



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

COS 710: Artificial Intelligence

Assignment 1: Genetic Programming for Classification

Due Date: 8 April 2024, 23:30

This assignment involves implementing genetic programming to evolve a classifier for diabetes diagnosis. The dataset and dataset description can be accessed <https://www.kaggle.com/datasets/mathchi/diabetes-data-set>.

Assignments must be submitted via clickUP. The source code, compiled code and report must be submitted.

The report must include:

- Description of the data set, data preprocessing, any feature extraction/selection.
- Description of the representation used and the terminal and function sets.
- Description of initial population generation.
- Description of the fitness function and fitness evaluation.
- Description of the selection method.
- Description of genetic operators
- A description of the experimental setup, i.e. parameter values used, technical specifications of the machine used to develop the program and run simulations.
- The results (averages and best values for all four metrics discussed in the paper over the runs performed) and a discussion of the results. A minimum of 10 runs should be performed.

- Runtimes of the algorithm.
- A comparison (in terms of at least accuracy) with the approaches in Paper1, Paper2 and Paper3 attached.

Total: 45