**Algorithm Steps:**

* 1. **Initialization: Initialized the population with random bit strings.**
  2. **Selection: Utilized roulette wheel selection for parent selection.**
  3. **Crossover: Executed one-point crossover between selected parents.**
  4. **Mutation: Applied bit flip mutation to offspring.**
  5. **Elitism: Retained the best individuals in the population.**
  6. **Iteration: Ran the algorithm for a set number of generations.**
  7. **Termination: Selected the best solution found.**

**Results:**

* **Performance Metrics: Evaluated the best fitness values and average fitness values over generations for both elitism and non-elitism scenarios.**

**Discussion:**

* **Elitism Effectiveness: Analyzed the impact of elitism on convergence speed and final solution quality.**
* **Insights: Examined any recurring tendencies or notable patterns encountered throughout the genetic algorithm's execution.**
* **Trade-offs: Considered the trade-offs between computational complexity and solution quality when employing elitism.**