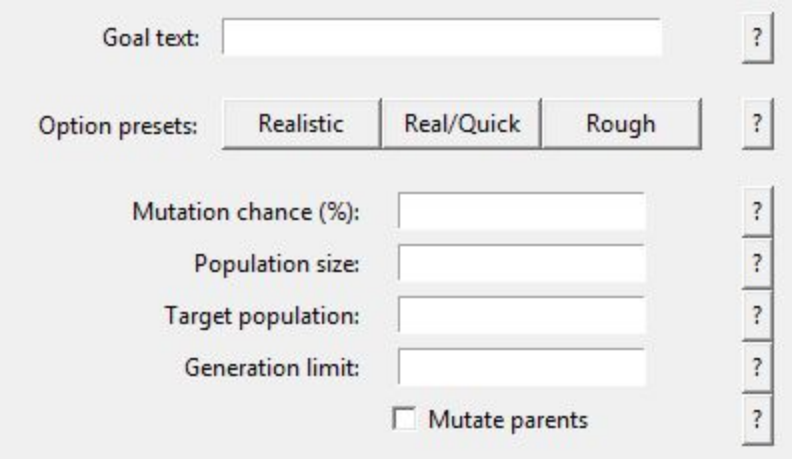
Contents

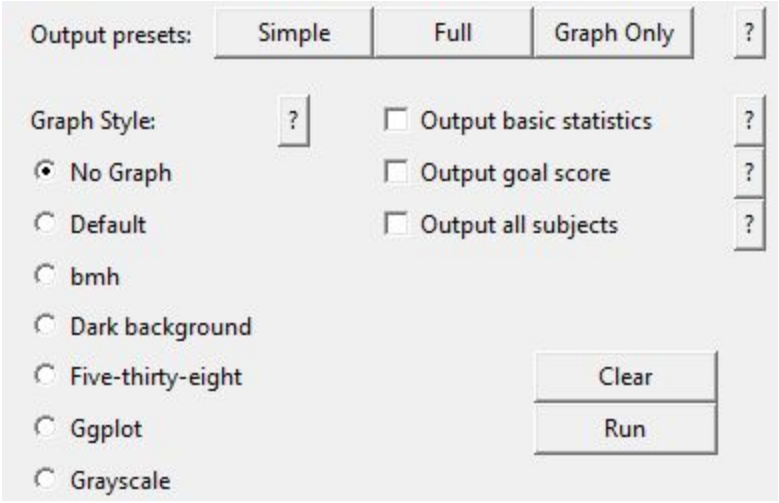
Menubar

About Menu	
Credits	The credits menu is gives credit to the creator of the program and any tools used to create the program ---------- Developed by Bradley McInerney 2016 © Script used: Python 3.4.3: https://docs.python.org/3.4/copyright.html Module used: Matplotlib http://matplotlib.org/users/credits.html
Licence	Displays the licence and copyright information for the program and links to the licences of any tools used to create the program ---------- Developed by Bradley McInerney 2016 © This work is licenced under a Creative Commons Attribution 4.0 International License. To view a copy of this licence, visit: http://creativecommons.org/licenses/by/4.0 Script used: Python 3.4.3: https://docs.python.org/3.4/license.html Module used: Matplotlib: http://matplotlib.org/users/license.html
The Concept	Briefly explains the concept of genetic algorithms and how they originally enthralled the creator of this program

Help Menu	
Valid Characters	Displays a list of the valid characters that the program will accept for an input. To change this list the ‘characters’ array in the source code has to be changed although there should be no real reason to change this

Settings

Simulation Settings	
Goal text	These are the characters that represent the perfect race. The goal is to evolve subjects as close as it can to this perfect race. If a subject is too far from the goal it will die off, this is to simulate natural selection.
Option presets	The information in the brackets are how the preset will set the next 5 options Realistic [1, 100, 5, 500, False]: A realistic simulation of evolution Real/Quick [15, 100, 5, 150, False]: Raises the mutation chance to speed things along. Still a realistic simulation as some species can mutate at these rates. Rough [30, 10, 5, 20, True]: This preset allows the parents to mutate, allowing de-evolution.This is very unlikely to reach it's goal.
Mutation chance	Each character in each subject has this chance to mutate every time it is born. This will stop a population having no variety when the parents are very similar.
Population size	The amount of subjects per generation. The top 10% are bred each generation, the rest die off. Must be at least 20.
Target population	If this many subjects in a population equal perfect race the simulation will stop. Must but at least 1 and can not be higher than the population.
Generation limit	If the simulation reaches this many generations before being stopped by reaching the target population, the simulation will end. Must be at least 1.
Mutate parents	If checked, parents will also mutate every new generation. This does not happen in real evolution and allows the population to de-evolve.

Output Settings; **Clear and Run buttons**	
Output presets	The information in the brackets are how the preset will set the next 4 options Simple [Default, True, True, False]: Outputs basic stats with a graph if available. Full [Default, True, True, True]: All settings on. will take much longer to run and may spam the output a little. Graph Only [Default, False, False, False]: No textual output, completes the simulation the fastest and only output displayed is a graph only the simulation is complete. This is extremely fast compared to the other output presets.
Output basic statistics	In the output displays from each generation: Highest, Lowest, Median, Average.
Output goal score	Displays the perfect score that the subjects can achieve. If ‘Highest” from ‘output basic stats’ is equal to the goal goal score then that subject equals the perfect race.
Output all subjects	Will output every subject and its score in every generation. This will slow down the program significantly and spam the output but give exact information.
Graph Style	Will not be available if the python module 'matplotlib' is not installed. The different styles are simply variations of the visuals, they do not affect the format in which the information is displayed.
Clear	Will clear all of the other inputs in the window
Run	Will run the program using the inputs in the window