

Sistemas de Inteligencia Artificial

Algoritmos Genéticos
Grupo 5

Estructura del proyecto

1. Replacer: get parents
2. Combinator: pick couples
3. Combinator: breed couples
4. Mutator: mutate offspring
5. Replacer: mix offsprings and previous population

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Implementación

GameCharacter

- Profession (enum con personajes predefinidos)
- Lista de items
- Altura
- Ataque (no precalculado)
- Defensa (no precalculada)
- Objeto cromosoma (array)

Selector

El selector se encarga de implementar su método de selección y de una población de N individuos seleccionar K .

Mutator

Al mutador se encarga de decidir si un individuo debe mutar en base a una función de probabilidad que puede depender de la generación, y mutarlo.

Replacer

El replacer se encarga de manejar de qué manera los hijos se integran a la nueva población.

Recibe los 4 métodos de selección y los ratios A y B

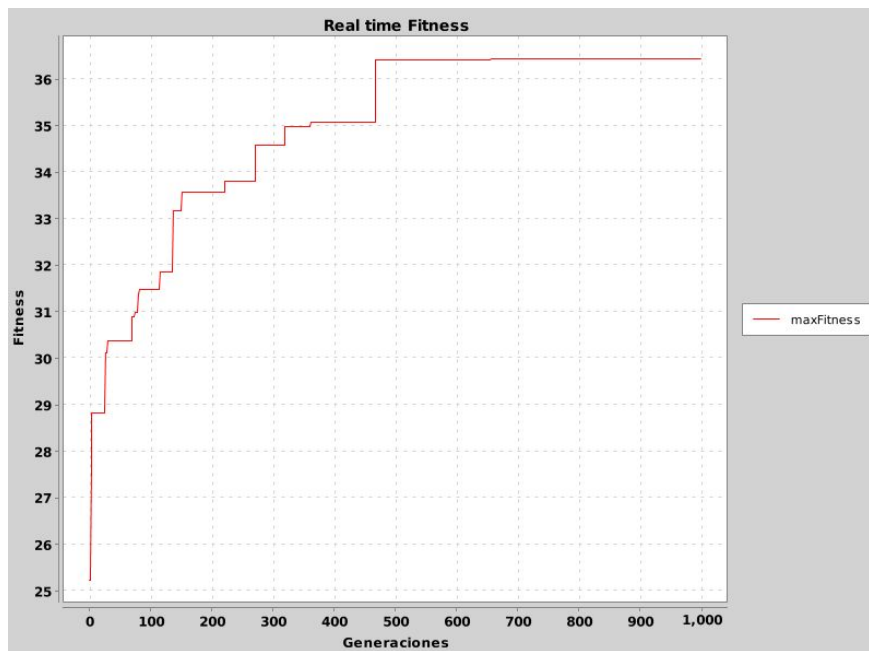
Combinator

El combinator se encarga de de implementar el método de cruza que utiliza el algoritmo.

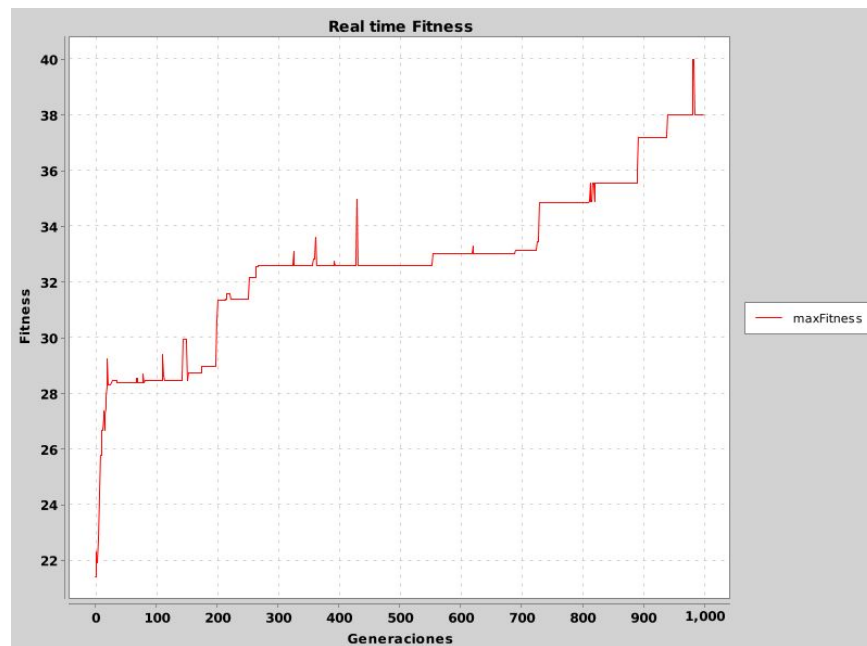
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Resultados

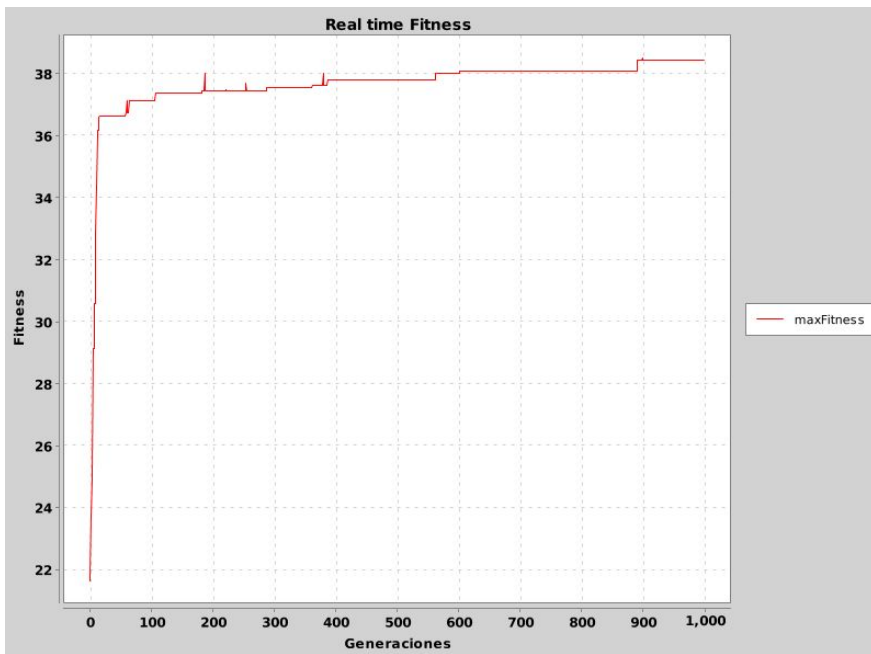
Selectors



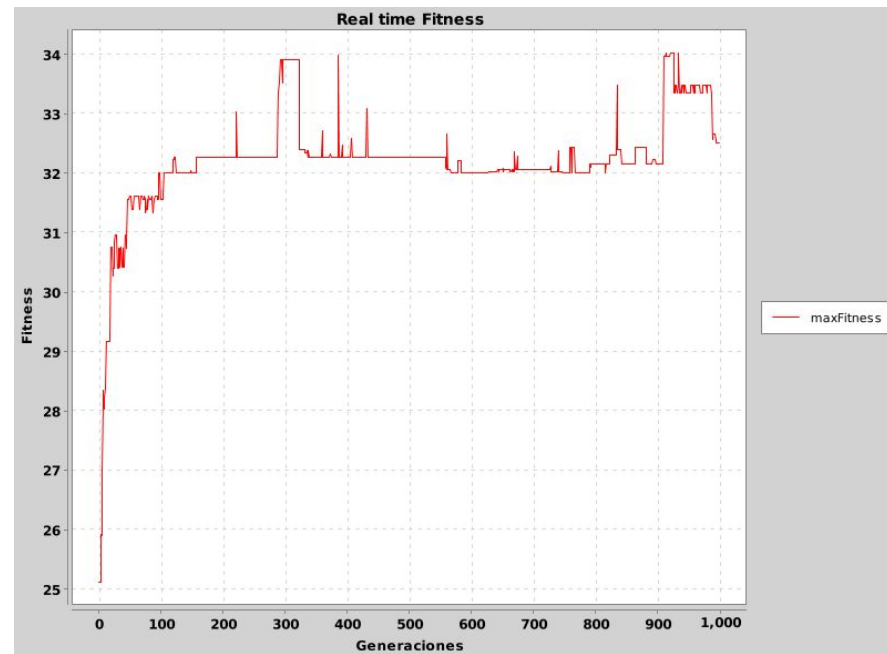
Elite



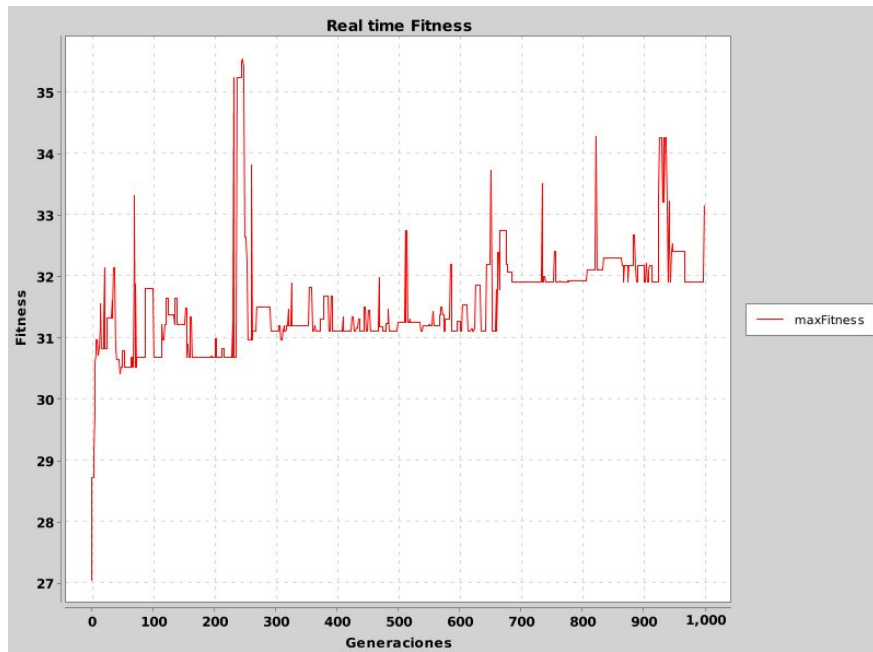
Probabilistic Tournament



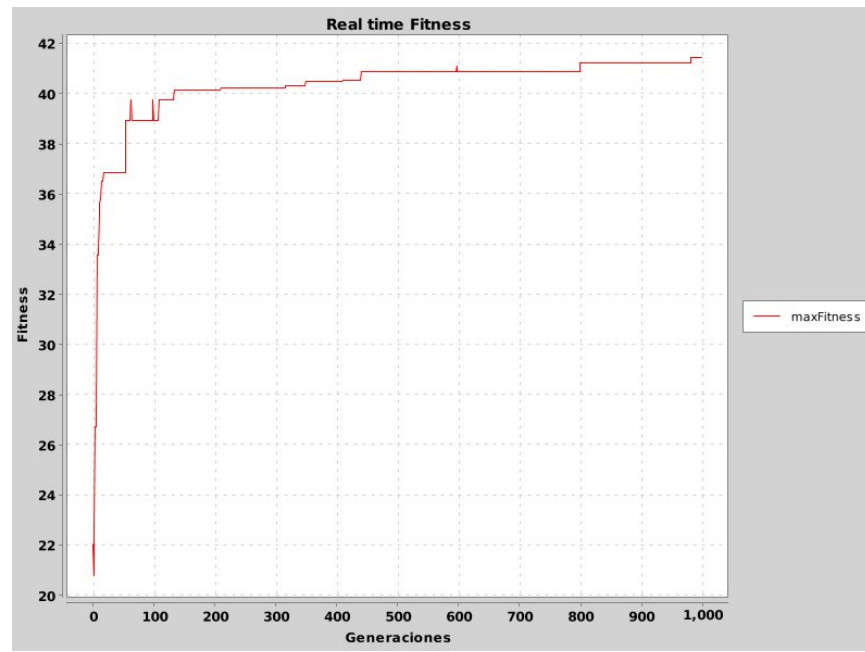
Ranking



Roulette

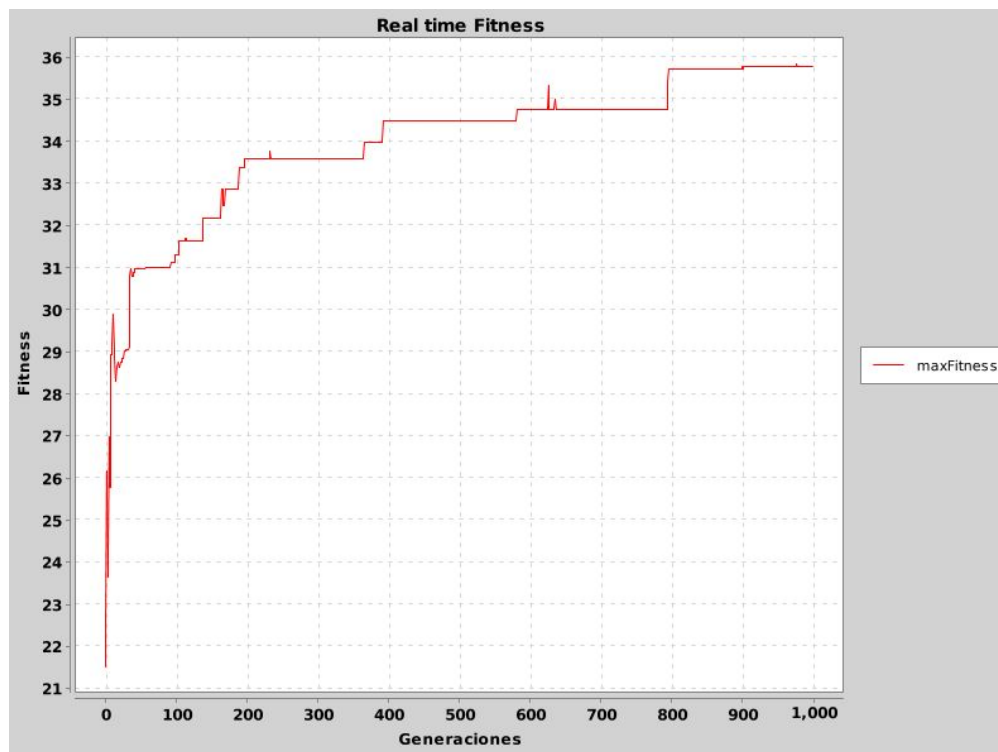


Universal

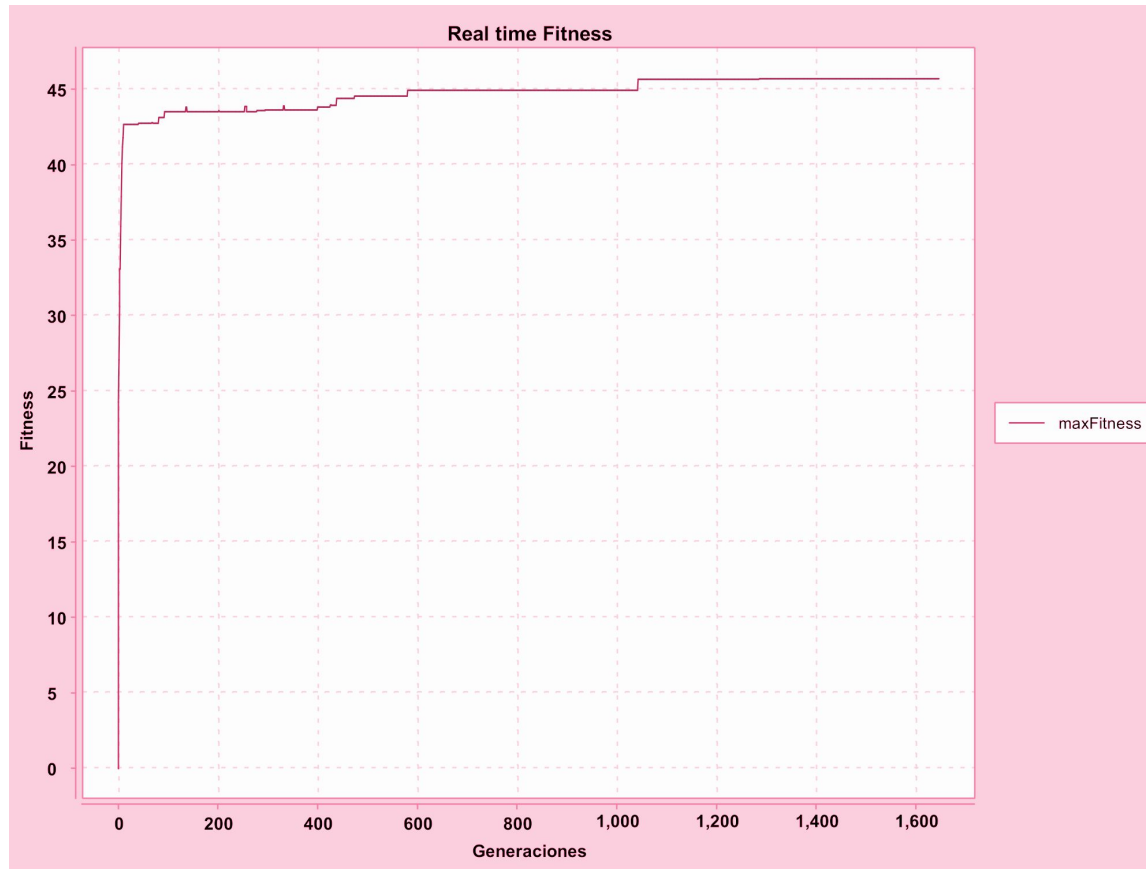


Deterministic Tournament

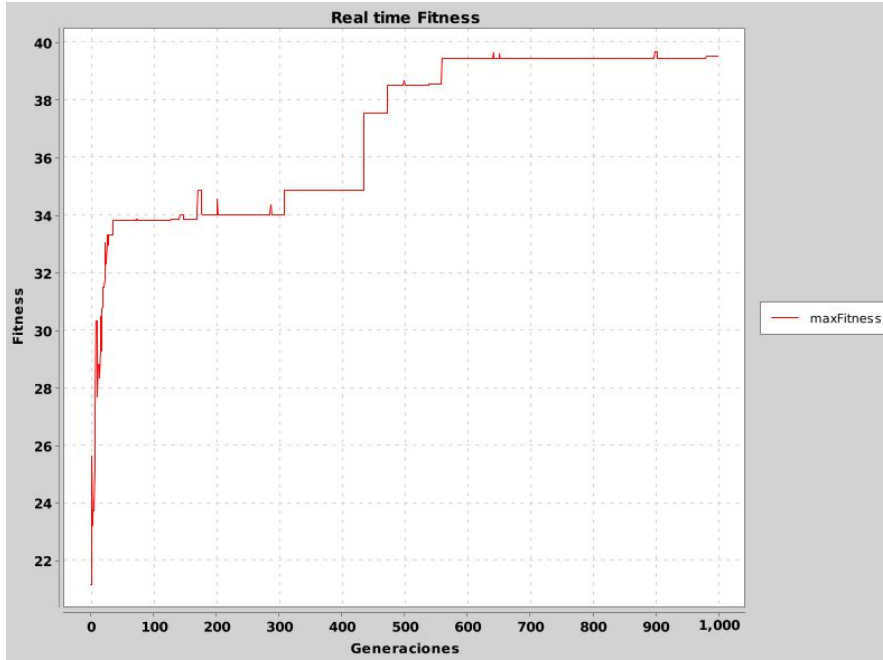
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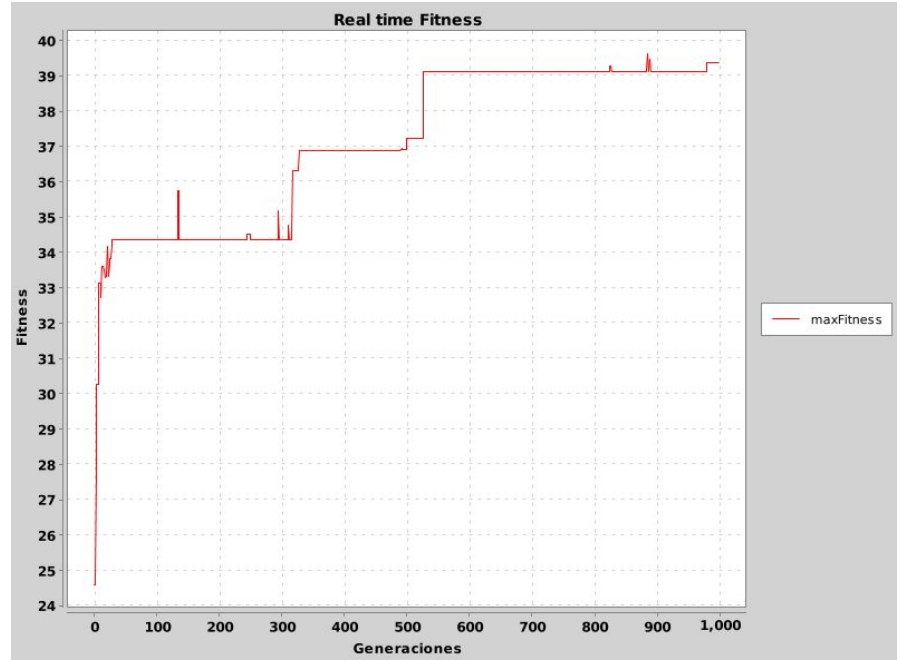
Boltzmann



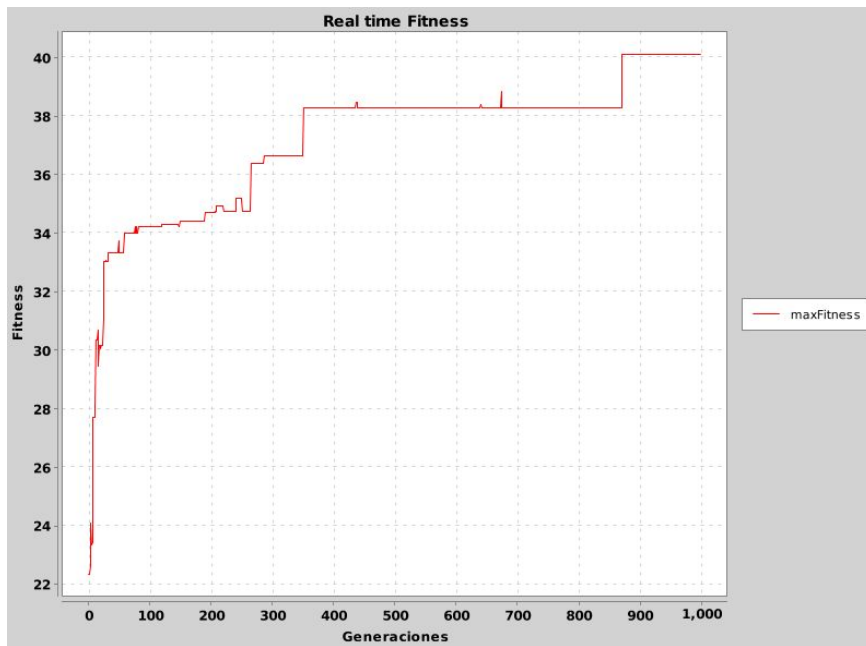
EliteSelection, ProbabilisticTournamentSelection,
RankingSelection, RouletteSelection.



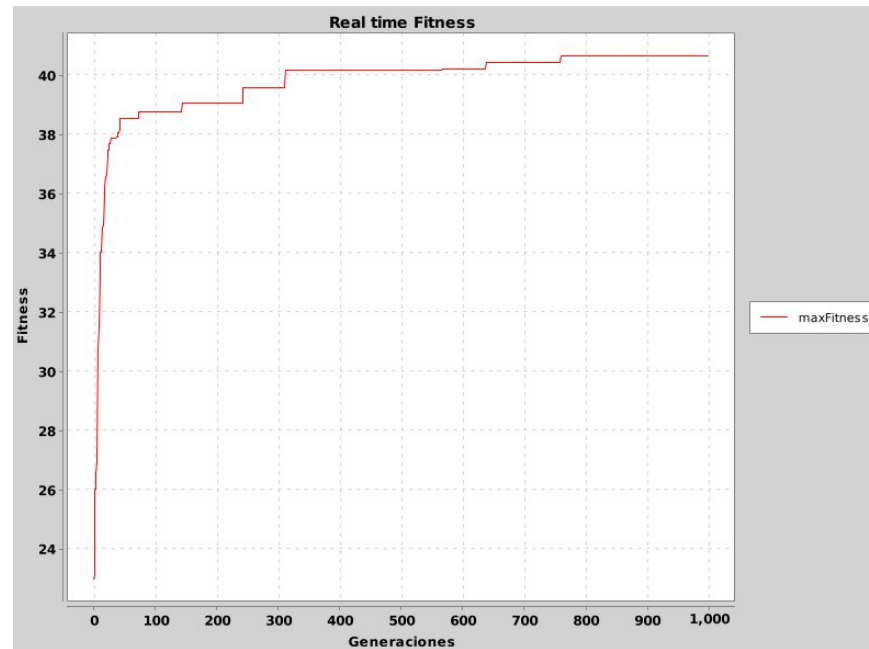
Elite, ProbabilisticTournamentSelection,
RankingSelection, RouletteSelection



RankingSelection, RouletteSelection,
UniversalSelection, Deterministic

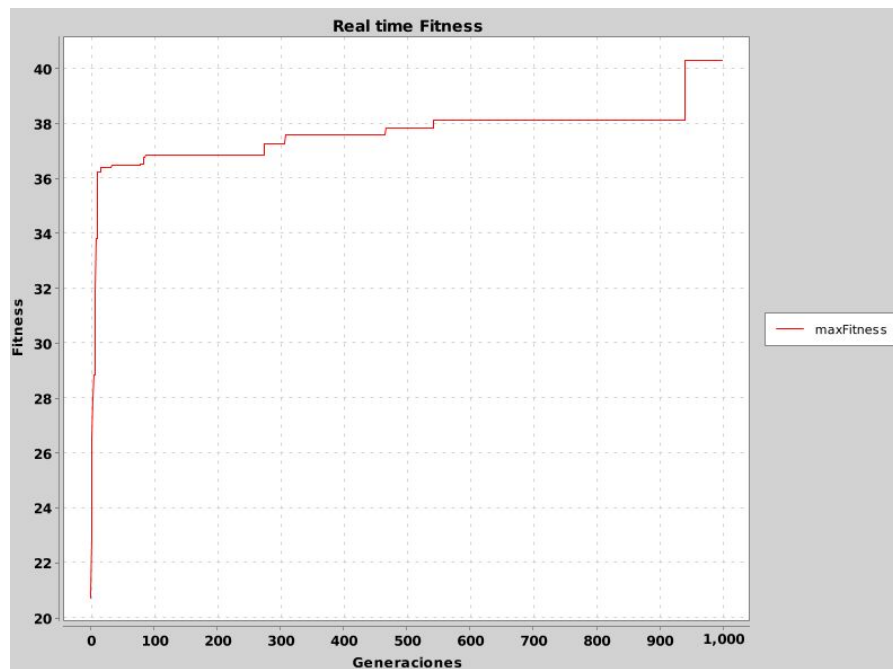


Roulette, Universal,
Deterministic, Boltzmann

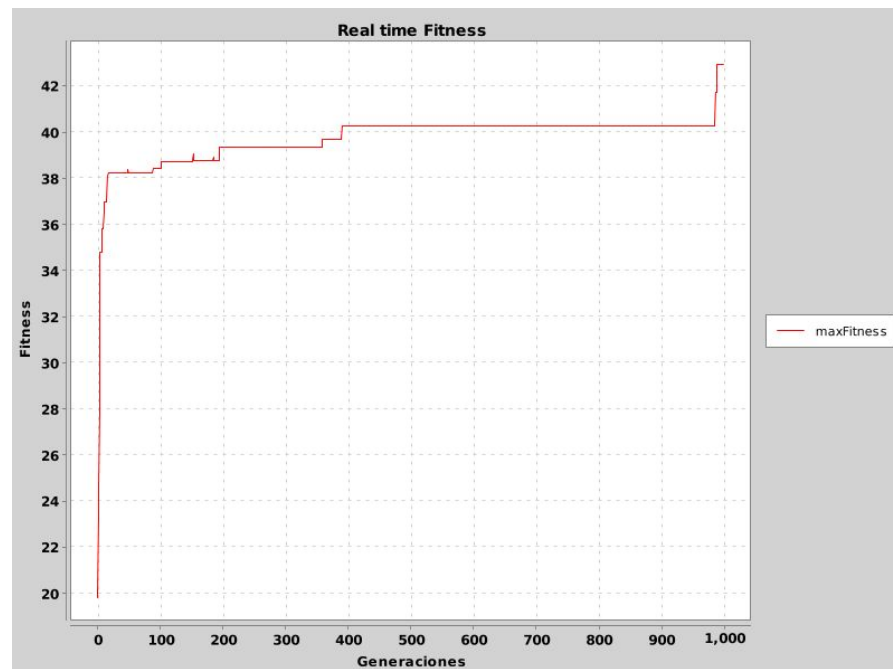


Universal, Deterministic,
Boltzman, Elite

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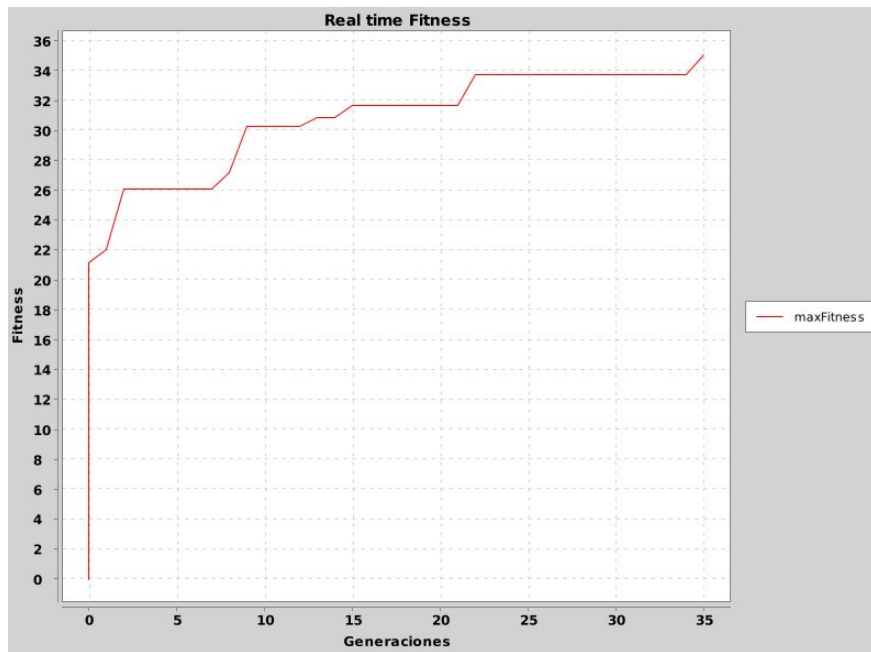
Mejor combinación: Deterministic,
Boltzman, Elite, Proba



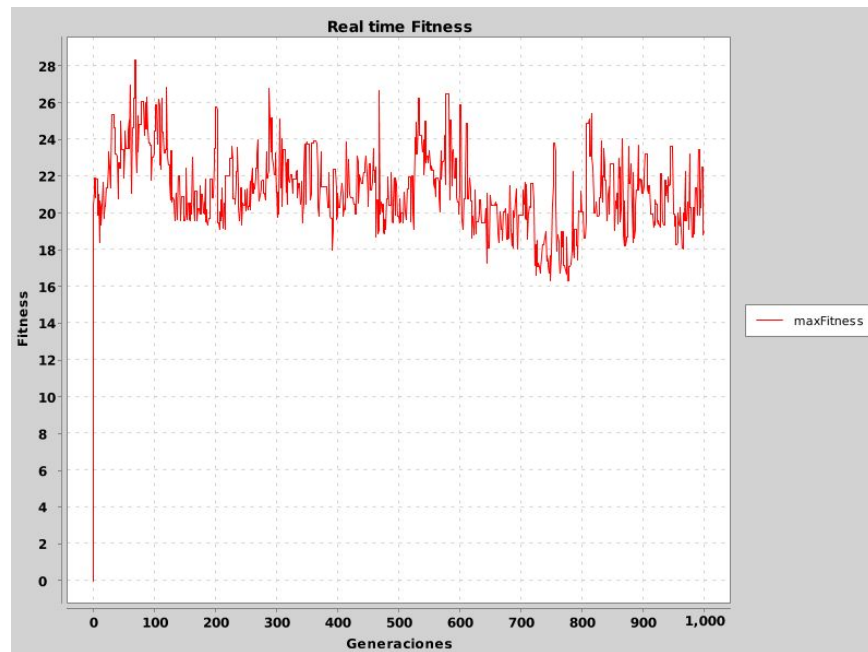
Boltzmann, Elite, Proba, Ranking

Replacers

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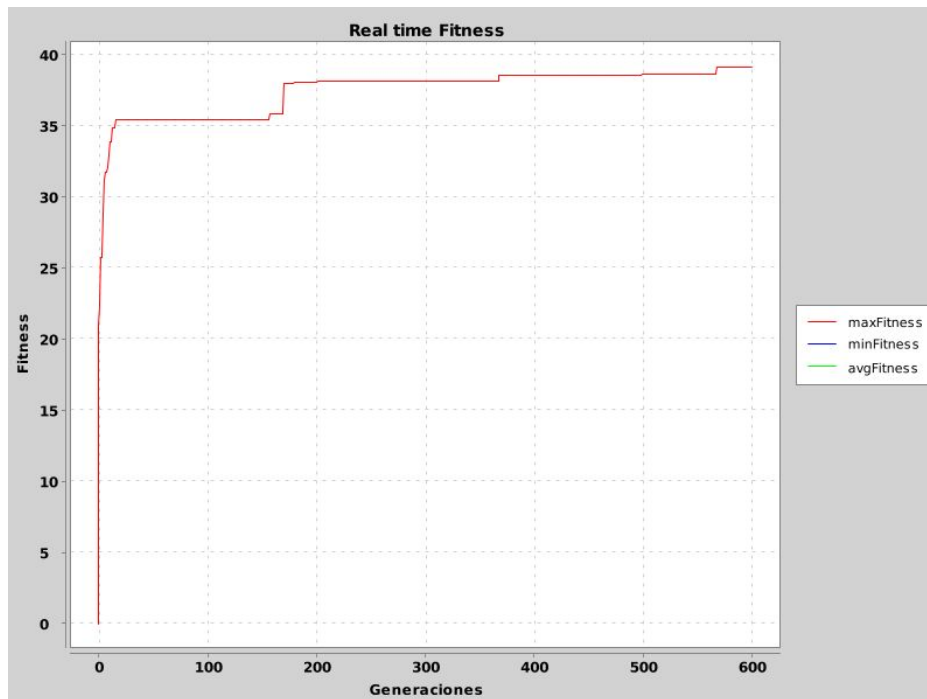


KeepSomeAncestors



NewGeneration

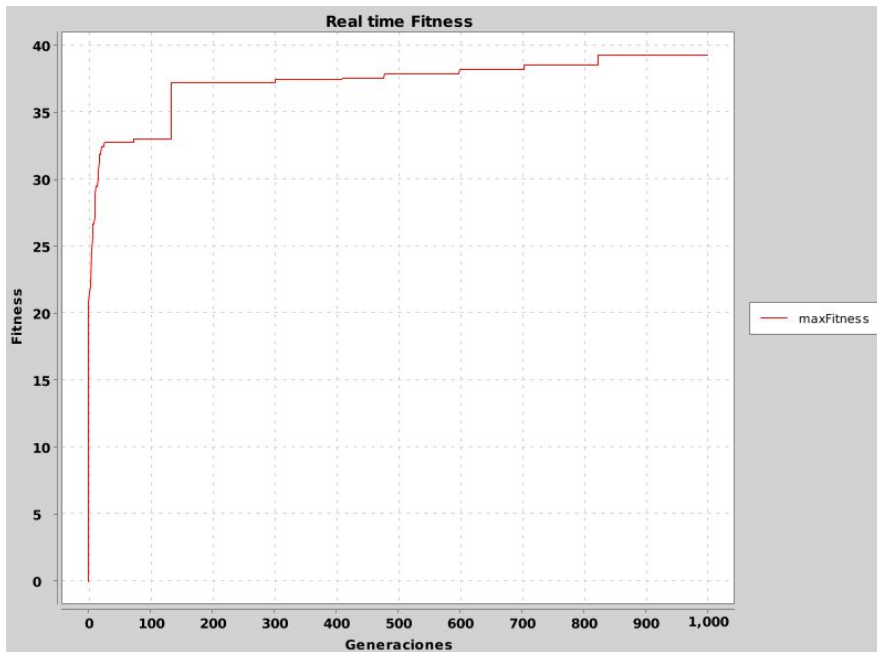
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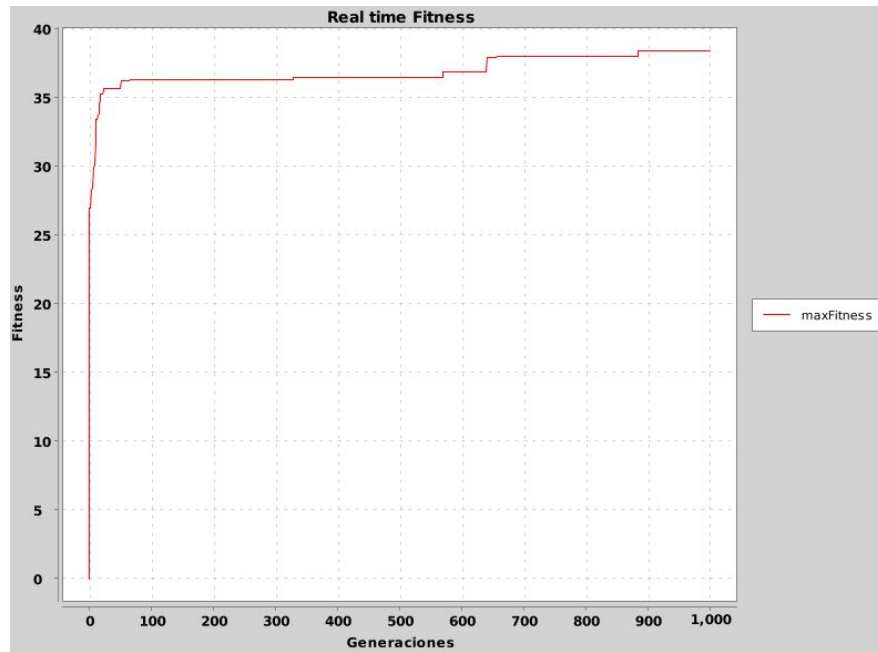
MixAll

Crossers

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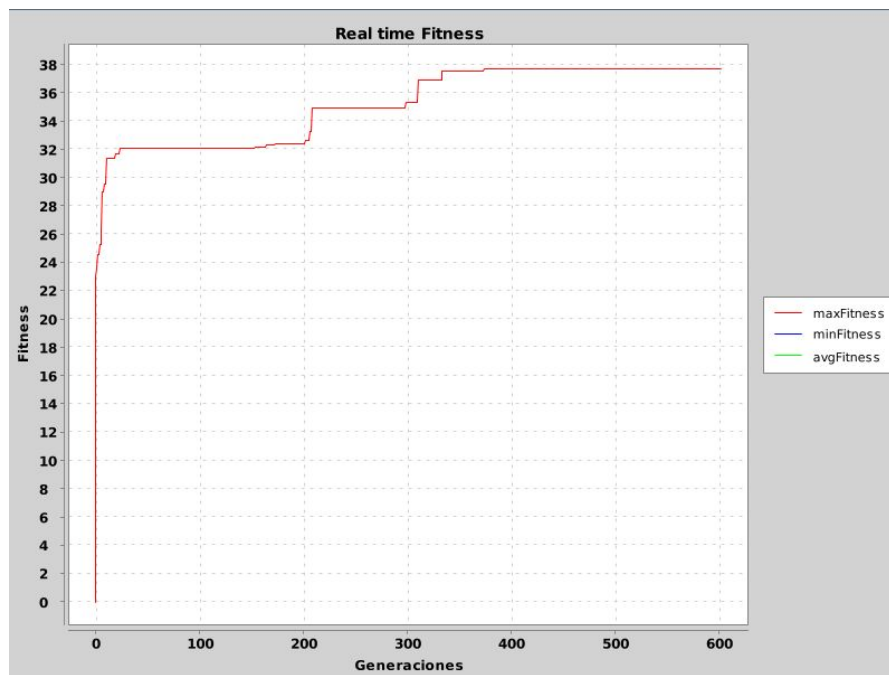


Annular

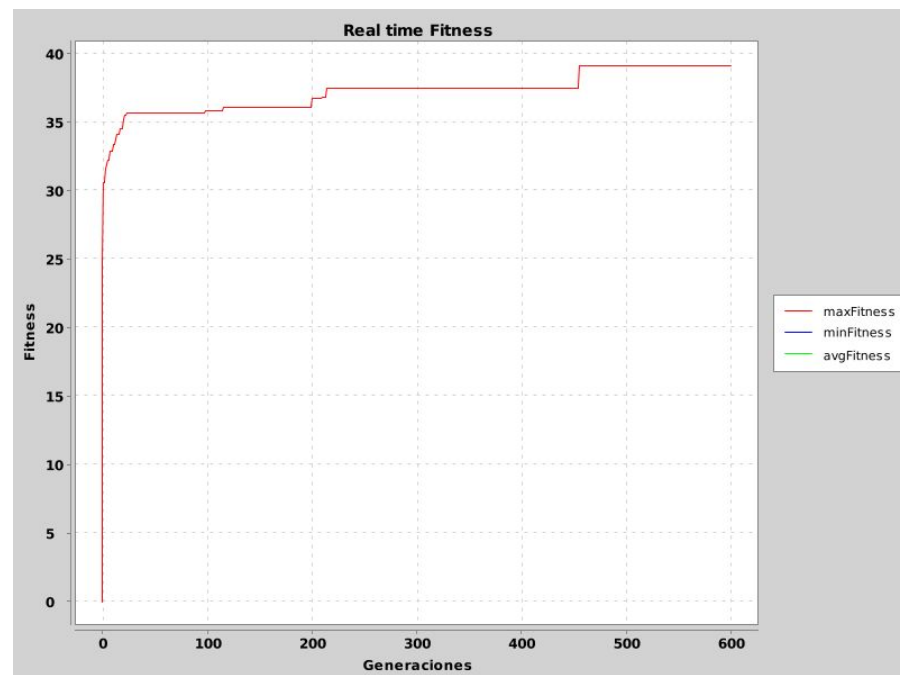


Uniform

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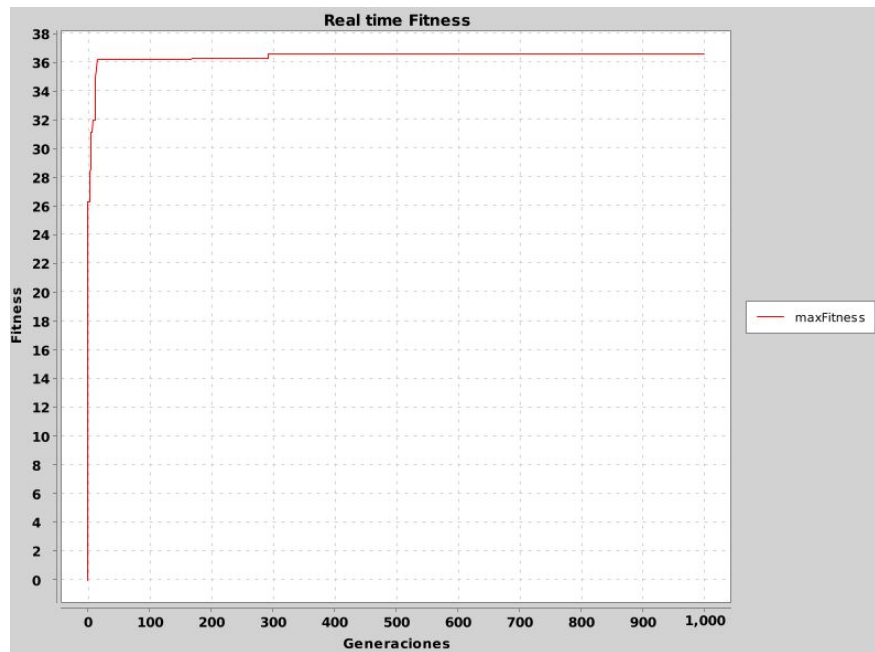
Single Point



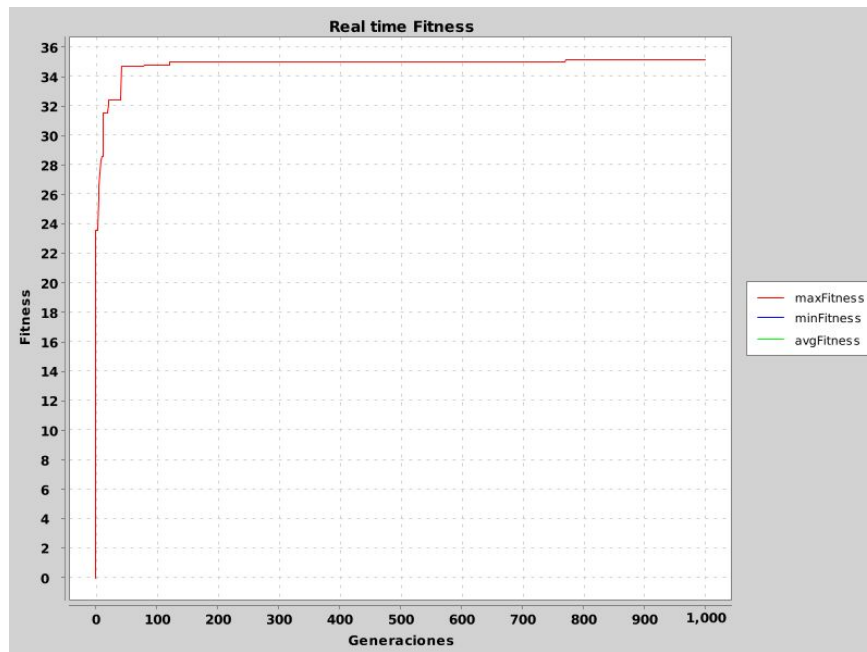
Double Point

Mutators

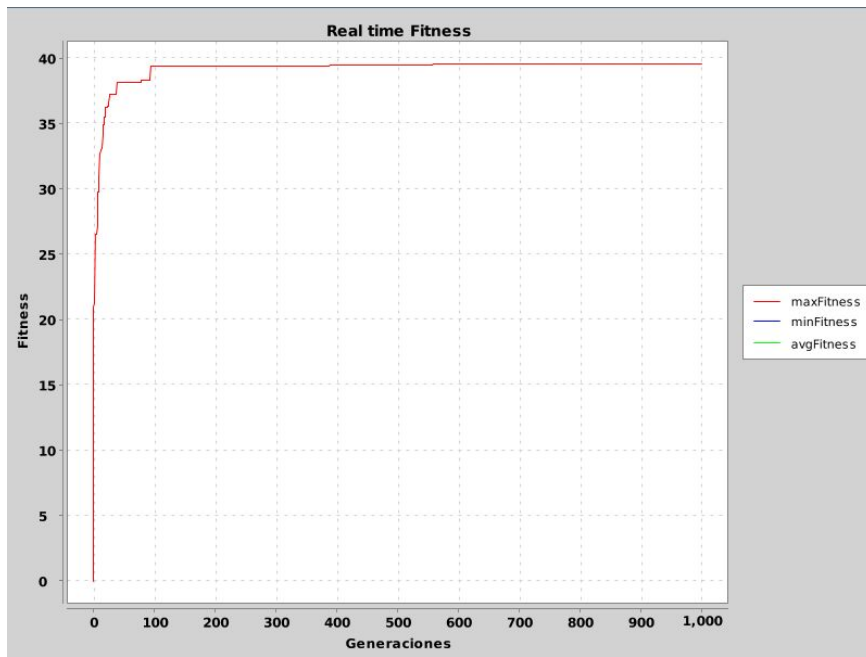
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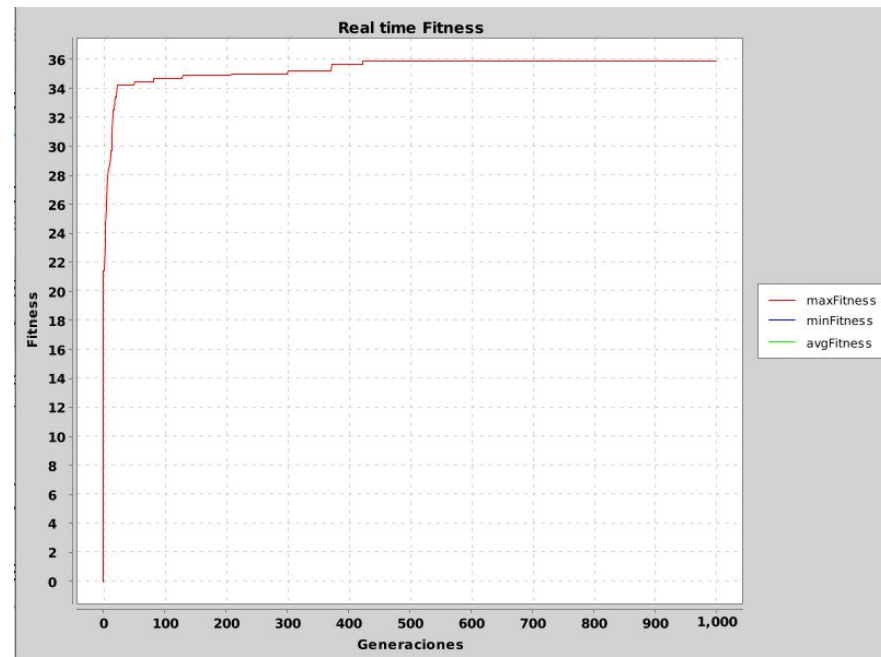
NonUniformMultiGene



NonUniformOneGene



UniformMultiGene

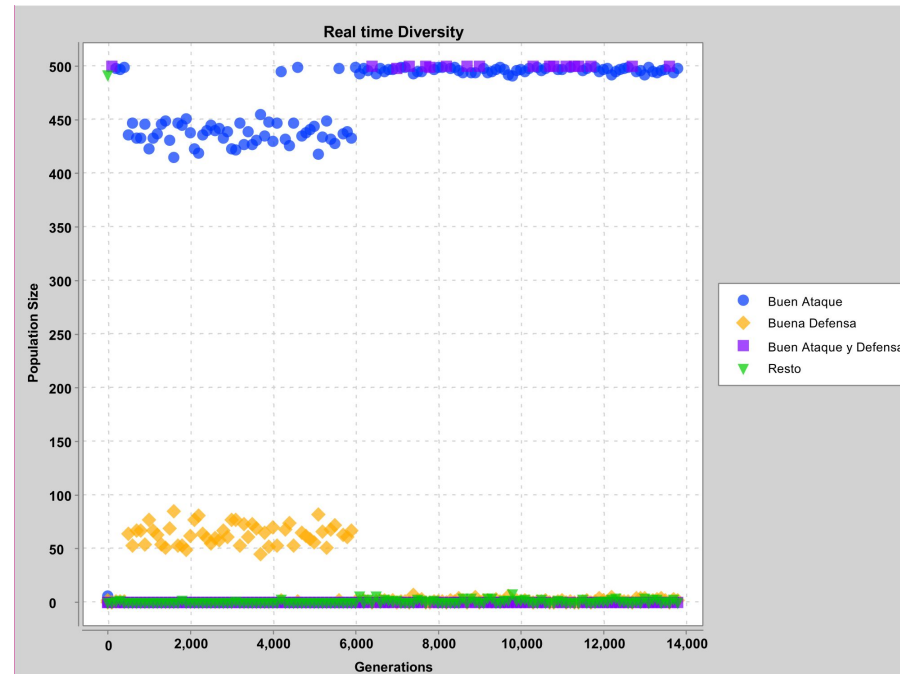
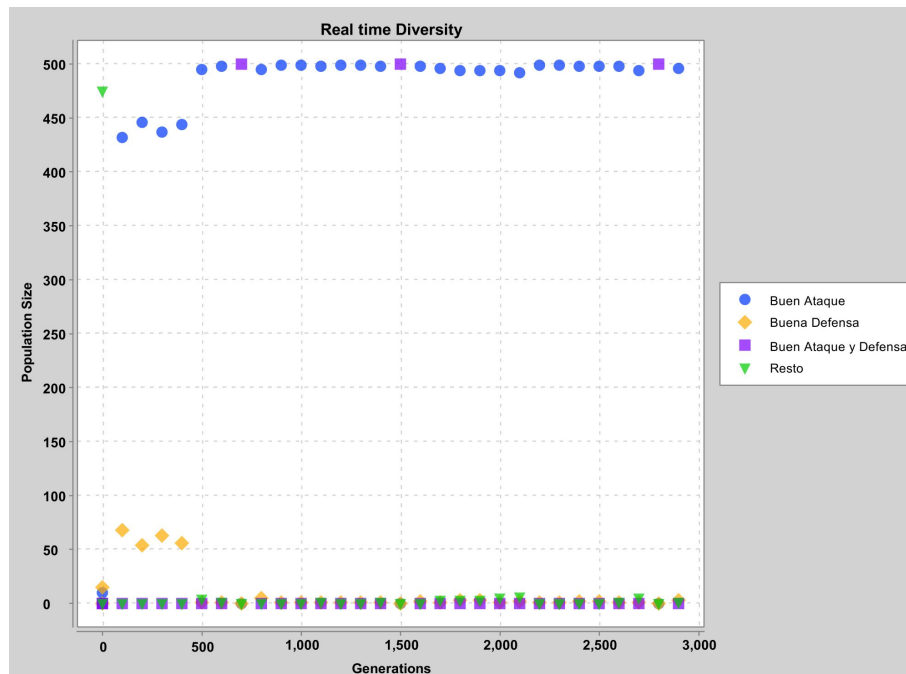


UniformOneGene

Diversidad



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Conclusiones

- Mejor solución
 - Selector1: Deterministic Tournament, Selector2: Boltzmann Roulette, Selector3: Elite, Selector4: Probabilistic Tournament
 - Ratio A: 0.6, Ratio B: 0.4
 - Mutator: UniformMultiGenteMutator
 - Replacer: KeepSomeAncestorsReplacer
 - Crossover: DoublePointCross
 - Conditioner: GenerationConditioner

¿Preguntas?

Fin