

Parallel Genetic Algorithm for Apache Spark

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1 Parallel Genetic Algorithm for Apache Spark

Parallel genetic algorithm is stated here ,the same is successfully implemented for Class scheduling problem.

Algorithm 1 Parallel Genetic Algorithm

```
1: procedure PARALLELGENETICALGORITHM(maxIteration = 1000)
2:   Population  $\leftarrow$  initalPopulation
3:
4:   PopulationRDD  $\leftarrow$  Population
5:   Cache  $\leftarrow$  PoplulationRDD
6:
7:   PopulationRDD  $\leftarrow$  evalutePopulation(PoplulationRDD)
8:   Cache  $\leftarrow$  PoplulationRDD
9:
10:  SortedPopulationRDD  $\leftarrow$  sortInParallel(PopulationRDD)
11:
12:  broadcast(SortedPopulationRDD)
13:  generation  $\leftarrow$  1
14:
15:  while terminationConditionMet()  $\neq$  1 do
16:
17:    PopulationRDD  $\leftarrow$  crossOverPopulation()
18:    Cache  $\leftarrow$  PoplulationRDD
19:
20:    PopulationRDD  $\leftarrow$  mutatePopulation()
21:    Cache  $\leftarrow$  PoplulationRDD
22:    PopulationRDD  $\leftarrow$  evalutePopulation(PoplulationRDD)
23:
24:    SortedPopulationRDD  $\leftarrow$  sortInParallel(PopulationRDD)
25:    broadcast(SortedPopulationRDD)
26:
27:    generation  $\leftarrow$  generation + 1
28:  return populationRDD.getFittest()
```
