My Project

Generated by Doxygen 1.16.1

Chapter 1

Class Index

1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 3

Class Documentation

3.1 Population Class Reference

Public Member Functions

- Population (size_t pop_size, size_t dimensions)

Public Attributes

- vector< vector< float > > **population**
- vector< float > **fitness**

3.1.1 Constructor & Destructor Documentation

3.1.1.1 Population()

```
Population::Population (
            size_t pop_size,
            size_t dimensions)
```

Constructor for Population initializes population matrix to be of size pop_size x dimensions and fitness vector to size pop_size

Parameters

in	*pop_size,dimensions*	

The documentation for this class was generated from the following files:

- Population.h
- Population.cpp

Chapter 4

File Documentation

4.1 Blind.h

```
// Name: Harrison Ingram-Bate
#ifndef BLIND
#define BLIND

#include <random>
#include <memory>
#include <chrono>
#include "Population.h"

Population Blind(std::unique_ptr<vector<uniform_real_distribution<float»>  distribution_vec,
                 float (*fitness)(const vector<float>&),
                 size_t pop_size);

#endif
```

4.2 Population.h

```
// Name: Harrison Ingram-Bate
#ifndef POPULATION
#define POPULATION
#include <vector>
#include <random>
using namespace std;

class Population {
public:
    Population(size_t pop_size, size_t dimensions);

    vector<vector<float» population;
    vector<float> fitness;

};

#endif
```

4.3 Problem.h

```
// Name: Harrison Ingram-Bate
#ifndef PROBLEM
#define PROBLEM
#include <vector>
using namespace std;

float Schwefel(const vector<float>& vec);

float FirstDeJong(const vector<float>& vec);

float Rosenbrock(const vector<float>& vec);
float Rastrigin(const vector<float>& vec);

float Griewangk(const vector<float>& vec);

float SineEnvelope(const vector<float>& vec);

float StretchedV(const vector<float>& vec);

float AckleyOne(const vector<float>& vec);

float AckleyTwo(const vector<float>& vec);

float EggHolder(const vector<float>& vec);
#endif
```

4.4 RepeatedLocalSearch.h

```
// Name: Harrison Ingram-Bate
#ifndef REPEATED_LOCAL_SEARCH
#define REPEATED_LOCAL_SEARCH

#include <memory>
#include <random>
#include <chrono>
#include "Population.h"

typedef std::unique_ptr<vector<uniform_real_distribution<float>» Distributions;

Population RepeatedLocalSearch(Distributions distribution_vec,
                               float (*fitness)(const vector<float>&),
                               size_t pop_size,
                               float step_size);

Distributions  SetBestVecFromRandPop(Distributions distribution_vec,
                                          float (*fitness)(const vector<float>&),
                                          mt19937& rand_gen,
                                          vector<float>& dest_vec,
                                          size_t pop_size);

Distributions LocalSearch(Distributions distribution_vec,
                          float (*fitness)(const vector<float>&),
                          vector<float>& best_vec,
                          float step_size);
#endif
```

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