



Problema das 8 Rainhas

Grupo:

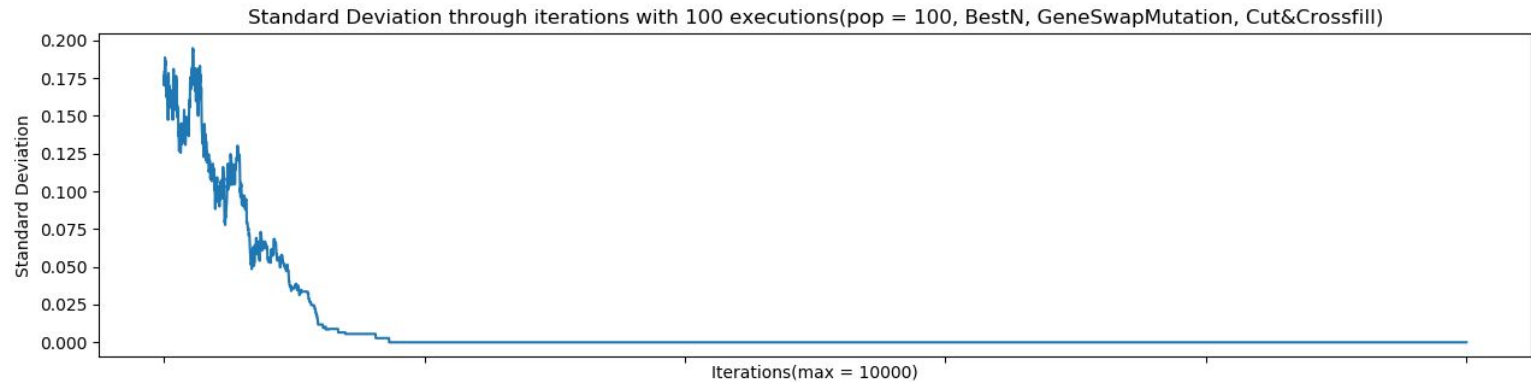
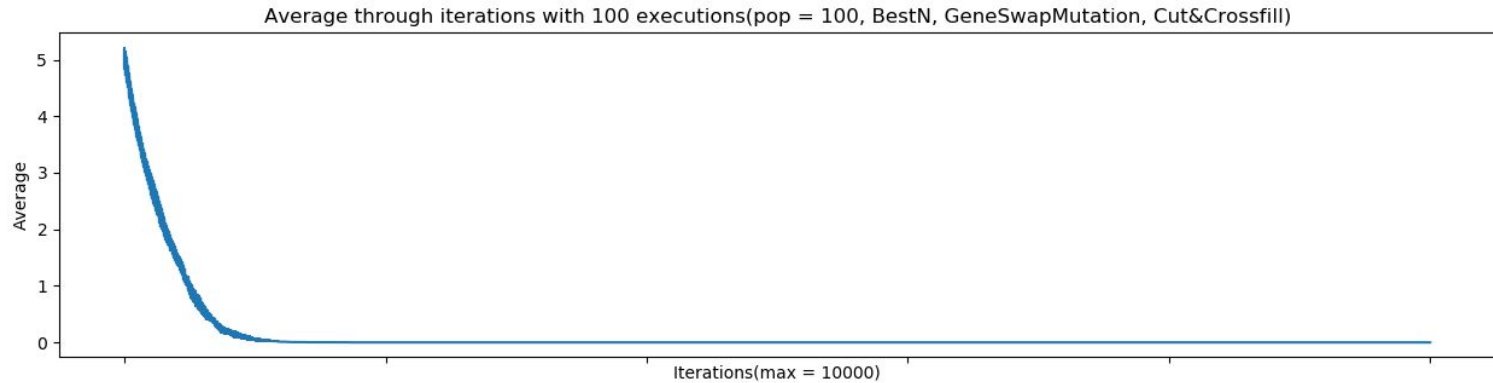
- Caio Carvalho (ccal)
- Geovanny Lucas (gllp)
- João Amaro (jaab)
- Mariana Barros (msb4)



Primeira Parte

- Representação (genótipo): string de bits
- Recombinação: “cut-and-crossfill” crossover
- Probabilidade de Recombinação: 90%
- Mutação: troca de genes
- Probabilidade de Mutação: 40%
- Seleção de pais: ranking - Melhor de 2 de 5 escolhidos aleatoriamente
- Seleção de sobreviventes: substituição do pior
- Tamanho da população: 100
- Número de filhos gerados: 2
- Inicialização: aleatória
- Condição de término: Encontrar a solução, ou 10.000 avaliações de fitness
- Fitness: Número de Colisões

Primeira Parte

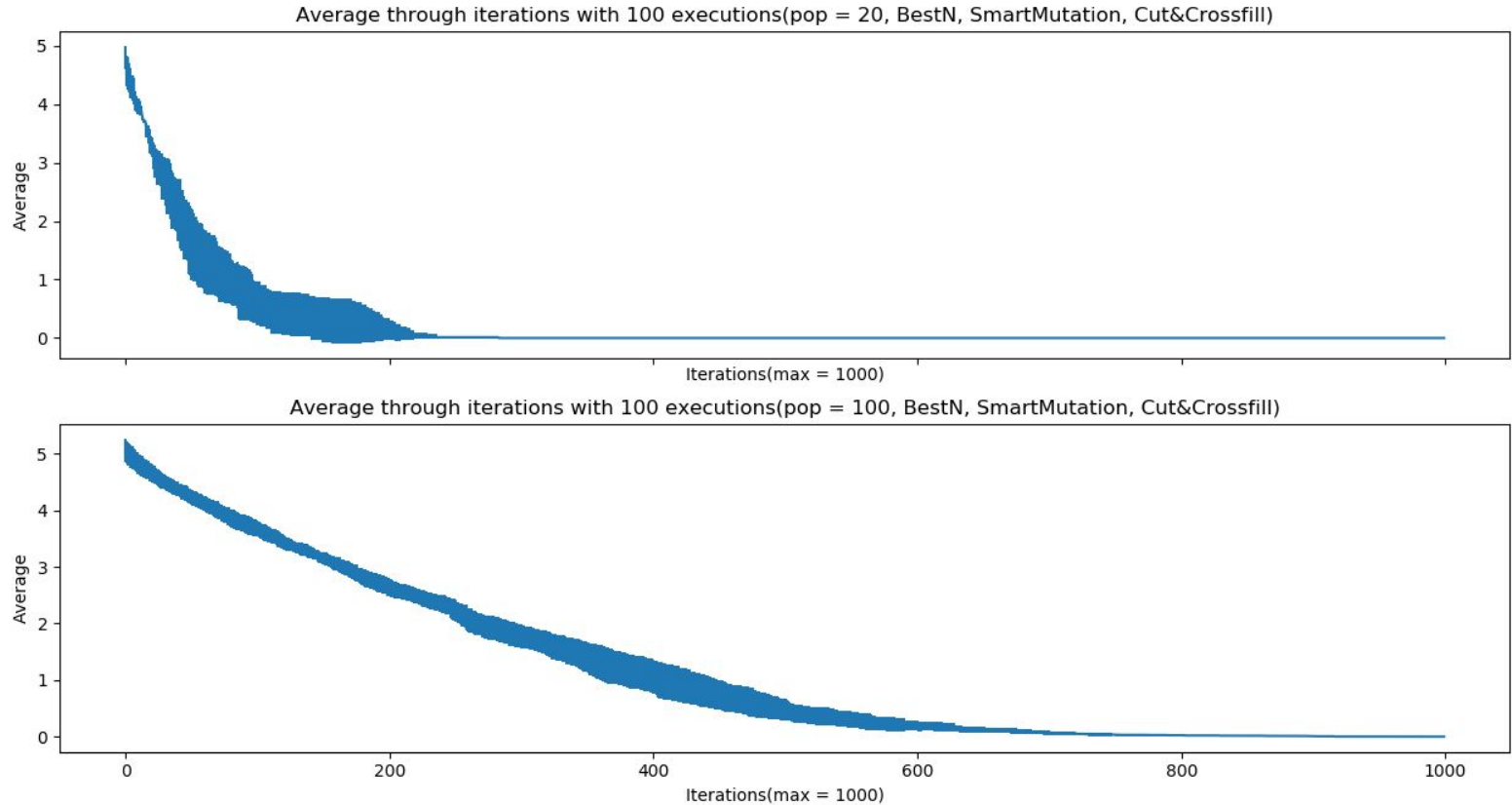




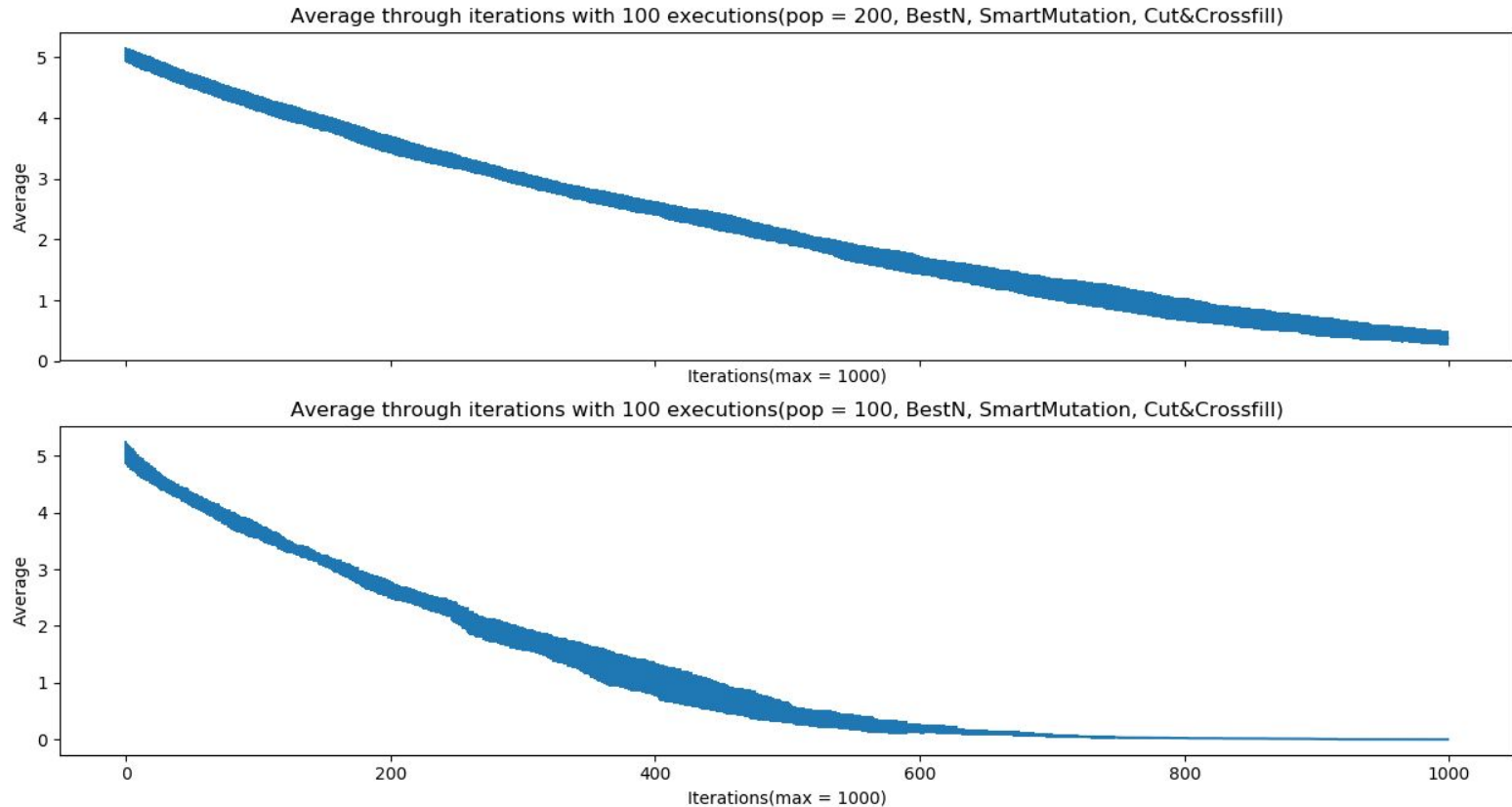
Primeira Parte

- Time Average: 1.1314e+06 ns
- Time Standard Deviation: 684429 ns
- Iteration Average: 98.41
- Iteration Standard Deviation: 89.8684

Segunda Parte - Tamanho da População



Segunda Parte - Tamanho da População

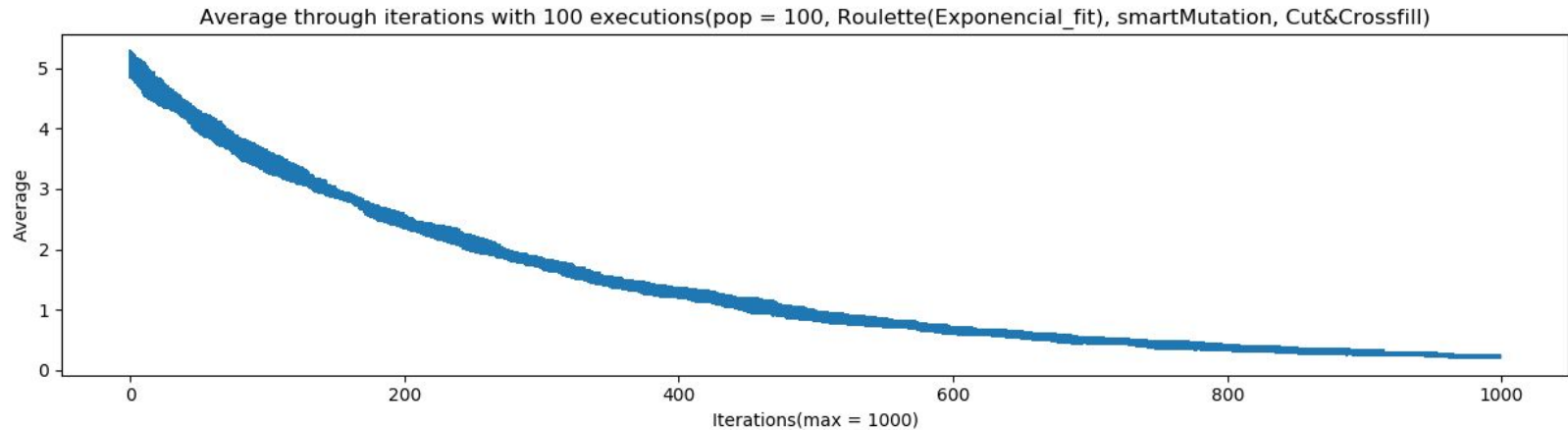
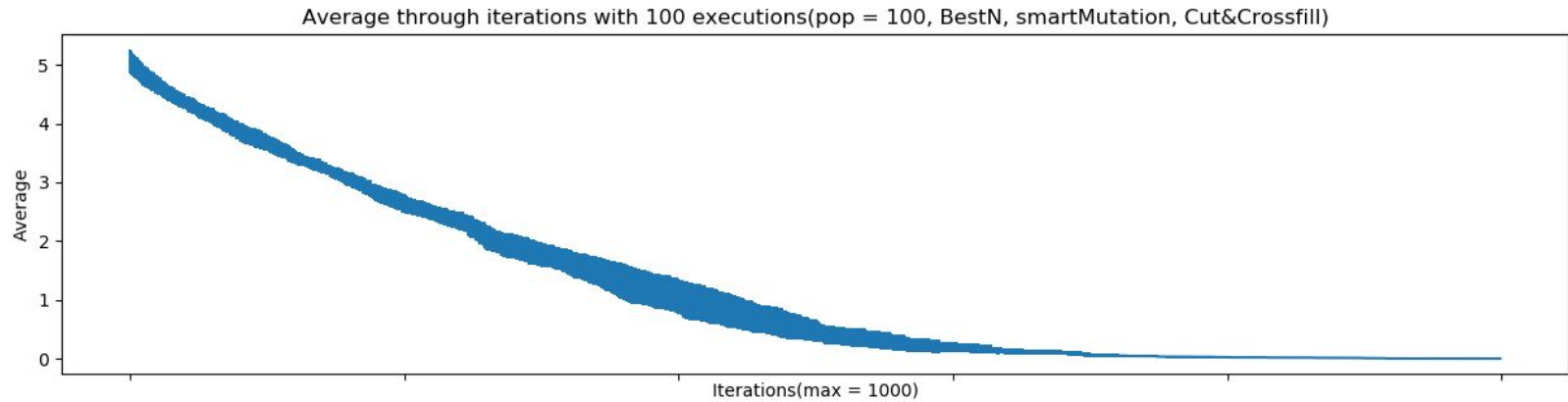




Segunda Parte - Tamanho da População

- 20:
 - Time Average: 863373 ns
 - Time Standard Deviation: 571287 ns
 - Iteration Average: 75.45
 - Iteration Standard Deviation: 54.291
- 100:
 - Time Average: 828316 ns
 - Time Standard Deviation: 451918 ns
 - Iteration Average: 51.82
 - Iteration Standard Deviation: 43.7056
- 200:
 - Time Average: 1.05001e+06 ns
 - Time Standard Deviation: 537710 ns
 - Iteration Average: 46.94
 - Iteration Standard Deviation: 50.0208

Segunda Parte - Seleção dos Pais



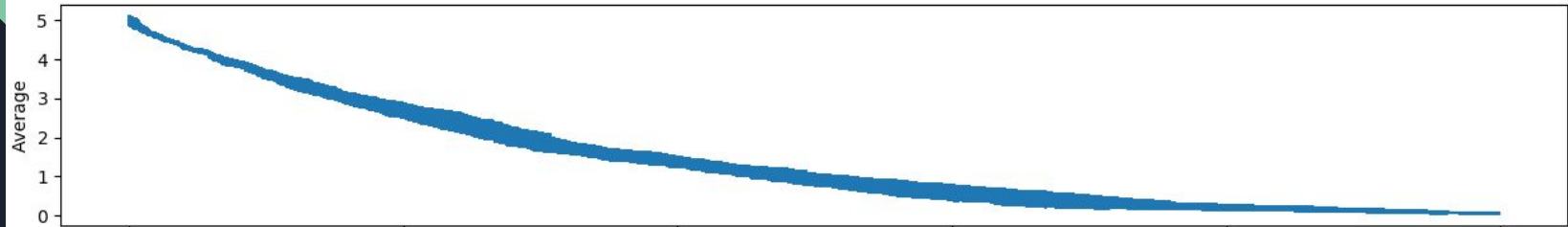


Segunda Parte - Seleção dos Pais

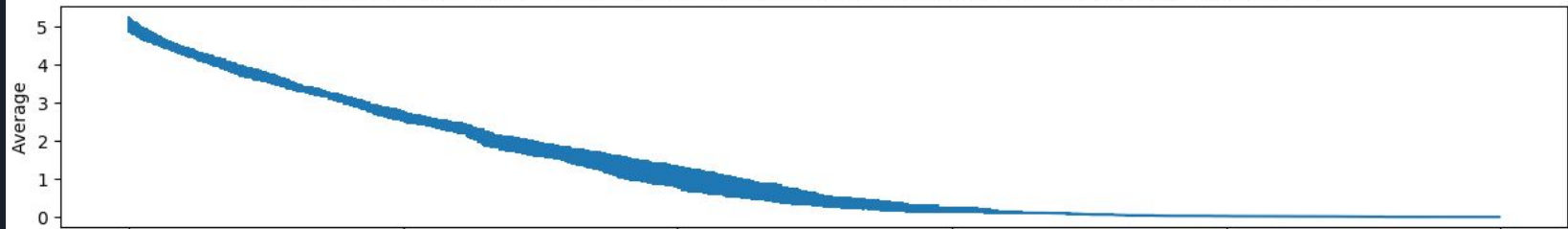
- Best Out of N:
 - Time Average: 1.03548e+06 ns
 - Time Standard Deviation: 675323 ns
 - Iteration Average: 65.09
 - Iteration Standard Deviation: 55.8752
- Roulette (Exponential Fit):
 - Time Average: 674542 ns
 - Time Standard Deviation: 321125 ns
 - Iteration Average: 63.79
 - Iteration Standard Deviation: 51.6006

Segunda Parte - Mutação

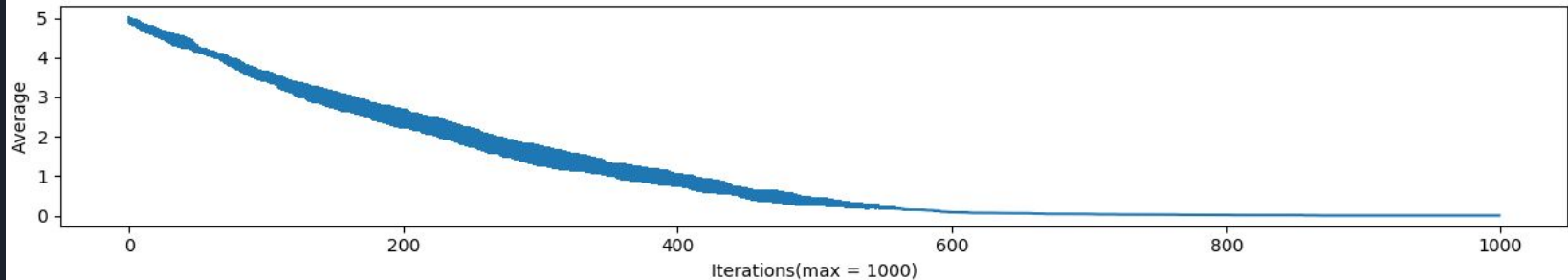
Average through iterations with 100 exegeneions(pop = 100, BestN, GeneSwapMutation, Cut&Crossfill)



Average through iterations with 100 exegeneions(pop = 100, BestN, SmartMutation, Cut&Crossfill)



Average through iterations with 100 exegeneions(pop = 100, BestN, HitSwapMutation, Cut&Crossfill)

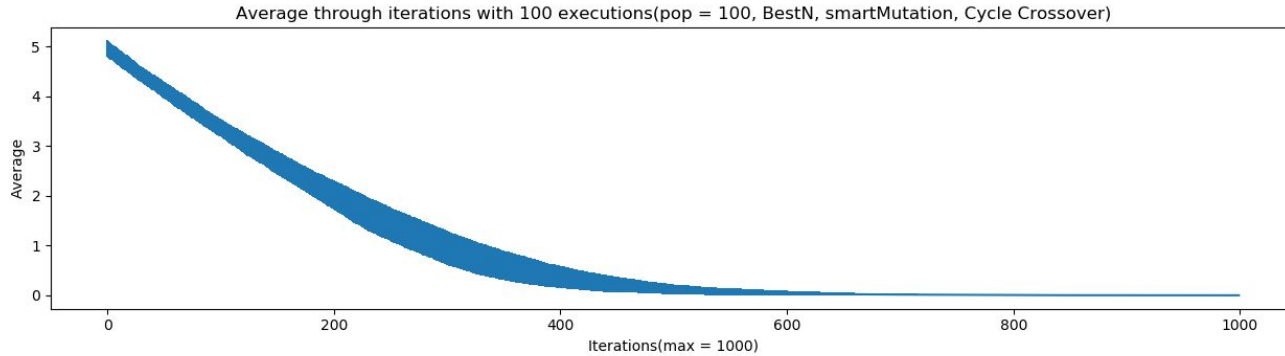
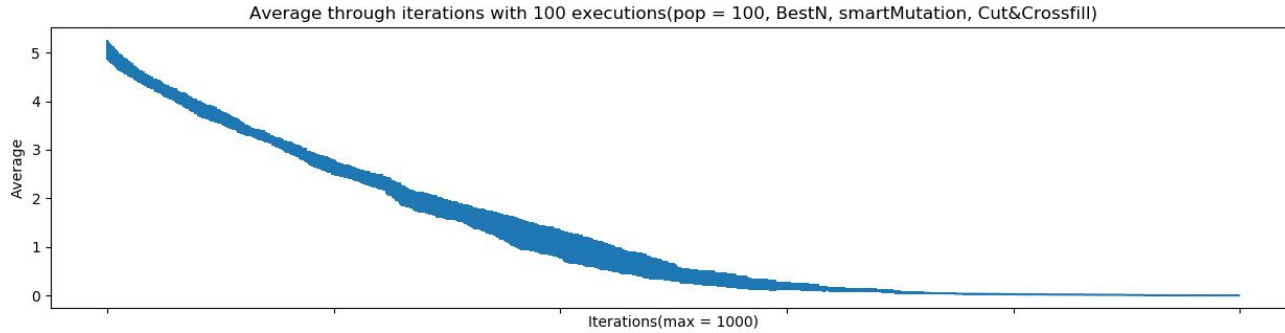




Segunda Parte - Mutação

- GeneSwapMutation:
 - Time Average: 1.1314e+06 ns
 - Time Standard Deviation: 684429 ns
 - Iteration Average: 98.41
 - Iteration Standard Deviation: 89.8684
- SmartMutation:
 - Time Average: 954436 ns
 - Time Standard Deviation: 555139 ns
 - Iteration Average: 59.46
 - Iteration Standard Deviation: 49.8596
- HitSwapMutation:
 - Time Average: 828350 ns
 - Time Standard Deviation: 433048 ns
 - Iteration Average: 56.24
 - Iteration Standard Deviation: 44.792

Segunda Parte - Crossover

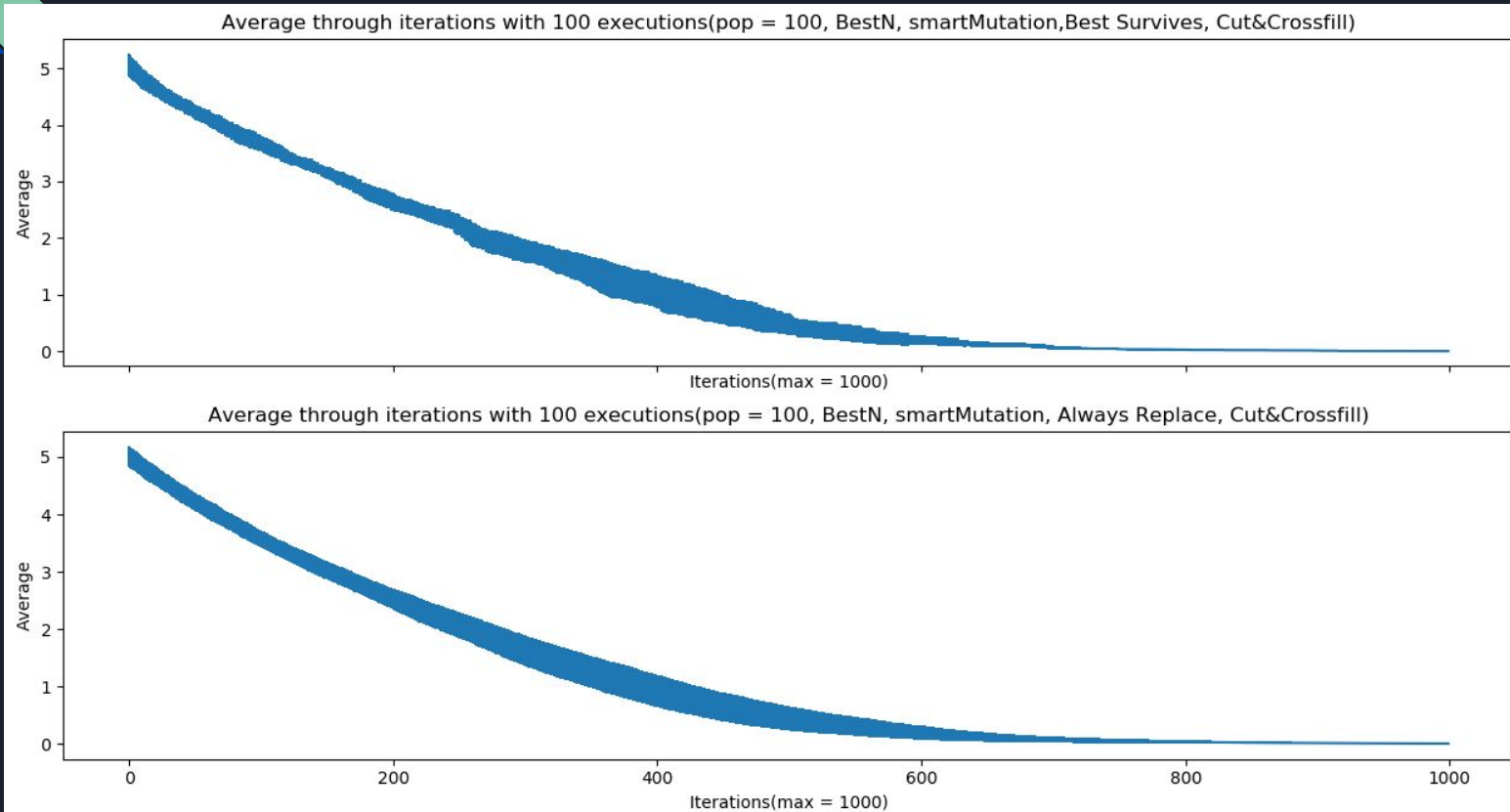




Segunda Parte - Crossover

- Cut-and-Crossfill:
 - Time Average: 954436 ns
 - Time Standard Deviation: 555139 ns
 - Iteration Average: 59.46
 - Iteration Standard Deviation: 49.8596
- Cycle Crossover:
 - Time Average: 1.65153e+06 ns
 - Time Standard Deviation: 1.14585e+06 ns
 - Iteration Average: 64.28
 - Iteration Standard Deviation: 55.4128

Segunda Parte - Seleção Sobreviventes



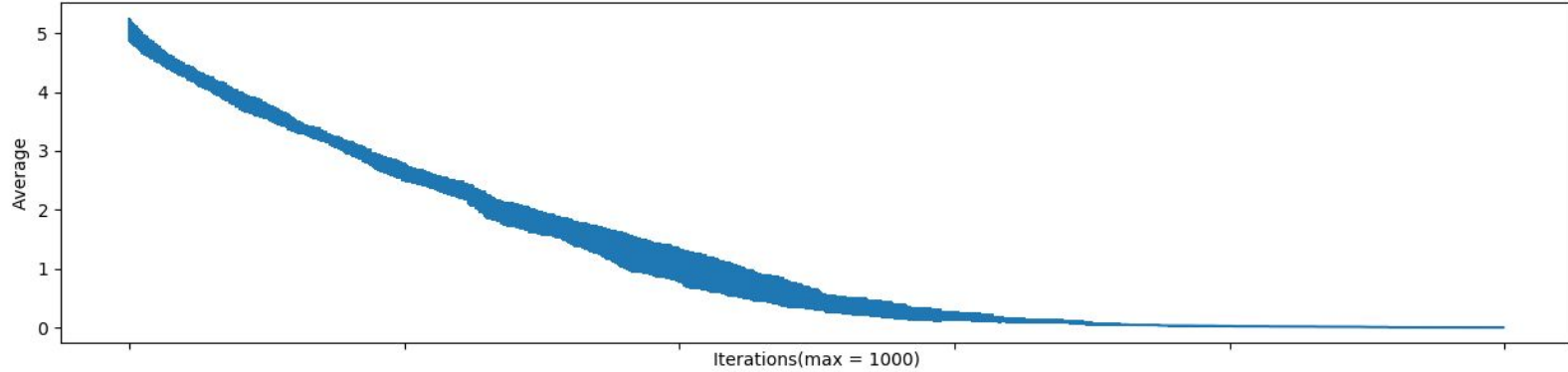


Segunda Parte - Seleção Sobreviventes

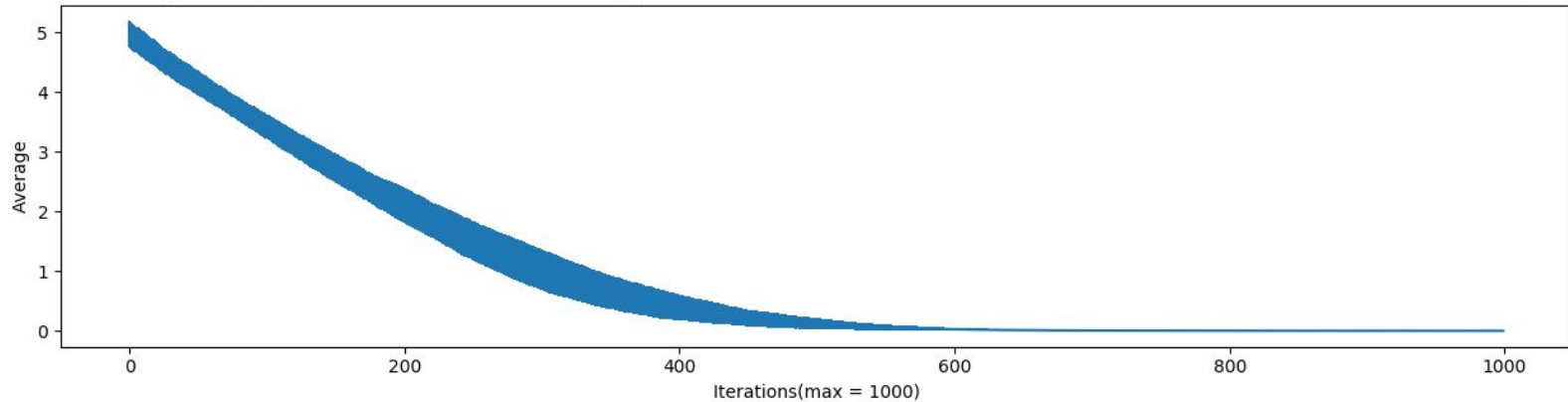
- BestSurvives:
 - Time Average: 907827 ns
 - Time Standard Deviation: 510828 ns
 - Iteration Average: 61.64
 - Iteration Standard Deviation: 49.9768
- Always Replace:
 - Time Average: 1.06088e+06 ns
 - Time Standard Deviation: 767139 ns
 - Iteration Average: 102.01
 - Iteration Standard Deviation: 101.193

Segunda Parte - Porcentagem Mutaç o

Average through iterations with 100 executions(pop = 100,Mutation Rate : 40% ,BestN, smartMutation,Best Survives, Cut&Crossfill)



Average through iterations with 100 executions(pop = 100,Mutation Rate : 100%, BestN, smartMutation, Best Survives, Cut&Crossfill)



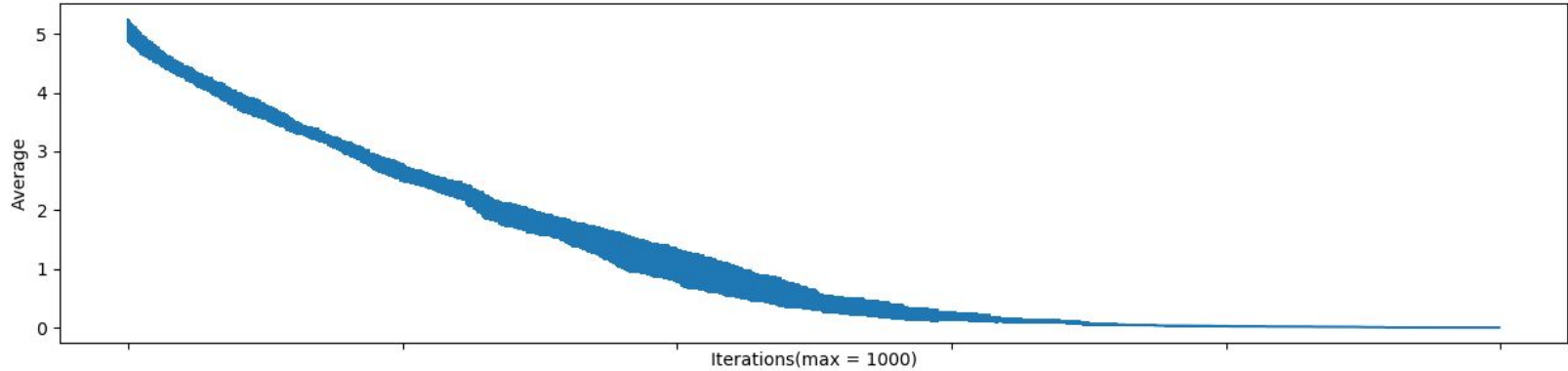


Segunda Parte - Porcentagem Mutação

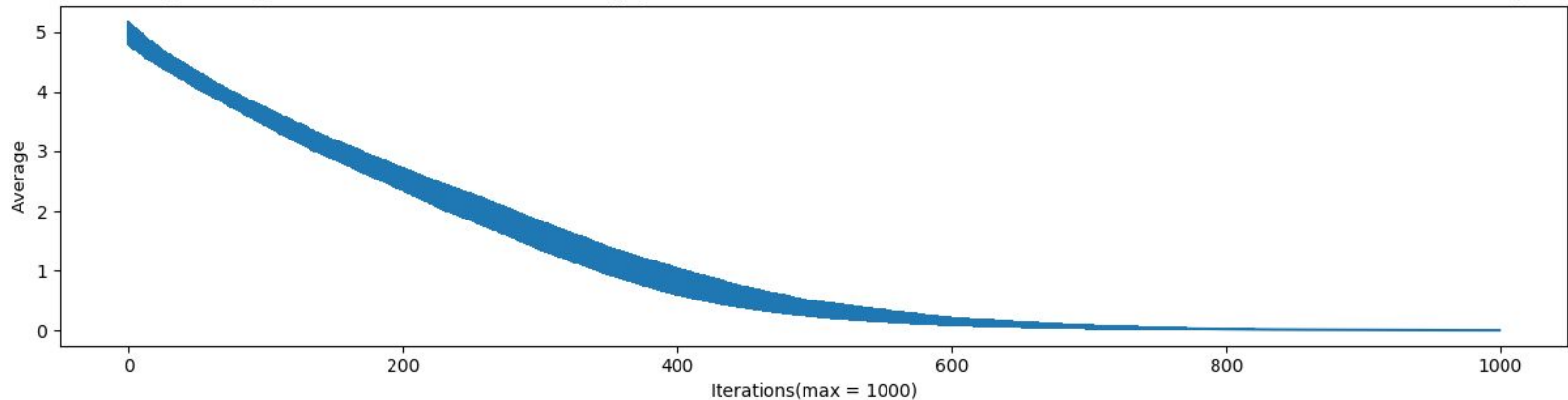
- 40%:
 - Time Average: 1.65153e+06 ns
 - Time Standard Deviation: 1.14585e+06 ns
 - Iteration Average: 87.97
 - Iteration Standard Deviation: 74.5798
- 100%:
 - Time Average: 1.0447e+06 ns
 - Time Standard Deviation: 544447 ns
 - Iteration Average: 42.65
 - Iteration Standard Deviation: 30.874

Segunda Parte - Porcentagem Crossover

Average through iterations with 100 executions(pop = 100,Crossover Rate : 90% ,BestN, smartMutation,Best Survives, Cut&Crossfill)



Average through iterations with 100 executions(pop = 100,Crossover Rate : 60%, BestN, smartMutation, Best Survives, Cut&Crossfill)

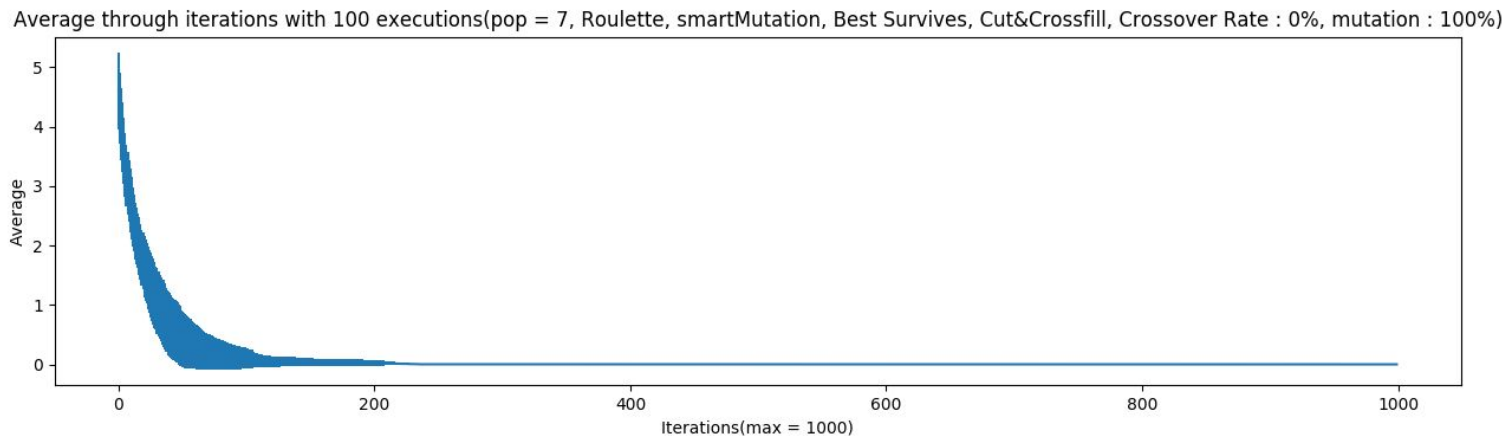




Segunda Parte - Porcentagem Crossover

- 60%:
 - Time Average: 1.38306e+06 ns
 - Time Standard Deviation: 965659 ns
 - Iteration Average: 78.95
 - Iteration Standard Deviation: 70.171
- 90%:
 - Time Average: 1.65153e+06 ns
 - Time Standard Deviation: 1.14585e+06 ns
 - Iteration Average: 87.97
 - Iteration Standard Deviation: 74.5798

Segunda Parte - Melhor





Segunda Parte - Melhor

- População: 7
 - Roleta com fit exponencial
 - Best_Survives
 - Smart_Mutate
 - Mutação: 100%
 - Crossover: 0%
-
- Time Average: 291917 ns
 - Time Standard Deviation: 160152 ns
 - Iteration Average: 42.978
 - Iteration Standard Deviation: 28.5973

Obrigado!
Perguntas?

