Course: CS30A1570 Complex Systems

Assignment 5: Genetic Algorithms

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**Title:**

**Introduction:**

**Research Question:**

**Results:**

**Task 1.1:** Experiment with Different Mutation Rates

Study question: how the optimization process of the genetic algorithm is affected by the intensity of the introduced mutations?

Table 1: Fitness Dependence on Mutation Rate

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Generations | Population Size | Mutation Rate | Average Best Fitness in Final Population |
| 200 | 100 | 0.01 |  |
| 200 | 100 | 0.05 |  |
| 200 | 100 | 0.1 |  |

Table 2: Fitness Dependence on Population

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Generations | Population Size | Mutation Rate | Average Best Fitness in Final Population |
| 200 | 100 | 0.05 |  |
| 200 | 200 | 0.05 |  |
| 200 | 300 | 0.05 |  |
| 200 | 400 | 0.05 |  |
| 200 | 500 | 0.05 |  |

**Task 1.2:** Experiment with Different Population Sizes

Study question: how the optimization process of the genetic algorithm is affected by the population size?

**Discussion:**

**Conclusion:**

**A close-up of several text

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