

/Users/kevin/Studium/4rdSemester/Laboratorio/lab-dht-bicam-schulz/target/classes
/Users/kevin/.m2/repository/net/sourceforge/jexcelapi/jxl/2.6.12/jxl-2.6.12.jar
/Users/kevin/.m2/repository/log4j/log4j/1.2.14/log4j-1.2.14.jar
/Users/kevin/Studium/4rdSemester/Laboratorio/lab-dht-bicam-schulz/src/main/java
/Users/kevin/Studium/4rdSemester/Laboratorio/lab-dht-bicam-schulz/target/generated-sources/annotations
/Users/kevin/Studium/4rdSemester/Laboratorio/lab-dht-bicam-schulz/target

Field isn't final but should be
evolutionary_algorithms.complement.AIOMutation.path isn't final but should be

At AIOMutation.java:[lines 12-70]

In class evolutionary_algorithms.complement.AIOMutation

In AIOMutation.java

Field evolutionary_algorithms.complement.AIOMutation.path

At AIOMutation.java:[line 15]

Use the nextInt method of Random rather than nextDouble to generate a random integer
evolutionary_algorithms.complement.OnePointCrossover.crossover(State, State, double) uses the
nextDouble method of Random to generate a random integer; using nextInt is more efficient

At OnePointCrossover.java:[lines 11-49]

In class evolutionary_algorithms.complement.OnePointCrossover

In method evolutionary_algorithms.complement.OnePointCrossover.crossover(State, State, double)

At OnePointCrossover.java:[line 44]

Random value from 0 to 1 is coerced to the integer 0
evolutionary_algorithms.complement.OnePointCrossover.crossover(State, State, double) uses generates
a random value from 0 to 1 and then coerces that value to the integer 0

At OnePointCrossover.java:[lines 11-49]

In class evolutionary_algorithms.complement.OnePointCrossover

In method evolutionary_algorithms.complement.OnePointCrossover.crossover(State, State, double)

At OnePointCrossover.java:[line 24]

Primitive value is boxed and then immediately unboxed
Primitive value is boxed and then immediately unboxed in
evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int)

At ProbabilisticSampling.java:[lines 13-79]

In class evolutionary_algorithms.complement.ProbabilisticSampling

In method evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int)

At ProbabilisticSampling.java:[line 60]

Use the nextInt method of Random rather than nextDouble to generate a random integer
evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int) uses the nextDouble
method of Random to generate a random integer; using nextInt is more efficient

At ProbabilisticSampling.java:[lines 13-79]

In class evolutionary_algorithms.complement.ProbabilisticSampling

In method evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int)

At ProbabilisticSampling.java:[line 50]

Method invokes inefficient Number constructor; use static valueOf instead
evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int) invokes inefficient new
Integer(int) constructor; use Integer.valueOf(int) instead

At ProbabilisticSampling.java:[lines 13-79]

In class evolutionary_algorithms.complement.ProbabilisticSampling

In method evolutionary_algorithms.complement.ProbabilisticSampling.sampling(List, int)

Called method new Integer(int)

Should call Integer.valueOf(int) instead

At ProbabilisticSampling.java:[line 60]

May expose internal representation by returning reference to mutable object
evolutionary_algorithms.complement.Range.getData() may expose internal representation by returning Range.data

At Range.java:[lines 3-25]

In class evolutionary_algorithms.complement.Range

In method evolutionary_algorithms.complement.Range.getData()

In Range.java

Field evolutionary_algorithms.complement.Range.data

At Range.java:[line 9]

May expose internal representation by incorporating reference to mutable object
evolutionary_algorithms.complement.Range.setData(Probability) may expose internal representation by storing an externally mutable object into Range.data

At Range.java:[lines 3-25]

In class evolutionary_algorithms.complement.Range

In method evolutionary_algorithms.complement.Range.setData(Probability)

In Range.java

Field evolutionary_algorithms.complement.Range.data

Local variable named data

At Range.java:[line 12]

Method names should start with a lower case letter
The method name evolutionary_algorithms.complement.SteadyStateReplace.MaxValue(List) doesn't start with a lower case letter

At SteadyStateReplace.java:[lines 10-71]

In class evolutionary_algorithms.complement.SteadyStateReplace

In method evolutionary_algorithms.complement.SteadyStateReplace.MaxValue(List)

At SteadyStateReplace.java:[lines 63-71]

Method names should start with a lower case letter

The method name evolutionary_algorithms.complement.SteadyStateReplace.MinValue(List) doesn't start with a lower case letter

At SteadyStateReplace.java:[lines 10-71]

In class evolutionary_algorithms.complement.SteadyStateReplace

In method evolutionary_algorithms.complement.SteadyStateReplace.MinValue(List)

At SteadyStateReplace.java:[lines 51-59]

Method names should start with a lower case letter

The method name evolutionary_algorithms.complement.TruncationSelection.OrderBetter(List) doesn't start with a lower case letter

At TruncationSelection.java:[lines 12-56]

In class evolutionary_algorithms.complement.TruncationSelection

In method evolutionary_algorithms.complement.TruncationSelection.OrderBetter(List)

At TruncationSelection.java:[lines 15-25]

Dead store to local variable

Dead store to value in evolutionary_algorithms.complement.UniformCrossover.crossover(State, State, double)

At UniformCrossover.java:[lines 7-36]

In class evolutionary_algorithms.complement.UniformCrossover

In method evolutionary_algorithms.complement.UniformCrossover.crossover(State, State, double)

Local variable named value

At UniformCrossover.java:[line 21]

Use the nextInt method of Random rather than nextDouble to generate a random integer
evolutionary_algorithms.complement.UniformCrossover.mascara(int) uses the nextDouble method of
Random to generate a random integer; using nextInt is more efficient

At UniformCrossover.java:[lines 7-36]

In class evolutionary_algorithms.complement.UniformCrossover

In method evolutionary_algorithms.complement.UniformCrossover.mascara(int)

At UniformCrossover.java:[line 13]

May expose internal representation by returning reference to mutable object
factory_method.FactoryGenerator.createGenerator(GeneratorType) may expose internal representation
by returning FactoryGenerator.generator

At FactoryGenerator.java:[lines 13-20]

In class factory_method.FactoryGenerator

In method factory_method.FactoryGenerator.createGenerator(GeneratorType)

In FactoryGenerator.java

Field factory_method.FactoryGenerator.generator

At FactoryGenerator.java:[line 20]

Possible null pointer dereference in method on exception path
Possible null pointer dereference of c in factory_method.FactoryLoader.getInstance(String) on
exception path

At FactoryLoader.java:[lines 5-26]

In class factory_method.FactoryLoader

In method factory_method.FactoryLoader.getInstance(String)

Value loaded from c

Dereferenced at FactoryLoader.java:[line 18]

Null value at FactoryLoader.java:[line 9]

Known null at FactoryLoader.java:[line 12]

Known null at FactoryLoader.java:[line 13]

Known null at FactoryLoader.java:[line 14]

May expose internal representation by returning reference to mutable object
factory_method.FactoryReplace.createReplace(ReplaceType) may expose internal representation by
returning FactoryReplace.replace

At FactoryReplace.java:[lines 14-21]

In class factory_method.FactoryReplace

In method factory_method.FactoryReplace.createReplace(ReplaceType)

In FactoryReplace.java

Field factory_method.FactoryReplace.replace

At FactoryReplace.java:[line 21]

Dead store to local variable
Dead store to stateCurrent in local_search.acceptation_type.AcceptMulticase.acceptCandidate(State,
State)

At AcceptMulticase.java:[lines 11-104]

In class local_search.acceptation_type.AcceptMulticase

In method local_search.acceptation_type.AcceptMulticase.acceptCandidate(State, State)

Local variable named stateCurrent

At AcceptMulticase.java:[line 75]

Integral division result cast to double or float

Integral division result cast to double or float in

local_search.acceptation_type.AcceptMulticase.acceptCandidate(State, State)

At AcceptMulticase.java:[lines 11-104]

In class local_search.acceptation_type.AcceptMulticase

In method local_search.acceptation_type.AcceptMulticase.acceptCandidate(State, State)

At AcceptMulticase.java:[line 56]

Method names should start with a lower case letter

The method name local_search.acceptation_type.AcceptMulticase.DominanceCounter(State, List) doesn't start with a lower case letter

At AcceptMulticase.java:[lines 11-104]

In class local_search.acceptation_type.AcceptMulticase

In method local_search.acceptation_type.AcceptMulticase.DominanceCounter(State, List)

At AcceptMulticase.java:[lines 84-91]

Method names should start with a lower case letter

The method name local_search.acceptation_type.AcceptMulticase.DominanceRank(State, List) doesn't start with a lower case letter

At AcceptMulticase.java:[lines 11-104]

In class local_search.acceptation_type.AcceptMulticase

In method local_search.acceptation_type.AcceptMulticase.DominanceRank(State, List)

At AcceptMulticase.java:[lines 95-104]

Test for floating point equality

Test for floating point equality in local_search.acceptation_type.Dominance.dominance(State, State)

At Dominance.java:[lines 11-127]

In class local_search.acceptation_type.Dominance

In method local_search.acceptation_type.Dominance.dominance(State, State)

At Dominance.java:[line 108]

Another occurrence at Dominance.java:[line 119]

Method names should start with a lower case letter

The method name local_search.acceptation_type.Dominance.ListDominance(State, List) doesn't start with a lower case letter

At Dominance.java:[lines 11-127]

In class local_search.acceptation_type.Dominance

In method local_search.acceptation_type.Dominance.ListDominance(State, List)

At Dominance.java:[lines 17-55]

Unread field

Unread field: local_search.candidate_type.CandidateValue.strategy

At CandidateValue.java:[lines 35-84]

In class local_search.candidate_type.CandidateValue

In CandidateValue.java

Field local_search.candidate_type.CandidateValue.strategy

At CandidateValue.java:[line 40]

Unread field

Unread field: local_search.candidate_type.CandidateValue.typecand

At CandidateValue.java:[lines 35-84]

In class local_search.candidate_type.CandidateValue

In CandidateValue.java

Field local_search.candidate_type.CandidateValue.typecand

At CandidateValue.java:[line 42]

Dead store to local variable

Dead store to stateB in local_search.candidate_type.NotDominatedCandidate.stateSearch(List)

At NotDominatedCandidate.java:[lines 11-39]

In class local_search.candidate_type.NotDominatedCandidate

In method local_search.candidate_type.NotDominatedCandidate.stateSearch(List)

Local variable named stateB

At NotDominatedCandidate.java:[line 24]

Dead store to local variable

Dead store to listFiltrate in local_search.complement.TabuSolutions.filterNeighborhood(List)

At TabuSolutions.java:[lines 8-36]

In class local_search.complement.TabuSolutions

In method local_search.complement.TabuSolutions.filterNeighborhood(List)

Local variable named listFiltrate

At TabuSolutions.java:[line 15]

Field isn't final but should be
local_search.complement.TabuSolutions.listTabu isn't final but should be

At TabuSolutions.java:[lines 8-36]

In class local_search.complement.TabuSolutions

In TabuSolutions.java

Field local_search.complement.TabuSolutions.listTabu

At TabuSolutions.java:[line 10]

Field isn't final but should be
local_search.complement.TabuSolutions.maxelements isn't final but should be

At TabuSolutions.java:[lines 8-36]

In class local_search.complement.TabuSolutions

In TabuSolutions.java

Field local_search.complement.TabuSolutions.maxelements

In TabuSolutions.java

Unwritten public or protected field
Unwritten public or protected field: local_search.complement.TabuSolutions.maxelements

At TabuSolutions.java:[lines 8-36]

In class local_search.complement.TabuSolutions

In TabuSolutions.java

Field local_search.complement.TabuSolutions.maxelements

At MultiobjectiveTabuSearch.java:[line 85]

Unchecked/unconfirmed cast of return value from method

Unchecked/unconfirmed cast from java.util.List<problem.definition.State> to java.util.ArrayList of return value in metaheuristics.strategy.Strategy.executeStrategy(int, int, int, GeneratorType)

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.executeStrategy(int, int, int, GeneratorType)

At List.java:[lines 141-1193]

Actual type java.util.List<problem.definition.State>

At ArrayList.java:[lines 123-1813]

Expected java.util.ArrayList

At Strategy.java:[line 244]

Another occurrence at Strategy.java:[line 236]

May expose internal representation by returning reference to mutable object
metaheuristics.strategy.Strategy.getBestState() may expose internal representation by returning
Strategy.bestState

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.getBestState()

In Strategy.java

Field metaheuristics.strategy.Strategy.bestState

At Strategy.java:[line 299]

May expose internal representation by returning reference to mutable object
metaheuristics.strategy.Strategy.getProblem() may expose internal representation by returning
Strategy.problem

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.getProblem()

In Strategy.java

Field metaheuristics.strategy.Strategy.problem

At Strategy.java:[line 330]

May expose internal representation by incorporating reference to mutable object
metaheuristics.strategy.Strategy.setBestState(State) may expose internal representation by storing an externally mutable object into Strategy.bestState

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.setBestState(State)

In Strategy.java

Field metaheuristics.strategy.Strategy.bestState

Local variable named besState

At Strategy.java:[line 303]

May expose internal representation by incorporating reference to mutable object
metaheuristics.strategy.Strategy.setProblem(Problem) may expose internal representation by storing an externally mutable object into Strategy.problem

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.setProblem(Problem)

In Strategy.java

Field metaheuristics.strategy.Strategy.problem

Local variable named problem

At Strategy.java:[line 334]

Incorrect lazy initialization of static field

Incorrect lazy initialization of static field metaheuristics.strategy.Strategy.strategy in
metaheuristics.strategy.Strategy.getStrategy()

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.getStrategy()

In Strategy.java

On field metaheuristics.strategy.Strategy.strategy

At Strategy.java:[lines 70-71]

Public static method may expose internal representation by returning a mutable object or array
Public static metaheuristics.strategy.Strategy.getStrategy() may expose internal representation by
returning Strategy.strategy

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.getStrategy()

In Strategy.java

Field metaheuristics.strategy.Strategy.strategy

At Strategy.java:[line 73]

Field should be package protected

metaheuristics.strategy.Strategy.timeExecute should be package protected

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.timeExecute

In Strategy.java

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.countChange is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.countChange

At Strategy.java:[line 60]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.countPeriodChange is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.countPeriodChange

At Strategy.java:[line 59]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.generator is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.generator

At UpdateParameter.java:[line 25]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.listBest is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.listBest

At Strategy.java:[line 95]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.listRefPoblacFinal is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.listRefPoblacFinal

At Strategy.java:[line 44]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.listStates is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.listStates

At Strategy.java:[line 90]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.mapGenerators is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.mapGenerators

At Strategy.java:[line 339]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.notDominated is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.notDominated

At Strategy.java:[line 99]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.threshold is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.threshold

At Strategy.java:[line 393]

Primitive field is public

Primitive field metaheuristics.strategy.Strategy.timeExecute is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.timeExecute

At Strategy.java:[line 232]

Instance-getter method of class using singleton design pattern is not synchronized.

Instance-getter method of class using singleton design pattern (metaheuristics.strategy.Strategy) is not synchronized.

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.getStrategy()

At Strategy.java:[lines 70-73]

Write to static field from instance method

Write to static field metaheuristics.strategy.Strategy.timeExecute from instance method metaheuristics.strategy.Strategy.executeStrategy(int, int, int, GeneratorType)

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In method metaheuristics.strategy.Strategy.executeStrategy(int, int, int, GeneratorType)

In Strategy.java

Field metaheuristics.strategy.Strategy.timeExecute

At Strategy.java:[line 232]

Unwritten public or protected field

Unwritten public or protected field: metaheuristics.strategy.Strategy.calculateTime

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.calculateTime

At Strategy.java:[line 78]

Unwritten public or protected field

Unwritten public or protected field: metaheuristics.strategy.Strategy.saveFreneParetoMonoObjetivo

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.saveFreneParetoMonoObjetivo

At Strategy.java:[line 98]

Unwritten public or protected field

Unwritten public or protected field: metaheuristics.strategy.Strategy.saveListBestStates

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.saveListBestStates

At Strategy.java:[line 94]

Unwritten public or protected field

Unwritten public or protected field: metaheuristics.strategy.Strategy.saveListStates

At Strategy.java:[lines 30-441]

In class metaheuristics.strategy.Strategy

In Strategy.java

Field metaheuristics.strategy.Strategy.saveListStates

At Strategy.java:[line 89]

Dead store to local variable

Dead store to fathers in metaheuristics.generators.DistributionEstimationAlgorithm.generate(Integer)

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.generate(Integer)

Local variable named fathers

At DistributionEstimationAlgorithm.java:[line 106]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.DistributionEstimationAlgorithm.getListCountBetterGender() may expose internal representation by returning DistributionEstimationAlgorithm.listCountBetterGender

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getListCountBetterGender()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.listCountBetterGender

At DistributionEstimationAlgorithm.java:[line 272]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.getListCountGender() may expose internal
representation by returning DistributionEstimationAlgorithm.listCountGender

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getListCountGender()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.listCountGender

At DistributionEstimationAlgorithm.java:[line 278]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.getListReference() may expose internal
representation by returning DistributionEstimationAlgorithm.referenceList

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getListReference()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.referenceList

At DistributionEstimationAlgorithm.java:[line 210]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.getListStateRef() may expose internal
representation by returning DistributionEstimationAlgorithm.referenceList

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getListStateRef()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.referenceList

At DistributionEstimationAlgorithm.java:[line 206]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.getReference() may expose internal
representation by returning DistributionEstimationAlgorithm.stateReferenceDA

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getReference()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.stateReferenceDA

At DistributionEstimationAlgorithm.java:[line 146]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.getTrace() may expose internal
representation by returning DistributionEstimationAlgorithm.listTrace

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.getTrace()

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.listTrace

At DistributionEstimationAlgorithm.java:[line 284]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.setInitialReference(State) may expose
internal representation by storing an externally mutable object into
DistributionEstimationAlgorithm.stateReferenceDA

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.setInitialReference(State)

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.stateReferenceDA

Local variable named stateInitialRef

At DistributionEstimationAlgorithm.java:[line 166]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.DistributionEstimationAlgorithm.setListReference(List) may expose internal
representation by storing an externally mutable object into
DistributionEstimationAlgorithm.referenceList

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method metaheuristics.generators.DistributionEstimationAlgorithm.setListReference(List)

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.referenceList

Local variable named listReference

At DistributionEstimationAlgorithm.java:[line 214]

An overridable method is called from a constructor

Overridable method getListStateRef is called from constructor new metaheuristics.generators.DistributionEstimationAlgorithm().

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method new metaheuristics.generators.DistributionEstimationAlgorithm()

Value getListStateRef

At DistributionEstimationAlgorithm.java:[line 57]

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.replaceType isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.replaceType

In DistributionEstimationAlgorithm.java

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.selectionType isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.selectionType

In DistributionEstimationAlgorithm.java

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.sonList isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.sonList

At DistributionEstimationAlgorithm.java:[line 30]

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.countRef isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.countRef

At DistributionEstimationAlgorithm.java:[line 44]

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.truncation isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.truncation

In DistributionEstimationAlgorithm.java

Field isn't final but should be
metaheuristics.generators.DistributionEstimationAlgorithm.countBetterGender isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.countBetterGender

At DistributionEstimationAlgorithm.java:[line 49]

Field isn't final but should be

metaheuristics.generators.DistributionEstimationAlgorithm.countGender isn't final but should be

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.countGender

At DistributionEstimationAlgorithm.java:[line 48]

Confusing method names

Confusing to have methods

metaheuristics.generators.DistributionEstimationAlgorithm.setGeneratorType(GeneratorType) and
metaheuristics.generators.MultiGenerator.setGeneratortype(GeneratorType)

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In method

metaheuristics.generators.DistributionEstimationAlgorithm.setGeneratorType(GeneratorType)

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.setGeneratortype(GeneratorType)

At DistributionEstimationAlgorithm.java:[lines 222-223]

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

The field name `metaheuristics.generators.DistributionEstimationAlgorithm.Samplingtype` is not conform to the naming convention. If final, it should be `ALL_CAPS`, otherwise `lowerCamelCase`.

At `DistributionEstimationAlgorithm.java`: [lines 29-284]

In class `metaheuristics.generators.DistributionEstimationAlgorithm`

In `DistributionEstimationAlgorithm.java`

Field `metaheuristics.generators.DistributionEstimationAlgorithm.Samplingtype`

In `DistributionEstimationAlgorithm.java`

Method names should start with a lower case letter

The method name `metaheuristics.generators.DistributionEstimationAlgorithm.MaxValue(List)` doesn't start with a lower case letter

At `DistributionEstimationAlgorithm.java`: [lines 29-284]

In class `metaheuristics.generators.DistributionEstimationAlgorithm`

In method `metaheuristics.generators.DistributionEstimationAlgorithm.MaxValue(List)`

At `DistributionEstimationAlgorithm.java`: [lines 71-79]

Unread public/protected field

Unread public/protected field:

`metaheuristics.generators.DistributionEstimationAlgorithm.countBetterGender`

At `DistributionEstimationAlgorithm.java`: [lines 29-284]

In class `metaheuristics.generators.DistributionEstimationAlgorithm`

In `DistributionEstimationAlgorithm.java`

Field `metaheuristics.generators.DistributionEstimationAlgorithm.countBetterGender`

At `DistributionEstimationAlgorithm.java`: [line 49]

Unread public/protected field

Unread public/protected field: `metaheuristics.generators.DistributionEstimationAlgorithm.countGender`

At `DistributionEstimationAlgorithm.java`: [lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.countGender

At DistributionEstimationAlgorithm.java:[line 48]

Unwritten public or protected field

Unwritten public or protected field:

metaheuristics.generators.DistributionEstimationAlgorithm.replaceType

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.replaceType

At DistributionEstimationAlgorithm.java:[line 172]

Unwritten public or protected field

Unwritten public or protected field:

metaheuristics.generators.DistributionEstimationAlgorithm.selectionType

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.selectionType

At DistributionEstimationAlgorithm.java:[line 228]

Unwritten public or protected field

Unwritten public or protected field:

metaheuristics.generators.DistributionEstimationAlgorithm.truncation

At DistributionEstimationAlgorithm.java:[lines 29-284]

In class metaheuristics.generators.DistributionEstimationAlgorithm

In DistributionEstimationAlgorithm.java

Field metaheuristics.generators.DistributionEstimationAlgorithm.truncation

At DistributionEstimationAlgorithm.java:[line 229]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.EvolutionStrategies.getListCountBetterGender() may expose internal
representation by returning EvolutionStrategies.listCountBetterGender

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getListCountBetterGender()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listCountBetterGender

At EvolutionStrategies.java:[line 211]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.EvolutionStrategies.getListCountGender() may expose internal representation
by returning EvolutionStrategies.listCountGender

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getListCountGender()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listCountGender

At EvolutionStrategies.java:[line 217]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.EvolutionStrategies.getListStateRef() may expose internal representation by returning EvolutionStrategies.listStateReference

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getListStateRef()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listStateReference

At EvolutionStrategies.java:[line 155]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.EvolutionStrategies.getListStateReference() may expose internal representation by returning EvolutionStrategies.listStateReference

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getListStateReference()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listStateReference

At EvolutionStrategies.java:[line 159]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.EvolutionStrategies.getReference() may expose internal representation by returning EvolutionStrategies.stateReferenceES

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getReference()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.stateReferenceES

At EvolutionStrategies.java:[line 101]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.EvolutionStrategies.getTrace() may expose internal representation by
returning EvolutionStrategies.listTrace

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.getTrace()

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listTrace

At EvolutionStrategies.java:[line 223]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.EvolutionStrategies.setInitialReference(State) may expose internal
representation by storing an externally mutable object into EvolutionStrategies.stateReferenceES

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.setInitialReference(State)

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.stateReferenceES

Local variable named stateInitialRef

At EvolutionStrategies.java:[line 115]

May expose internal representation by incorporating reference to mutable object

metaheuristics.generators.EvolutionStrategies.setListStateReference(List) may expose internal representation by storing an externally mutable object into EvolutionStrategies.listStateReference

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.setListStateReference(List)

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.listStateReference

Local variable named listStateReference

At EvolutionStrategies.java:[line 163]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.EvolutionStrategies.setStateRef(State) may expose internal representation by storing an externally mutable object into EvolutionStrategies.stateReferenceES

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method metaheuristics.generators.EvolutionStrategies.setStateRef(State)

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.stateReferenceES

Local variable named stateRef

At EvolutionStrategies.java:[line 105]

An overridable method is called from a constructor
Overridable method getListStateRef is called from constructor new
metaheuristics.generators.EvolutionStrategies().

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In method new metaheuristics.generators.EvolutionStrategies()

Value getListStateRef

At EvolutionStrategies.java:[line 52]

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.PM isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.PM

In EvolutionStrategies.java

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.mutationType isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.mutationType

In EvolutionStrategies.java

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.replaceType isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.replaceType

In EvolutionStrategies.java

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.selectionType isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.selectionType

In EvolutionStrategies.java

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.countRef isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.countRef

At EvolutionStrategies.java:[line 39]

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.truncation isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.truncation

In EvolutionStrategies.java

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.countBetterGender isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.countBetterGender

At EvolutionStrategies.java:[line 45]

Field isn't final but should be
metaheuristics.generators.EvolutionStrategies.countGender isn't final but should be

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.countGender

At EvolutionStrategies.java:[line 44]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.EvolutionStrategies.countBetterGender

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.countBetterGender

At EvolutionStrategies.java:[line 45]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.EvolutionStrategies.countGender

At EvolutionStrategies.java:[lines 27-223]

In class metaheuristics.generators.EvolutionStrategies

In EvolutionStrategies.java

Field metaheuristics.generators.EvolutionStrategies.countGender

At EvolutionStrategies.java:[line 44]

Unused public or protected field

Unused public or protected field: metaheuristics.generators.Generator.listCountBetterGender

At Generator.java:[line 10]

In class metaheuristics.generators.Generator

In Generator.java

Field metaheuristics.generators.Generator.listCountBetterGender

In Generator.java

May expose internal representation by returning reference to mutable object
metaheuristics.generators.GeneticAlgorithm.getListCountBetterGender() may expose internal
representation by returning GeneticAlgorithm.listCountBetterGender

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In method metaheuristics.generators.GeneticAlgorithm.getListCountBetterGender()

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.listCountBetterGender

At GeneticAlgorithm.java:[line 237]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.GeneticAlgorithm.getListCountGender() may expose internal representation
by returning GeneticAlgorithm.listCountGender

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In method metaheuristics.generators.GeneticAlgorithm.getListCountGender()

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.listCountGender

At GeneticAlgorithm.java:[line 243]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.GeneticAlgorithm.getListState() may expose internal representation by
returning GeneticAlgorithm.listState

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In method metaheuristics.generators.GeneticAlgorithm.getListState()

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.listState

At GeneticAlgorithm.java:[line 147]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.GeneticAlgorithm.getListStateRef() may expose internal representation by
returning GeneticAlgorithm.listState

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In method metaheuristics.generators.GeneticAlgorithm.getListStateRef()

In GeneticAlgorithm.java

Field `metaheuristics.generators.GeneticAlgorithm.listState`

At `GeneticAlgorithm.java`: [line 184]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.GeneticAlgorithm.getReference()` may expose internal representation by returning `GeneticAlgorithm.stateReferenceGA`

At `GeneticAlgorithm.java`: [lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In method `metaheuristics.generators.GeneticAlgorithm.getReference()`

In `GeneticAlgorithm.java`

Field `metaheuristics.generators.GeneticAlgorithm.stateReferenceGA`

At `GeneticAlgorithm.java`: [line 128]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.GeneticAlgorithm.getTrace()` may expose internal representation by returning `GeneticAlgorithm.listTrace`

At `GeneticAlgorithm.java`: [lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In method `metaheuristics.generators.GeneticAlgorithm.getTrace()`

In `GeneticAlgorithm.java`

Field `metaheuristics.generators.GeneticAlgorithm.listTrace`

At `GeneticAlgorithm.java`: [line 249]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.GeneticAlgorithm.setInitialReference(State)` may expose internal representation by storing an externally mutable object into `GeneticAlgorithm.stateReferenceGA`

At `GeneticAlgorithm.java`: [lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In method `metaheuristics.generators.GeneticAlgorithm.setInitialReference(State)`

In `GeneticAlgorithm.java`

Field `metaheuristics.generators.GeneticAlgorithm.stateReferenceGA`

Local variable named `stateInitialRef`

At `GeneticAlgorithm.java`: [line 136]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.GeneticAlgorithm.setListState(List)` may expose internal representation by
storing an externally mutable object into `GeneticAlgorithm.listState`

At `GeneticAlgorithm.java`: [lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In method `metaheuristics.generators.GeneticAlgorithm.setListState(List)`

In `GeneticAlgorithm.java`

Field `metaheuristics.generators.GeneticAlgorithm.listState`

Local variable named `listState`

At `GeneticAlgorithm.java`: [line 151]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.GeneticAlgorithm.setStateRef(State)` may expose internal representation by
storing an externally mutable object into `GeneticAlgorithm.stateReferenceGA`

At `GeneticAlgorithm.java`: [lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In method `metaheuristics.generators.GeneticAlgorithm.setStateRef(State)`

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.stateReferenceGA

Local variable named stateRef

At GeneticAlgorithm.java:[line 132]

An overridable method is called from a constructor
Overridable method getListStateRef is called from constructor new
metaheuristics.generators.GeneticAlgorithm().

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In method new metaheuristics.generators.GeneticAlgorithm()

Value getListStateRef

At GeneticAlgorithm.java:[line 63]

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.PC isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.PC

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.PM isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.PM

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.crossoverType isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.crossoverType

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.mutationType isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.mutationType

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.replaceType isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.replaceType

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.selectionType isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.selectionType

In GeneticAlgorithm.java

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.countRef isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.countRef

At GeneticAlgorithm.java:[line 50]

Field isn't final but should be
metaheuristics.generators.GeneticAlgorithm.truncation isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.truncation

In GeneticAlgorithm.java

Field isn't final but should be

metaheuristics.generators.GeneticAlgorithm.countBetterGender isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.countBetterGender

At GeneticAlgorithm.java:[line 56]

Field isn't final but should be

metaheuristics.generators.GeneticAlgorithm.countGender isn't final but should be

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.countGender

At GeneticAlgorithm.java:[line 55]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.GeneticAlgorithm.countBetterGender

At GeneticAlgorithm.java:[lines 32-249]

In class metaheuristics.generators.GeneticAlgorithm

In GeneticAlgorithm.java

Field metaheuristics.generators.GeneticAlgorithm.countBetterGender

At GeneticAlgorithm.java:[line 56]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.GeneticAlgorithm.countGender

At GeneticAlgorithm.java:[lines 32-249]

In class `metaheuristics.generators.GeneticAlgorithm`

In `GeneticAlgorithm.java`

Field `metaheuristics.generators.GeneticAlgorithm.countGender`

At `GeneticAlgorithm.java`: [line 55]

Dead store to local variable

Dead store to neighborhood in `metaheuristics.generators.HillClimbing.generate(Integer)`

At `HillClimbing.java`: [lines 33-156]

In class `metaheuristics.generators.HillClimbing`

In method `metaheuristics.generators.HillClimbing.generate(Integer)`

Local variable named `neighborhood`

At `HillClimbing.java`: [line 63]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.HillClimbing.getListCountBetterGender()` may expose internal representation
by returning `HillClimbing.listCountBetterGender`

At `HillClimbing.java`: [lines 33-156]

In class `metaheuristics.generators.HillClimbing`

In method `metaheuristics.generators.HillClimbing.getListCountBetterGender()`

In `HillClimbing.java`

Field `metaheuristics.generators.HillClimbing.listCountBetterGender`

At `HillClimbing.java`: [line 144]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.HillClimbing.getListCountGender() may expose internal representation by returning HillClimbing.listCountGender

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.getListCountGender()

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.listCountGender

At HillClimbing.java:[line 150]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbing.getReference() may expose internal representation by returning HillClimbing.stateReferenceHC

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.getReference()

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.stateReferenceHC

At HillClimbing.java:[line 88]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbing.getReferenceList() may expose internal representation by returning HillClimbing.listStateReference

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.getReferenceList()

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.listStateReference

At HillClimbing.java:[line 83]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbing.getTrace() may expose internal representation by returning
HillClimbing.listTrace

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.getTrace()

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.listTrace

At HillClimbing.java:[line 156]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.HillClimbing.setInitialReference(State) may expose internal representation by
storing an externally mutable object into HillClimbing.stateReferenceHC

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.setInitialReference(State)

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.stateReferenceHC

Local variable named stateInitialRef

At HillClimbing.java:[line 97]

May expose internal representation by incorporating reference to mutable object

metaheuristics.generators.HillClimbing.setStateRef(State) may expose internal representation by storing an externally mutable object into HillClimbing.stateReferenceHC

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.setStateRef(State)

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.stateReferenceHC

Local variable named stateRef

At HillClimbing.java:[line 92]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.HillClimbing.updateReference(State, Integer) may expose internal representation by storing an externally mutable object into HillClimbing.stateReferenceHC

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In method metaheuristics.generators.HillClimbing.updateReference(State, Integer)

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.stateReferenceHC

Local variable named stateCandidate

At HillClimbing.java:[line 76]

Field isn't final but should be
metaheuristics.generators.HillClimbing.countBetterGender isn't final but should be

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.countBetterGender

At HillClimbing.java:[line 38]

Field isn't final but should be

metaheuristics.generators.HillClimbing.countGender isn't final but should be

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.countGender

At HillClimbing.java:[line 37]

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

The field name metaheuristics.generators.HillClimbing.GeneratorType is not conform to the naming convention. If final, it should be ALL_CAPS, otherwise lowerCamelCase.

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.GeneratorType

In HillClimbing.java

Unread public/protected field

Unread public/protected field: metaheuristics.generators.HillClimbing.countBetterGender

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.countBetterGender

At HillClimbing.java:[line 38]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.HillClimbing.countGender

At HillClimbing.java:[lines 33-156]

In class metaheuristics.generators.HillClimbing

In HillClimbing.java

Field metaheuristics.generators.HillClimbing.countGender

At HillClimbing.java:[line 37]

Dead store to local variable

Dead store to statecandidate in metaheuristics.generators.HillClimbingRestart.generate(Integer)

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.generate(Integer)

Local variable named statecandidate

At HillClimbingRestart.java:[line 67]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.HillClimbingRestart.getListCountBetterGender() may expose internal representation by returning HillClimbingRestart.listCountBetterGender

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.getListCountBetterGender()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.listCountBetterGender

At HillClimbingRestart.java:[line 185]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbingRestart.getListCountGender() may expose internal
representation by returning HillClimbingRestart.listCountGender

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.getListCountGender()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.listCountGender

At HillClimbingRestart.java:[line 191]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbingRestart.getReference() may expose internal representation by
returning HillClimbingRestart.stateReferenceHC

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.getReference()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.stateReferenceHC

At HillClimbingRestart.java:[line 106]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.HillClimbingRestart.getReferenceList() may expose internal representation by returning HillClimbingRestart.listStateReference

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.getReferenceList()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.listStateReference

At HillClimbingRestart.java:[line 101]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.HillClimbingRestart.getTrace() may expose internal representation by returning HillClimbingRestart.listTrace

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.getTrace()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.listTrace

At HillClimbingRestart.java:[line 197]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.HillClimbingRestart.setInitialReference(State) may expose internal representation by storing an externally mutable object into HillClimbingRestart.stateReferenceHC

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.setInitialReference(State)

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.stateReferenceHC

Local variable named stateInitialRef

At HillClimbingRestart.java:[line 115]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.HillClimbingRestart.setStateRef(State) may expose internal representation by
storing an externally mutable object into HillClimbingRestart.stateReferenceHC

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.setStateRef(State)

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.stateReferenceHC

Local variable named stateRef

At HillClimbingRestart.java:[line 110]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.HillClimbingRestart.updateReference(State, Integer) may expose internal
representation by storing an externally mutable object into HillClimbingRestart.stateReferenceHC

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.updateReference(State, Integer)

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.stateReferenceHC

Local variable named stateCandidate

At HillClimbingRestart.java:[line 92]

Field should be package protected

metaheuristics.generators.HillClimbingRestart.count should be package protected

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.count

In HillClimbingRestart.java

Field should be package protected

metaheuristics.generators.HillClimbingRestart.countCurrent should be package protected

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countCurrent

In HillClimbingRestart.java

Field isn't final but should be

metaheuristics.generators.HillClimbingRestart.countBetterGender isn't final but should be

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countBetterGender

At HillClimbingRestart.java:[line 37]

Field isn't final but should be

metaheuristics.generators.HillClimbingRestart.countGender isn't final but should be

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countGender

At HillClimbingRestart.java:[line 36]

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

The field name metaheuristics.generators.HillClimbingRestart.GeneratorType is not conform to the naming convention. If final, it should be ALL_CAPS, otherwise lowerCamelCase.

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.GeneratorType

In HillClimbingRestart.java

Primitive field is public

Primitive field metaheuristics.generators.HillClimbingRestart.count is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.count

At HillClimbingRestart.java:[line 46]

Write to static field from instance method

Write to static field metaheuristics.generators.HillClimbingRestart.countCurrent from instance method new metaheuristics.generators.HillClimbingRestart()

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method new metaheuristics.generators.HillClimbingRestart()

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countCurrent

At HillClimbingRestart.java:[line 46]

Write to static field from instance method

Write to static field metaheuristics.generators.HillClimbingRestart.count from instance method
metaheuristics.generators.HillClimbingRestart.generate(Integer)

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In method metaheuristics.generators.HillClimbingRestart.generate(Integer)

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.count

At HillClimbingRestart.java:[line 73]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.HillClimbingRestart.countBetterGender

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countBetterGender

At HillClimbingRestart.java:[line 37]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.HillClimbingRestart.countGender

At HillClimbingRestart.java:[lines 24-197]

In class metaheuristics.generators.HillClimbingRestart

In HillClimbingRestart.java

Field metaheuristics.generators.HillClimbingRestart.countGender

At HillClimbingRestart.java:[line 36]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.LimitRoulette.getGenerator() may expose internal representation by returning LimitRoulette.generator

At LimitRoulette.java:[lines 3-26]

In class metaheuristics.generators.LimitRoulette

In method metaheuristics.generators.LimitRoulette.getGenerator()

In LimitRoulette.java

Field metaheuristics.generators.LimitRoulette.generator

At LimitRoulette.java:[line 10]

May expose internal representation by incorporating reference to mutable object

metaheuristics.generators.LimitRoulette.setGenerator(Generator) may expose internal representation by storing an externally mutable object into LimitRoulette.generator

At LimitRoulette.java:[lines 3-26]

In class metaheuristics.generators.LimitRoulette

In method metaheuristics.generators.LimitRoulette.setGenerator(Generator)

In LimitRoulette.java

Field metaheuristics.generators.LimitRoulette.generator

Local variable named generator

At LimitRoulette.java:[line 13]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.LimitThreshold.getListCountBetterGender() may expose internal
representation by returning LimitThreshold.listCountBetterGender

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.getListCountBetterGender()

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.listCountBetterGender

At LimitThreshold.java:[line 150]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.LimitThreshold.getListCountGender() may expose internal representation by
returning LimitThreshold.listCountGender

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.getListCountGender()

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.listCountGender

At LimitThreshold.java:[line 156]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.LimitThreshold.getReference() may expose internal representation by
returning LimitThreshold.stateReferenceLT

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.getReference()

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.stateReferenceLT

At LimitThreshold.java:[line 96]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.LimitThreshold.getTrace() may expose internal representation by returning
LimitThreshold.listTrace

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.getTrace()

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.listTrace

At LimitThreshold.java:[line 162]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.LimitThreshold.setInitialReference(State) may expose internal representation
by storing an externally mutable object into LimitThreshold.stateReferenceLT

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.setInitialReference(State)

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.stateReferenceLT

Local variable named stateInitialRef

At LimitThreshold.java:[line 105]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.LimitThreshold.setStateRef(State) may expose internal representation by
storing an externally mutable object into LimitThreshold.stateReferenceLT

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.setStateRef(State)

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.stateReferenceLT

Local variable named stateRef

At LimitThreshold.java:[line 100]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.LimitThreshold.updateReference(State, Integer) may expose internal
representation by storing an externally mutable object into LimitThreshold.stateReferenceLT

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In method metaheuristics.generators.LimitThreshold.updateReference(State, Integer)

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.stateReferenceLT

Local variable named stateCandidate

At LimitThreshold.java:[line 88]

Field isn't final but should be
metaheuristics.generators.LimitThreshold.countBetterGender isn't final but should be

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.countBetterGender

At LimitThreshold.java:[line 38]

Field isn't final but should be
metaheuristics.generators.LimitThreshold.countGender isn't final but should be

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.countGender

At LimitThreshold.java:[line 37]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.LimitThreshold.countBetterGender

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.countBetterGender

At LimitThreshold.java:[line 38]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.LimitThreshold.countGender

At LimitThreshold.java:[lines 37-162]

In class metaheuristics.generators.LimitThreshold

In LimitThreshold.java

Field metaheuristics.generators.LimitThreshold.countGender

At LimitThreshold.java:[line 37]

Dead store to local variable

Dead store to neighborhood in

metaheuristics.generators.MultiCaseSimulatedAnnealing.generate(Integer)

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.generate(Integer)

Local variable named neighborhood

At MultiCaseSimulatedAnnealing.java:[line 58]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.MultiCaseSimulatedAnnealing.getReference() may expose internal representation by returning MultiCaseSimulatedAnnealing.stateReferenceSA

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.getReference()

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.stateReferenceSA

At MultiCaseSimulatedAnnealing.java:[line 67]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiCaseSimulatedAnnealing.getReferenceList() may expose internal
representation by returning MultiCaseSimulatedAnnealing.listStateReference

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.getReferenceList()

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.listStateReference

At MultiCaseSimulatedAnnealing.java:[line 114]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiCaseSimulatedAnnealing.setInitialReference(State) may expose internal
representation by storing an externally mutable object into
MultiCaseSimulatedAnnealing.stateReferenceSA

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.setInitialReference(State)

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.stateReferenceSA

Local variable named stateInitialRef

At MultiCaseSimulatedAnnealing.java:[line 76]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiCaseSimulatedAnnealing.setStateRef(State) may expose internal
representation by storing an externally mutable object into
MultiCaseSimulatedAnnealing.stateReferenceSA

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In method `metaheuristics.generators.MultiCaseSimulatedAnnealing.setStateRef(State)`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.stateReferenceSA`

Local variable named `stateRef`

At `MultiCaseSimulatedAnnealing.java`: [line 71]

Field isn't final and cannot be protected from malicious code
`metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial` isn't final and cannot be protected from malicious code

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial`

In `MultiCaseSimulatedAnnealing.java`

Field should be package protected
`metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT` should be package protected

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT`

In `MultiCaseSimulatedAnnealing.java`

Field isn't final but should be
`metaheuristics.generators.MultiCaseSimulatedAnnealing.alpha` isn't final but should be

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.alpha

In MultiCaseSimulatedAnnealing.java

Field isn't final but should be
metaheuristics.generators.MultiCaseSimulatedAnnealing.tfinal isn't final but should be

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.tfinal

In MultiCaseSimulatedAnnealing.java

Primitive field is public
Primitive field metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT

At MultiCaseSimulatedAnnealing.java:[line 81]

Primitive field is public
Primitive field metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial`

At `MultiCaseSimulatedAnnealing.java`: [line 88]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiCaseSimulatedAnnealing.getListCountBetterGender()` return a zero length array rather than null?

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In method `metaheuristics.generators.MultiCaseSimulatedAnnealing.getListCountBetterGender()`

At `MultiCaseSimulatedAnnealing.java`: [line 145]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiCaseSimulatedAnnealing.getListCountGender()` return a zero length array rather than null?

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In method `metaheuristics.generators.MultiCaseSimulatedAnnealing.getListCountGender()`

At `MultiCaseSimulatedAnnealing.java`: [line 151]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiCaseSimulatedAnnealing.getTrace()` return a zero length array rather than null?

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In method `metaheuristics.generators.MultiCaseSimulatedAnnealing.getTrace()`

At MultiCaseSimulatedAnnealing.java:[line 157]

Write to static field from instance method

Write to static field metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT from instance method metaheuristics.generators.MultiCaseSimulatedAnnealing.updateReference(State, Integer)

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.updateReference(State, Integer)

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.countIterationsT

At MultiCaseSimulatedAnnealing.java:[line 100]

Write to static field from instance method

Write to static field metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial from instance method metaheuristics.generators.MultiCaseSimulatedAnnealing.updateReference(State, Integer)

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class metaheuristics.generators.MultiCaseSimulatedAnnealing

In method metaheuristics.generators.MultiCaseSimulatedAnnealing.updateReference(State, Integer)

In MultiCaseSimulatedAnnealing.java

Field metaheuristics.generators.MultiCaseSimulatedAnnealing.tinitial

At MultiCaseSimulatedAnnealing.java:[line 88]

Unused public or protected field

Unused public or protected field: metaheuristics.generators.MultiCaseSimulatedAnnealing.tfinal

At MultiCaseSimulatedAnnealing.java:[lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.tfinal`

In `MultiCaseSimulatedAnnealing.java`

Field not initialized in constructor but dereferenced without null check

`MultiCaseSimulatedAnnealing.stateReferenceSA` not initialized in constructor and dereferenced in `metaheuristics.generators.MultiCaseSimulatedAnnealing.getReferenceList()`

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.stateReferenceSA`

In method `metaheuristics.generators.MultiCaseSimulatedAnnealing.getReferenceList()`

At `MultiCaseSimulatedAnnealing.java`: [line 113]

Unwritten public or protected field

Unwritten public or protected field: `metaheuristics.generators.MultiCaseSimulatedAnnealing.alpha`

At `MultiCaseSimulatedAnnealing.java`: [lines 33-157]

In class `metaheuristics.generators.MultiCaseSimulatedAnnealing`

In `MultiCaseSimulatedAnnealing.java`

Field `metaheuristics.generators.MultiCaseSimulatedAnnealing.alpha`

At `MultiCaseSimulatedAnnealing.java`: [line 88]

Questionable cast to concrete collection

Questionable cast from `java.util.List<problem.definition.State>` to `java.util.ArrayList` in `metaheuristics.generators.MultiGenerator.getListGeneratedPP()`

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.getListGeneratedPP()

At List.java:[lines 141-1193]

Actual type java.util.List<problem.definition.State>

At ArrayList.java:[lines 123-1813]

Expected java.util.ArrayList

In MultiGenerator.java

Value loaded from field metaheuristics.generators.MultiGenerator.listGeneratedPP

At MultiGenerator.java:[line 140]

Class defines clone() but doesn't implement Cloneable
metaheuristics.generators.MultiGenerator defines clone() but doesn't implement Cloneable

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.clone()

At MultiGenerator.java:[line 365]

May expose internal static state by storing a mutable object into a static field
metaheuristics.generators.MultiGenerator.setListGenerators(Generator[]) may expose internal static
state by storing a mutable object into a static field
metaheuristics.generators.MultiGenerator.listGenerators

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.setListGenerators(Generator[])

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.listGenerators

Local variable named listGenerators

At MultiGenerator.java:[line 148]

Field isn't final and cannot be protected from malicious code
metaheuristics.generators.MultiGenerator.activeGenerator isn't final and cannot be protected from
malicious code

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.activeGenerator

In MultiGenerator.java

Field isn't final and cannot be protected from malicious code
metaheuristics.generators.MultiGenerator.listGeneratedPP isn't final and cannot be protected from
malicious code

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.listGeneratedPP

At MultiGenerator.java:[line 18]

Public static method may expose internal representation by returning a mutable object or array
Public static metaheuristics.generators.MultiGenerator.getListGenerators() may expose internal
representation by returning MultiGenerator.listGenerators

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.getListGenerators()

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.listGenerators

At MultiGenerator.java:[line 144]

Field isn't final but should be
metaheuristics.generators.MultiGenerator.listStateReference isn't final but should be

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.listStateReference

At MultiGenerator.java:[line 20]

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

The field name metaheuristics.generators.MultiGenerator.GeneratorType is not conform to the naming convention. If final, it should be ALL_CAPS, otherwise lowerCamelCase.

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.GeneratorType

In MultiGenerator.java

Primitive field is public

Primitive field metaheuristics.generators.MultiGenerator.activeGenerator is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.activeGenerator

At Strategy.java:[line 142]

Primitive field is public

Primitive field metaheuristics.generators.MultiGenerator.listGeneratedPP is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.listGeneratedPP

At Strategy.java:[line 115]

Consider returning a zero length array rather than null

Should metaheuristics.generators.MultiGenerator.getListCountBetterGender() return a zero length array rather than null?

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.getListCountBetterGender()

At MultiGenerator.java:[line 371]

Consider returning a zero length array rather than null

Should metaheuristics.generators.MultiGenerator.getListCountGender() return a zero length array rather than null?

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.getListCountGender()

At MultiGenerator.java:[line 377]

Consider returning a zero length array rather than null

Should metaheuristics.generators.MultiGenerator.getTrace() return a zero length array rather than null?

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.getTrace()

At MultiGenerator.java:[line 352]

Exception is caught when Exception is not thrown

Exception is caught when Exception is not thrown in

metaheuristics.generators.MultiGenerator.createInstanceGeneratorsBPP()

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.createInstanceGeneratorsBPP()

At MultiGenerator.java:[line 132]

Write to static field from instance method

Write to static field metaheuristics.generators.MultiGenerator.activeGenerator from instance method
metaheuristics.generators.MultiGenerator.generate(Integer)

At MultiGenerator.java:[lines 17-377]

In class metaheuristics.generators.MultiGenerator

In method metaheuristics.generators.MultiGenerator.generate(Integer)

In MultiGenerator.java

Field metaheuristics.generators.MultiGenerator.activeGenerator

At MultiGenerator.java:[line 171]

Dead store to local variable
Dead store to neighborhood in
metaheuristics.generators.MultiobjectiveHillClimbingDistance.generate(Integer)

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.generate(Integer)

Local variable named neighborhood

At MultiobjectiveHillClimbingDistance.java:[line 50]

Dead store to local variable
Dead store to neighborhood in
metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)

Local variable named neighborhood

At MultiobjectiveHillClimbingDistance.java:[line 67]

Dead store to local variable
Dead store to lastState in
metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)`

Local variable named `lastState`

At `MultiobjectiveHillClimbingDistance.java`: [line 77]

Another occurrence at `MultiobjectiveHillClimbingDistance.java`: [line 108]

Method invokes inefficient floating-point `Number` constructor; use static `valueOf` instead
`metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)` invokes inefficient new `Double(double)` constructor; use `Double.valueOf(double)` instead

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)`

Called method new `Double(double)`

Should call `Double.valueOf(double)` instead

At `MultiobjectiveHillClimbingDistance.java`: [line 62]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReference()` may expose internal representation by returning `MultiobjectiveHillClimbingDistance.stateReferenceHC`

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReference()`

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.stateReferenceHC

At MultiobjectiveHillClimbingDistance.java:[line 142]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReferenceList() may expose internal
representation by returning MultiobjectiveHillClimbingDistance.listStateReference

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReferenceList()

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.listStateReference

At MultiobjectiveHillClimbingDistance.java:[line 137]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingDistance.setInitialReference(State) may expose
internal representation by storing an externally mutable object into
MultiobjectiveHillClimbingDistance.stateReferenceHC

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.setInitialReference(State)

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.stateReferenceHC

Local variable named stateInitialRef

At MultiobjectiveHillClimbingDistance.java:[line 151]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingDistance.setStateRef(State) may expose internal
representation by storing an externally mutable object into
MultiobjectiveHillClimbingDistance.stateReferenceHC

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.setStateRef(State)

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.stateReferenceHC

Local variable named stateRef

At MultiobjectiveHillClimbingDistance.java:[line 146]

Field should be package protected
metaheuristics.generators.MultiobjectiveHillClimbingDistance.distanceSolution should be package
protected

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.distanceSolution

At MultiobjectiveHillClimbingDistance.java:[line 34]

Field isn't final but should be
metaheuristics.generators.MultiobjectiveHillClimbingDistance.sizeNeighbors isn't final but should be

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.sizeNeighbors

In MultiobjectiveHillClimbingDistance.java

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

The field name metaheuristics.generators.MultiobjectiveHillClimbingDistance.GeneratorType is not conform to the naming convention. If final, it should be ALL_CAPS, otherwise lowerCamelCase.

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.GeneratorType

In MultiobjectiveHillClimbingDistance.java

Method names should start with a lower case letter

The method name

metaheuristics.generators.MultiobjectiveHillClimbingDistance.DistanceCalculateAdd(List) doesn't start with a lower case letter

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method

metaheuristics.generators.MultiobjectiveHillClimbingDistance.DistanceCalculateAdd(List)

At MultiobjectiveHillClimbingDistance.java:[lines 174-200]

Method names should start with a lower case letter

The method name metaheuristics.generators.MultiobjectiveHillClimbingDistance.Contain(State) doesn't start with a lower case letter

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.Contain(State)

At MultiobjectiveHillClimbingDistance.java:[lines 207-214]

Method names should start with a lower case letter

The method name

`metaheuristics.generators.MultiobjectiveHillClimbingDistance.SolutionMoreDistance(List, List)`

doesn't start with a lower case letter

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method

`metaheuristics.generators.MultiobjectiveHillClimbingDistance.SolutionMoreDistance(List, List)`

At `MultiobjectiveHillClimbingDistance.java`: [lines 117-131]

Primitive field is public

Primitive field `metaheuristics.generators.MultiobjectiveHillClimbingDistance.distanceSolution` is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In `MultiobjectiveHillClimbingDistance.java`

Field `metaheuristics.generators.MultiobjectiveHillClimbingDistance.distanceSolution`

At `MultiobjectiveHillClimbingDistance.java`: [line 34]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getListCountBetterGender()` return a zero length array rather than null?

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method

`metaheuristics.generators.MultiobjectiveHillClimbingDistance.getListCountBetterGender()`

At `MultiobjectiveHillClimbingDistance.java`: [line 239]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getListCountGender()` return a zero length array rather than null?

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getListCountGender()`

At `MultiobjectiveHillClimbingDistance.java`: [line 245]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getTrace()` return a zero length array rather than null?

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getTrace()`

At `MultiobjectiveHillClimbingDistance.java`: [line 251]

Field not initialized in constructor but dereferenced without null check

`MultiobjectiveHillClimbingDistance.stateReferenceHC` not initialized in constructor and dereferenced in `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReferenceList()`

At `MultiobjectiveHillClimbingDistance.java`: [lines 28-251]

In class `metaheuristics.generators.MultiobjectiveHillClimbingDistance`

In `MultiobjectiveHillClimbingDistance.java`

Field `metaheuristics.generators.MultiobjectiveHillClimbingDistance.stateReferenceHC`

In method `metaheuristics.generators.MultiobjectiveHillClimbingDistance.getReferenceList()`

At `MultiobjectiveHillClimbingDistance.java`: [line 136]

Field not initialized in constructor but dereferenced without null check

MultiobjectiveHillClimbingDistance.stateReferenceHC not initialized in constructor and dereferenced in metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.stateReferenceHC

In method metaheuristics.generators.MultiobjectiveHillClimbingDistance.updateReference(State, Integer)

At MultiobjectiveHillClimbingDistance.java:[line 61]

Unwritten public or protected field

Unwritten public or protected field:

metaheuristics.generators.MultiobjectiveHillClimbingDistance.sizeNeighbors

At MultiobjectiveHillClimbingDistance.java:[lines 28-251]

In class metaheuristics.generators.MultiobjectiveHillClimbingDistance

In MultiobjectiveHillClimbingDistance.java

Field metaheuristics.generators.MultiobjectiveHillClimbingDistance.sizeNeighbors

At MultiobjectiveHillClimbingDistance.java:[line 68]

Dead store to local variable

Dead store to neighborhood in

metaheuristics.generators.MultiobjectiveHillClimbingRestart.generate(Integer)

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.generate(Integer)

Local variable named neighborhood

At MultiobjectiveHillClimbingRestart.java:[line 53]

Dead store to local variable
Dead store to lastState in
metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

Local variable named lastState

At MultiobjectiveHillClimbingRestart.java:[line 79]

Another occurrence at MultiobjectiveHillClimbingRestart.java:[line 106]

Dead store to local variable
Dead store to neighborhood in
metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

Local variable named neighborhood

At MultiobjectiveHillClimbingRestart.java:[line 70]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReference() may expose internal representation by returning MultiobjectiveHillClimbingRestart.stateReferenceHC

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReference()

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.stateReferenceHC

At MultiobjectiveHillClimbingRestart.java:[line 123]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReferenceList() may expose internal representation by returning MultiobjectiveHillClimbingRestart.listStateReference

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReferenceList()

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.listStateReference

At MultiobjectiveHillClimbingRestart.java:[line 118]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingRestart.setInitialReference(State) may expose internal representation by storing an externally mutable object into
MultiobjectiveHillClimbingRestart.stateReferenceHC

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.setInitialReference(State)

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.stateReferenceHC

Local variable named stateInitialRef

At MultiobjectiveHillClimbingRestart.java:[line 132]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveHillClimbingRestart.setStateRef(State) may expose internal
representation by storing an externally mutable object into
MultiobjectiveHillClimbingRestart.stateReferenceHC

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.setStateRef(State)

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.stateReferenceHC

Local variable named stateRef

At MultiobjectiveHillClimbingRestart.java:[line 127]

Field isn't final but should be
metaheuristics.generators.MultiobjectiveHillClimbingRestart.sizeNeighbors isn't final but should be

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.sizeNeighbors

In MultiobjectiveHillClimbingRestart.java

Non-final field names should start with a lower case letter, final fields should be uppercase with words
separated by underscores

The field name `metaheuristics.generators.MultiobjectiveHillClimbingRestart.GeneratorType` is not conform to the naming convention. If final, it should be `ALL_CAPS`, otherwise `lowerCamelCase`.

At `MultiobjectiveHillClimbingRestart.java`: [lines 32-199]

In class `metaheuristics.generators.MultiobjectiveHillClimbingRestart`

In `MultiobjectiveHillClimbingRestart.java`

Field `metaheuristics.generators.MultiobjectiveHillClimbingRestart.GeneratorType`

In `MultiobjectiveHillClimbingRestart.java`

Method names should start with a lower case letter

The method name `metaheuristics.generators.MultiobjectiveHillClimbingRestart.Contain(State)` doesn't start with a lower case letter

At `MultiobjectiveHillClimbingRestart.java`: [lines 32-199]

In class `metaheuristics.generators.MultiobjectiveHillClimbingRestart`

In method `metaheuristics.generators.MultiobjectiveHillClimbingRestart.Contain(State)`

At `MultiobjectiveHillClimbingRestart.java`: [lines 155-162]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveHillClimbingRestart.getListCountBetterGender()` return a zero length array rather than null?

At `MultiobjectiveHillClimbingRestart.java`: [lines 32-199]

In class `metaheuristics.generators.MultiobjectiveHillClimbingRestart`

In method

`metaheuristics.generators.MultiobjectiveHillClimbingRestart.getListCountBetterGender()`

At `MultiobjectiveHillClimbingRestart.java`: [line 193]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveHillClimbingRestart.getListCountGender()` return a zero length array rather than null?

At `MultiobjectiveHillClimbingRestart.java`: [lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.getListCountGender()

At MultiobjectiveHillClimbingRestart.java:[line 199]

Consider returning a zero length array rather than null
Should metaheuristics.generators.MultiobjectiveHillClimbingRestart.getTrace() return a zero length array rather than null?

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.getTrace()

At MultiobjectiveHillClimbingRestart.java:[line 187]

Field not initialized in constructor but dereferenced without null check
MultiobjectiveHillClimbingRestart.stateReferenceHC not initialized in constructor and dereferenced in metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReferenceList()

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.stateReferenceHC

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.getReferenceList()

At MultiobjectiveHillClimbingRestart.java:[line 117]

Field not initialized in constructor but dereferenced without null check
MultiobjectiveHillClimbingRestart.stateReferenceHC not initialized in constructor and dereferenced in metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.stateReferenceHC

In method metaheuristics.generators.MultiobjectiveHillClimbingRestart.updateReference(State, Integer)

At MultiobjectiveHillClimbingRestart.java:[line 64]

Unwritten public or protected field

Unwritten public or protected field:

metaheuristics.generators.MultiobjectiveHillClimbingRestart.sizeNeighbors

At MultiobjectiveHillClimbingRestart.java:[lines 32-199]

In class metaheuristics.generators.MultiobjectiveHillClimbingRestart

In MultiobjectiveHillClimbingRestart.java

Field metaheuristics.generators.MultiobjectiveHillClimbingRestart.sizeNeighbors

At MultiobjectiveHillClimbingRestart.java:[line 71]

Dead store to local variable

Dead store to neighborhood in

metaheuristics.generators.MultiobjectiveStochasticHillClimbing.generate(Integer)

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In method metaheuristics.generators.MultiobjectiveStochasticHillClimbing.generate(Integer)

Local variable named neighborhood

At MultiobjectiveStochasticHillClimbing.java:[line 44]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReference() may expose internal
representation by returning MultiobjectiveStochasticHillClimbing.stateReferenceHC

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In method metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReference()

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.stateReferenceHC

At MultiobjectiveStochasticHillClimbing.java:[line 68]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReferenceList() may expose
internal representation by returning MultiobjectiveStochasticHillClimbing.listStateReference

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In method metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReferenceList()

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.listStateReference

At MultiobjectiveStochasticHillClimbing.java:[line 63]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveStochasticHillClimbing.setInitialReference(State) may expose
internal representation by storing an externally mutable object into
MultiobjectiveStochasticHillClimbing.stateReferenceHC

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In method
metaheuristics.generators.MultiobjectiveStochasticHillClimbing.setInitialReference(State)

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.stateReferenceHC

Local variable named stateInitialRef

At MultiobjectiveStochasticHillClimbing.java:[line 77]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveStochasticHillClimbing.setStateRef(State) may expose internal
representation by storing an externally mutable object into
MultiobjectiveStochasticHillClimbing.stateReferenceHC

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In method metaheuristics.generators.MultiobjectiveStochasticHillClimbing.setStateRef(State)

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.stateReferenceHC

Local variable named stateRef

At MultiobjectiveStochasticHillClimbing.java:[line 72]

Non-final field names should start with a lower case letter, final fields should be uppercase with words
separated by underscores
The field name metaheuristics.generators.MultiobjectiveStochasticHillClimbing.GeneratorType is not
conform to the naming convention. If final, it should be ALL_CAPS, otherwise lowerCamelCase.

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.GeneratorType

In MultiobjectiveStochasticHillClimbing.java

Consider returning a zero length array rather than null
Should `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getListCountBetterGender()` return a zero length array rather than null?

At `MultiobjectiveStochasticHillClimbing.java`: [lines 27-132]

In class `metaheuristics.generators.MultiobjectiveStochasticHillClimbing`

In method
`metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getListCountBetterGender()`

At `MultiobjectiveStochasticHillClimbing.java`: [line 126]

Consider returning a zero length array rather than null
Should `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getListCountGender()` return a zero length array rather than null?

At `MultiobjectiveStochasticHillClimbing.java`: [lines 27-132]

In class `metaheuristics.generators.MultiobjectiveStochasticHillClimbing`

In method `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getListCountGender()`

At `MultiobjectiveStochasticHillClimbing.java`: [line 132]

Consider returning a zero length array rather than null
Should `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getTrace()` return a zero length array rather than null?

At `MultiobjectiveStochasticHillClimbing.java`: [lines 27-132]

In class `metaheuristics.generators.MultiobjectiveStochasticHillClimbing`

In method `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getTrace()`

At `MultiobjectiveStochasticHillClimbing.java`: [line 120]

Field not initialized in constructor but dereferenced without null check
`MultiobjectiveStochasticHillClimbing.stateReferenceHC` not initialized in constructor and dereferenced in `metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReferenceList()`

At MultiobjectiveStochasticHillClimbing.java:[lines 27-132]

In class metaheuristics.generators.MultiobjectiveStochasticHillClimbing

In MultiobjectiveStochasticHillClimbing.java

Field metaheuristics.generators.MultiobjectiveStochasticHillClimbing.stateReferenceHC

In method metaheuristics.generators.MultiobjectiveStochasticHillClimbing.getReferenceList()

At MultiobjectiveStochasticHillClimbing.java:[line 62]

Dead store to local variable

Dead store to problem in new metaheuristics.generators.MultiobjectiveTabuSearch()

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method new metaheuristics.generators.MultiobjectiveTabuSearch()

Local variable named problem

At MultiobjectiveTabuSearch.java:[line 56]

Dead store to local variable

Dead store to neighborhood in metaheuristics.generators.MultiobjectiveTabuSearch.generate(Integer)

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method metaheuristics.generators.MultiobjectiveTabuSearch.generate(Integer)

Local variable named neighborhood

At MultiobjectiveTabuSearch.java:[line 66]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveTabuSearch.getReference() may expose internal representation
by returning MultiobjectiveTabuSearch.stateReferenceTS

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method metaheuristics.generators.MultiobjectiveTabuSearch.getReference()

In MultiobjectiveTabuSearch.java

Field metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS

At MultiobjectiveTabuSearch.java:[line 128]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveTabuSearch.getReferenceList() may expose internal
representation by returning MultiobjectiveTabuSearch.listStateReference

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method metaheuristics.generators.MultiobjectiveTabuSearch.getReferenceList()

In MultiobjectiveTabuSearch.java

Field metaheuristics.generators.MultiobjectiveTabuSearch.listStateReference

At MultiobjectiveTabuSearch.java:[line 123]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.MultiobjectiveTabuSearch.getStateReferenceTS() may expose internal
representation by returning MultiobjectiveTabuSearch.stateReferenceTS

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method `metaheuristics.generators.MultiobjectiveTabuSearch.getStateReferenceTS()`

In `MultiobjectiveTabuSearch.java`

Field `metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS`

At `MultiobjectiveTabuSearch.java`: [line 36]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.MultiobjectiveTabuSearch.setInitialReference(State)` may expose internal
representation by storing an externally mutable object into `MultiobjectiveTabuSearch.stateReferenceTS`

At `MultiobjectiveTabuSearch.java`: [lines 31-183]

In class `metaheuristics.generators.MultiobjectiveTabuSearch`

In method `metaheuristics.generators.MultiobjectiveTabuSearch.setInitialReference(State)`

In `MultiobjectiveTabuSearch.java`

Field `metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS`

Local variable named `stateInitialRef`

At `MultiobjectiveTabuSearch.java`: [line 133]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.MultiobjectiveTabuSearch.setStateRef(State)` may expose internal
representation by storing an externally mutable object into `MultiobjectiveTabuSearch.stateReferenceTS`

At `MultiobjectiveTabuSearch.java`: [lines 31-183]

In class `metaheuristics.generators.MultiobjectiveTabuSearch`

In method `metaheuristics.generators.MultiobjectiveTabuSearch.setStateRef(State)`

In `MultiobjectiveTabuSearch.java`

Field `metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS`

Local variable named `stateRef`

At MultiobjectiveTabuSearch.java:[line 137]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveTabuSearch.setStateReferenceTS(State) may expose internal
representation by storing an externally mutable object into MultiobjectiveTabuSearch.stateReferenceTS

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method metaheuristics.generators.MultiobjectiveTabuSearch.setStateReferenceTS(State)

In MultiobjectiveTabuSearch.java

Field metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS

Local variable named stateReferenceTS

At MultiobjectiveTabuSearch.java:[line 40]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.MultiobjectiveTabuSearch.updateReference(State, Integer) may expose
internal representation by storing an externally mutable object into
MultiobjectiveTabuSearch.stateReferenceTS

At MultiobjectiveTabuSearch.java:[lines 31-183]

In class metaheuristics.generators.MultiobjectiveTabuSearch

In method metaheuristics.generators.MultiobjectiveTabuSearch.updateReference(State, Integer)

In MultiobjectiveTabuSearch.java

Field metaheuristics.generators.MultiobjectiveTabuSearch.stateReferenceTS

Local variable named stateCandidate

At MultiobjectiveTabuSearch.java:[line 82]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveTabuSearch.getListCountBetterGender()` return a zero length array rather than null?

At `MultiobjectiveTabuSearch.java`: [lines 31-183]

In class `metaheuristics.generators.MultiobjectiveTabuSearch`

In method `metaheuristics.generators.MultiobjectiveTabuSearch.getListCountBetterGender()`

At `MultiobjectiveTabuSearch.java`: [line 171]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveTabuSearch.getListCountGender()` return a zero length array rather than null?

At `MultiobjectiveTabuSearch.java`: [lines 31-183]

In class `metaheuristics.generators.MultiobjectiveTabuSearch`

In method `metaheuristics.generators.MultiobjectiveTabuSearch.getListCountGender()`

At `MultiobjectiveTabuSearch.java`: [line 177]

Consider returning a zero length array rather than null

Should `metaheuristics.generators.MultiobjectiveTabuSearch.getTrace()` return a zero length array rather than null?

At `MultiobjectiveTabuSearch.java`: [lines 31-183]

In class `metaheuristics.generators.MultiobjectiveTabuSearch`

In method `metaheuristics.generators.MultiobjectiveTabuSearch.getTrace()`

At `MultiobjectiveTabuSearch.java`: [line 183]

May expose internal representation by returning reference to mutable object

`metaheuristics.generators.Particle.getStateActual()` may expose internal representation by returning `Particle.stateActual`

At `Particle.java`: [lines 20-228]

In class `metaheuristics.generators.Particle`

In method `metaheuristics.generators.Particle.getStateActual()`

In `Particle.java`

Field `metaheuristics.generators.Particle.stateActual`

At `Particle.java`: [line 50]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.Particle.getStatePBest()` may expose internal representation by returning
`Particle.statePBest`

At `Particle.java`: [lines 20-228]

In class `metaheuristics.generators.Particle`

In method `metaheuristics.generators.Particle.getStatePBest()`

In `Particle.java`

Field `metaheuristics.generators.Particle.statePBest`

At `Particle.java`: [line 42]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.Particle.getVelocity()` may expose internal representation by returning
`Particle.velocity`

At `Particle.java`: [lines 20-228]

In class `metaheuristics.generators.Particle`

In method `metaheuristics.generators.Particle.getVelocity()`

In `Particle.java`

Field `metaheuristics.generators.Particle.velocity`

At `Particle.java`: [line 34]

May expose internal representation by incorporating reference to mutable object
new metaheuristics.generators.Particle(State, State, ArrayList) may expose internal representation by
storing an externally mutable object into Particle.stateActual

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method new metaheuristics.generators.Particle(State, State, ArrayList)

In Particle.java

Field metaheuristics.generators.Particle.stateActual

Local variable named stateActual

At Particle.java:[line 29]

May expose internal representation by incorporating reference to mutable object
new metaheuristics.generators.Particle(State, State, ArrayList) may expose internal representation by
storing an externally mutable object into Particle.statePBest

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method new metaheuristics.generators.Particle(State, State, ArrayList)

In Particle.java

Field metaheuristics.generators.Particle.statePBest

Local variable named statePBest

At Particle.java:[line 28]

May expose internal representation by incorporating reference to mutable object
new metaheuristics.generators.Particle(State, State, ArrayList) may expose internal representation by
storing an externally mutable object into Particle.velocity

At Particle.java:[lines 20-228]

In class `metaheuristics.generators.Particle`

In method `new metaheuristics.generators.Particle(State, State, ArrayList)`

In `Particle.java`

Field `metaheuristics.generators.Particle.velocity`

Local variable named `velocity`

At `Particle.java:[line 30]`

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.Particle.setStateActual(State)` may expose internal representation by storing an externally mutable object into `Particle.stateActual`

At `Particle.java:[lines 20-228]`

In class `metaheuristics.generators.Particle`

In method `metaheuristics.generators.Particle.setStateActual(State)`

In `Particle.java`

Field `metaheuristics.generators.Particle.stateActual`

Local variable named `stateActual`

At `Particle.java:[line 54]`

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.Particle.setStatePBest(State)` may expose internal representation by storing an externally mutable object into `Particle.statePBest`

At `Particle.java:[lines 20-228]`

In class `metaheuristics.generators.Particle`

In method `metaheuristics.generators.Particle.setStatePBest(State)`

In Particle.java

Field metaheuristics.generators.Particle.statePBest

Local variable named statePBest

At Particle.java:[line 46]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.Particle.setVelocity(ArrayList) may expose internal representation by storing
an externally mutable object into Particle.velocity

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.setVelocity(ArrayList)

In Particle.java

Field metaheuristics.generators.Particle.velocity

Local variable named velocity

At Particle.java:[line 38]

Method names should start with a lower case letter
The method name metaheuristics.generators.Particle.UpdateCode(ArrayList) doesn't start with a lower
case letter

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.UpdateCode(ArrayList)

At Particle.java:[lines 111-131]

Method names should start with a lower case letter
The method name metaheuristics.generators.Particle.UpdateVelocity() doesn't start with a lower case
letter

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.UpdateVelocity()

At Particle.java:[lines 74-107]

Consider returning a zero length array rather than null

Should metaheuristics.generators.Particle.getListCountBetterGender() return a zero length array rather than null?

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.getListCountBetterGender()

At Particle.java:[line 222]

Consider returning a zero length array rather than null

Should metaheuristics.generators.Particle.getListCountGender() return a zero length array rather than null?

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.getListCountGender()

At Particle.java:[line 228]

Consider returning a zero length array rather than null

Should metaheuristics.generators.Particle.getTrace() return a zero length array rather than null?

At Particle.java:[lines 20-228]

In class metaheuristics.generators.Particle

In method metaheuristics.generators.Particle.getTrace()

At Particle.java:[line 216]

Dead store to local variable

Dead store to particle in metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

Local variable named particle

At ParticleSwarmOptimization.java:[line 186]

Dead store to local variable

Dead store to reference in metaheuristics.generators.ParticleSwarmOptimization.inicialiceLBest()

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.inicialiceLBest()

Local variable named reference

At ParticleSwarmOptimization.java:[line 70]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.getListCountBetterGender() may expose internal
representation by returning ParticleSwarmOptimization.listCountBetterGender

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method `metaheuristics.generators.ParticleSwarmOptimization.getListCountBetterGender()`

In `ParticleSwarmOptimization.java`

Field `metaheuristics.generators.ParticleSwarmOptimization.listCountBetterGender`

At `ParticleSwarmOptimization.java`: [line 279]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.ParticleSwarmOptimization.getListCountGender()` may expose internal
representation by returning `ParticleSwarmOptimization.listCountGender`

At `ParticleSwarmOptimization.java`: [lines 17-291]

In class `metaheuristics.generators.ParticleSwarmOptimization`

In method `metaheuristics.generators.ParticleSwarmOptimization.getListCountGender()`

In `ParticleSwarmOptimization.java`

Field `metaheuristics.generators.ParticleSwarmOptimization.listCountGender`

At `ParticleSwarmOptimization.java`: [line 285]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.ParticleSwarmOptimization.getListParticle()` may expose internal
representation by returning `ParticleSwarmOptimization.listParticle`

At `ParticleSwarmOptimization.java`: [lines 17-291]

In class `metaheuristics.generators.ParticleSwarmOptimization`

In method `metaheuristics.generators.ParticleSwarmOptimization.getListParticle()`

In `ParticleSwarmOptimization.java`

Field `metaheuristics.generators.ParticleSwarmOptimization.listParticle`

At `ParticleSwarmOptimization.java`: [line 158]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.getReferenceList() may expose internal
representation by returning ParticleSwarmOptimization.listStateReference

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.getReferenceList()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.listStateReference

At ParticleSwarmOptimization.java:[line 249]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.getStateReferencePSO() may expose internal
representation by returning ParticleSwarmOptimization.stateReferencePSO

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.getStateReferencePSO()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.stateReferencePSO

At ParticleSwarmOptimization.java:[line 142]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.getTrace() may expose internal representation by
returning ParticleSwarmOptimization.listTrace

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.getTrace()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.listTrace

At ParticleSwarmOptimization.java:[line 291]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.setListParticle(List) may expose internal
representation by storing an externally mutable object into ParticleSwarmOptimization.listParticle

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.setListParticle(List)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.listParticle

Local variable named listParticle

At ParticleSwarmOptimization.java:[line 162]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.setListStateReference(List) may expose internal
representation by storing an externally mutable object into
ParticleSwarmOptimization.listStateReference

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.setListStateReference(List)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.listStateReference

Local variable named listStateReference

At ParticleSwarmOptimization.java:[line 154]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.ParticleSwarmOptimization.setStateReferencePSO(State) may expose
internal representation by storing an externally mutable object into
ParticleSwarmOptimization.stateReferencePSO

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.setStateReferencePSO(State)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.stateReferencePSO

Local variable named stateReferencePSO

At ParticleSwarmOptimization.java:[line 146]

An overridable method is called from a constructor
Overridable method gBestInicial is called from constructor new
metaheuristics.generators.ParticleSwarmOptimization().

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

Value gBestInicial

At ParticleSwarmOptimization.java:[line 51]

An overridable method is called from a constructor
Overridable method getListParticle is called from constructor new
metaheuristics.generators.ParticleSwarmOptimization().

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

Value getListParticle

At ParticleSwarmOptimization.java:[line 43]

An overridable method is called from a constructor
Overridable method inicialiceLBest is called from constructor new metaheuristics.generators.ParticleSwarmOptimization().

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

Value inicialiceLBest

At ParticleSwarmOptimization.java:[line 50]

Field isn't final and cannot be protected from malicious code
metaheuristics.generators.ParticleSwarmOptimization.countRef isn't final and cannot be protected from malicious code

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countRef

At ParticleSwarmOptimization.java:[line 20]

Field should be package protected
metaheuristics.generators.ParticleSwarmOptimization.constriction should be package protected

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.constriction

In ParticleSwarmOptimization.java

Field should be package protected

metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO should be package protected

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO

In ParticleSwarmOptimization.java

Field should be package protected

metaheuristics.generators.ParticleSwarmOptimization.countParticle should be package protected

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At ParticleSwarmOptimization.java:[line 21]

Field should be package protected

metaheuristics.generators.ParticleSwarmOptimization.gBest should be package protected

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.gBest

In ParticleSwarmOptimization.java

Field should be package protected

metaheuristics.generators.ParticleSwarmOptimization.lBest should be package protected

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.lBest

In ParticleSwarmOptimization.java

Field isn't final but should be

metaheuristics.generators.ParticleSwarmOptimization.binary isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.binary

At ParticleSwarmOptimization.java:[line 29]

Field isn't final but should be

metaheuristics.generators.ParticleSwarmOptimization.countParticleBySwarm isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticleBySwarm

At ParticleSwarmOptimization.java:[line 23]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.coutSwarm isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.coutSwarm

At ParticleSwarmOptimization.java:[line 22]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.learning1 isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.learning1

At ParticleSwarmOptimization.java:[line 27]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.learning2 isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.learning2

At ParticleSwarmOptimization.java:[line 27]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.wmax isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.wmax

At ParticleSwarmOptimization.java:[line 25]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.wmin isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.wmin

At ParticleSwarmOptimization.java:[line 26]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.countBetterGender isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countBetterGender

At ParticleSwarmOptimization.java:[line 35]

Field isn't final but should be
metaheuristics.generators.ParticleSwarmOptimization.countGender isn't final but should be

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countGender

At ParticleSwarmOptimization.java:[line 34]

Array-type field is public

Array-type field metaheuristics.generators.ParticleSwarmOptimization.lBest is public, which makes it too exposed. Consider making it private to limit external accessibility.

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.lBest

At Particle.java:[line 93]

Primitive field is public

Primitive field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO

At Particle.java:[line 74]

Primitive field is public

Primitive field metaheuristics.generators.ParticleSwarmOptimization.countParticle is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At Particle.java:[line 89]

Primitive field is public

Primitive field metaheuristics.generators.ParticleSwarmOptimization.countRef is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countRef

At UpdateParameter.java:[line 36]

Primitive field is public

Primitive field metaheuristics.generators.ParticleSwarmOptimization.gBest is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.gBest

At ParticleSwarmOptimization.java:[line 51]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO from instance method new metaheuristics.generators.ParticleSwarmOptimization()

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO

At ParticleSwarmOptimization.java:[line 49]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countParticle from instance method new metaheuristics.generators.ParticleSwarmOptimization()

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At ParticleSwarmOptimization.java:[line 53]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countRef from instance method new metaheuristics.generators.ParticleSwarmOptimization()

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method new metaheuristics.generators.ParticleSwarmOptimization()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countRef

At ParticleSwarmOptimization.java:[line 42]

Write to static field from instance method

Write to static field `metaheuristics.generators.ParticleSwarmOptimization.gBest` from instance method `new metaheuristics.generators.ParticleSwarmOptimization()`

At `ParticleSwarmOptimization.java`: [lines 17-291]

In class `metaheuristics.generators.ParticleSwarmOptimization`

In method `new metaheuristics.generators.ParticleSwarmOptimization()`

In `ParticleSwarmOptimization.java`

Field `metaheuristics.generators.ParticleSwarmOptimization.gBest`

At `ParticleSwarmOptimization.java`: [line 51]

Write to static field from instance method

Write to static field `metaheuristics.generators.ParticleSwarmOptimization.lBest` from instance method `new metaheuristics.generators.ParticleSwarmOptimization()`

At `ParticleSwarmOptimization.java`: [lines 17-291]

In class `metaheuristics.generators.ParticleSwarmOptimization`

In method `new metaheuristics.generators.ParticleSwarmOptimization()`

In `ParticleSwarmOptimization.java`

Field `metaheuristics.generators.ParticleSwarmOptimization.lBest`

At `ParticleSwarmOptimization.java`: [line 47]

Write to static field from instance method

Write to static field `metaheuristics.generators.ParticleSwarmOptimization.countParticle` from instance method `metaheuristics.generators.ParticleSwarmOptimization.generate(Integer)`

At `ParticleSwarmOptimization.java`: [lines 17-291]

In class `metaheuristics.generators.ParticleSwarmOptimization`

In method `metaheuristics.generators.ParticleSwarmOptimization.generate(Integer)`

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At ParticleSwarmOptimization.java:[line 62]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countParticle from instance method metaheuristics.generators.ParticleSwarmOptimization.inicialiceLBest()

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.inicialiceLBest()

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At ParticleSwarmOptimization.java:[line 77]

Another occurrence at ParticleSwarmOptimization.java:[line 84]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO from instance method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countCurrentIterPSO

At ParticleSwarmOptimization.java:[line 214]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.countParticle from instance method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countParticle

At ParticleSwarmOptimization.java:[line 213]

Write to static field from instance method

Write to static field metaheuristics.generators.ParticleSwarmOptimization.gBest from instance method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In method metaheuristics.generators.ParticleSwarmOptimization.updateReference(State, Integer)

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.gBest

At ParticleSwarmOptimization.java:[line 193]

Another occurrence at ParticleSwarmOptimization.java:[line 205]

Unread public/protected field

Unread public/protected field:

metaheuristics.generators.ParticleSwarmOptimization.countBetterGender

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countBetterGender

At ParticleSwarmOptimization.java:[line 35]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.ParticleSwarmOptimization.countGender

At ParticleSwarmOptimization.java:[lines 17-291]

In class metaheuristics.generators.ParticleSwarmOptimization

In ParticleSwarmOptimization.java

Field metaheuristics.generators.ParticleSwarmOptimization.countGender

At ParticleSwarmOptimization.java:[line 34]

Dead store to local variable

Dead store to neighborhood in metaheuristics.generators.RandomSearch.generate(Integer)

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method metaheuristics.generators.RandomSearch.generate(Integer)

Local variable named neighborhood

At RandomSearch.java:[line 57]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.RandomSearch.getListCountBetterGender() may expose internal representation by returning RandomSearch.listCountBetterGender

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method `metaheuristics.generators.RandomSearch.getListCountBetterGender()`

In `RandomSearch.java`

Field `metaheuristics.generators.RandomSearch.listCountBetterGender`

At `RandomSearch.java`: [line 133]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.RandomSearch.getListCountGender()` may expose internal representation by returning `RandomSearch.listCountGender`

At `RandomSearch.java`: [lines 31-145]

In class `metaheuristics.generators.RandomSearch`

In method `metaheuristics.generators.RandomSearch.getListCountGender()`

In `RandomSearch.java`

Field `metaheuristics.generators.RandomSearch.listCountGender`

At `RandomSearch.java`: [line 139]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.RandomSearch.getReference()` may expose internal representation by returning `RandomSearch.stateReferenceRS`

At `RandomSearch.java`: [lines 31-145]

In class `metaheuristics.generators.RandomSearch`

In method `metaheuristics.generators.RandomSearch.getReference()`

In `RandomSearch.java`

Field `metaheuristics.generators.RandomSearch.stateReferenceRS`

At `RandomSearch.java`: [line 67]

May expose internal representation by returning reference to mutable object

metaheuristics.generators.RandomSearch.getTrace() may expose internal representation by returning RandomSearch.listTrace

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method metaheuristics.generators.RandomSearch.getTrace()

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.listTrace

At RandomSearch.java:[line 145]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.RandomSearch.setInitialReference(State) may expose internal representation by storing an externally mutable object into RandomSearch.stateReferenceRS

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method metaheuristics.generators.RandomSearch.setInitialReference(State)

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.stateReferenceRS

Local variable named stateInitialRef

At RandomSearch.java:[line 72]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.RandomSearch.updateReference(State, Integer) may expose internal representation by storing an externally mutable object into RandomSearch.stateReferenceRS

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method metaheuristics.generators.RandomSearch.updateReference(State, Integer)

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.stateReferenceRS

Local variable named stateCandidate

At RandomSearch.java:[line 81]

Field isn't final and cannot be protected from malicious code
metaheuristics.generators.RandomSearch.listStateReference isn't final and cannot be protected from
malicious code

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.listStateReference

At RandomSearch.java:[line 31]

Field isn't final but should be
metaheuristics.generators.RandomSearch.countBetterGender isn't final but should be

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.countBetterGender

At RandomSearch.java:[line 35]

Field isn't final but should be
metaheuristics.generators.RandomSearch.countGender isn't final but should be

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.countGender

At RandomSearch.java:[line 34]

Write to static field from instance method

Write to static field metaheuristics.generators.RandomSearch.listStateReference from instance method
new metaheuristics.generators.RandomSearch()

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In method new metaheuristics.generators.RandomSearch()

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.listStateReference

At RandomSearch.java:[line 51]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.RandomSearch.countBetterGender

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.countBetterGender

At RandomSearch.java:[line 35]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.RandomSearch.countGender

At RandomSearch.java:[lines 31-145]

In class metaheuristics.generators.RandomSearch

In RandomSearch.java

Field metaheuristics.generators.RandomSearch.countGender

At RandomSearch.java:[line 34]

Dead store to local variable

Dead store to neighborhood in metaheuristics.generators.SimulatedAnnealing.generate(Integer)

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.generate(Integer)

Local variable named neighborhood

At SimulatedAnnealing.java:[line 74]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.SimulatedAnnealing.getListCountBetterGender() may expose internal
representation by returning SimulatedAnnealing.listCountBetterGender

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.getListCountBetterGender()

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.listCountBetterGender

At SimulatedAnnealing.java:[line 149]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.SimulatedAnnealing.getListCountGender() may expose internal
representation by returning SimulatedAnnealing.listCountGender

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.getListCountGender()

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.listCountGender

At SimulatedAnnealing.java:[line 155]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.SimulatedAnnealing.getReference() may expose internal representation by
returning SimulatedAnnealing.stateReferenceSA

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.getReference()

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.stateReferenceSA

At SimulatedAnnealing.java:[line 83]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.SimulatedAnnealing.getReferenceList() may expose internal representation
by returning SimulatedAnnealing.listStateReference

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.getReferenceList()

In SimulatedAnnealing.java

Field `metaheuristics.generators.SimulatedAnnealing.listStateReference`

At `SimulatedAnnealing.java`: [line 118]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.SimulatedAnnealing.getTrace()` may expose internal representation by returning `SimulatedAnnealing.listTrace`

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In method `metaheuristics.generators.SimulatedAnnealing.getTrace()`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.listTrace`

At `SimulatedAnnealing.java`: [line 161]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.SimulatedAnnealing.setInitialReference(State)` may expose internal representation by storing an externally mutable object into `SimulatedAnnealing.stateReferenceSA`

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In method `metaheuristics.generators.SimulatedAnnealing.setInitialReference(State)`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.stateReferenceSA`

Local variable named `stateInitialRef`

At `SimulatedAnnealing.java`: [line 92]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.SimulatedAnnealing.setStateRef(State)` may expose internal representation by storing an externally mutable object into `SimulatedAnnealing.stateReferenceSA`

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.setStateRef(State)

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.stateReferenceSA

Local variable named stateRef

At SimulatedAnnealing.java:[line 87]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer) may expose internal
representation by storing an externally mutable object into SimulatedAnnealing.stateReferenceSA

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In method metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer)

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.stateReferenceSA

Local variable named stateCandidate

At SimulatedAnnealing.java:[line 102]

Field isn't final and cannot be protected from malicious code
metaheuristics.generators.SimulatedAnnealing.tinitial isn't final and cannot be protected from malicious
code

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.tinitial

In SimulatedAnnealing.java

Field should be package protected

metaheuristics.generators.SimulatedAnnealing.countIterationsT should be package protected

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countIterationsT

In SimulatedAnnealing.java

Field isn't final but should be

metaheuristics.generators.SimulatedAnnealing.alpha isn't final but should be

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.alpha

In SimulatedAnnealing.java

Field isn't final but should be

metaheuristics.generators.SimulatedAnnealing.countBetterGender isn't final but should be

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countBetterGender

At SimulatedAnnealing.java:[line 38]

Field isn't final but should be
metaheuristics.generators.SimulatedAnnealing.countGender isn't final but should be

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countGender

At SimulatedAnnealing.java:[line 37]

Field isn't final but should be
metaheuristics.generators.SimulatedAnnealing.tfinal isn't final but should be

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.tfinal

In SimulatedAnnealing.java

Primitive field is public
Primitive field metaheuristics.generators.SimulatedAnnealing.countIterationsT is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countIterationsT

At SimulatedAnnealing.java:[line 97]

Primitive field is public

Primitive field `metaheuristics.generators.SimulatedAnnealing.tinitial` is public and set from inside the class, which makes it too exposed. Consider making it private to limit external accessibility.

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.tinitial`

At `SimulatedAnnealing.java`: [line 104]

Write to static field from instance method

Write to static field `metaheuristics.generators.SimulatedAnnealing.countIterationsT` from instance method `metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer)`

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In method `metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer)`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.countIterationsT`

At `SimulatedAnnealing.java`: [line 105]

Write to static field from instance method

Write to static field `metaheuristics.generators.SimulatedAnnealing.tinitial` from instance method `metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer)`

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In method `metaheuristics.generators.SimulatedAnnealing.updateReference(State, Integer)`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.tinitial`

At SimulatedAnnealing.java:[line 104]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.SimulatedAnnealing.countBetterGender

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countBetterGender

At SimulatedAnnealing.java:[line 38]

Unread public/protected field

Unread public/protected field: metaheuristics.generators.SimulatedAnnealing.countGender

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.countGender

At SimulatedAnnealing.java:[line 37]

Unused public or protected field

Unused public or protected field: metaheuristics.generators.SimulatedAnnealing.tfinal

At SimulatedAnnealing.java:[lines 33-161]

In class metaheuristics.generators.SimulatedAnnealing

In SimulatedAnnealing.java

Field metaheuristics.generators.SimulatedAnnealing.tfinal

In SimulatedAnnealing.java

Unwritten public or protected field

Unwritten public or protected field: `metaheuristics.generators.SimulatedAnnealing.alpha`

At `SimulatedAnnealing.java`: [lines 33-161]

In class `metaheuristics.generators.SimulatedAnnealing`

In `SimulatedAnnealing.java`

Field `metaheuristics.generators.SimulatedAnnealing.alpha`

At `SimulatedAnnealing.java`: [line 104]

Dead store to local variable

Dead store to neighborhood in `metaheuristics.generators.TabuSearch.generate(Integer)`

At `TabuSearch.java`: [lines 33-192]

In class `metaheuristics.generators.TabuSearch`

In method `metaheuristics.generators.TabuSearch.generate(Integer)`

Local variable named `neighborhood`

At `TabuSearch.java`: [line 79]

May expose internal representation by returning reference to mutable object

`metaheuristics.generators.TabuSearch.getListCountBetterGender()` may expose internal representation by returning `TabuSearch.listCountBetterGender`

At `TabuSearch.java`: [lines 33-192]

In class `metaheuristics.generators.TabuSearch`

In method `metaheuristics.generators.TabuSearch.getListCountBetterGender()`

In `TabuSearch.java`

Field `metaheuristics.generators.TabuSearch.listCountBetterGender`

At TabuSearch.java:[line 180]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.TabuSearch.getListCountGender() may expose internal representation by
returning TabuSearch.listCountGender

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In method metaheuristics.generators.TabuSearch.getListCountGender()

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.listCountGender

At TabuSearch.java:[line 186]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.TabuSearch.getReference() may expose internal representation by returning
TabuSearch.stateReferenceTS

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In method metaheuristics.generators.TabuSearch.getReference()

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.stateReferenceTS

At TabuSearch.java:[line 88]

May expose internal representation by returning reference to mutable object
metaheuristics.generators.TabuSearch.getReferenceList() may expose internal representation by
returning TabuSearch.listStateReference

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In method `metaheuristics.generators.TabuSearch.getReferenceList()`

In `TabuSearch.java`

Field `metaheuristics.generators.TabuSearch.listStateReference`

At `TabuSearch.java`: [line 147]

May expose internal representation by returning reference to mutable object
`metaheuristics.generators.TabuSearch.getTrace()` may expose internal representation by returning
`TabuSearch.listTrace`

At `TabuSearch.java`: [lines 33-192]

In class `metaheuristics.generators.TabuSearch`

In method `metaheuristics.generators.TabuSearch.getTrace()`

In `TabuSearch.java`

Field `metaheuristics.generators.TabuSearch.listTrace`

At `TabuSearch.java`: [line 192]

May expose internal representation by incorporating reference to mutable object
`metaheuristics.generators.TabuSearch.setInitialReference(State)` may expose internal representation by
storing an externally mutable object into `TabuSearch.stateReferenceTS`

At `TabuSearch.java`: [lines 33-192]

In class `metaheuristics.generators.TabuSearch`

In method `metaheuristics.generators.TabuSearch.setInitialReference(State)`

In `TabuSearch.java`

Field `metaheuristics.generators.TabuSearch.stateReferenceTS`

Local variable named `stateInitialRef`

At TabuSearch.java:[line 93]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.TabuSearch.setStateRef(State) may expose internal representation by storing
an externally mutable object into TabuSearch.stateReferenceTS

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In method metaheuristics.generators.TabuSearch.setStateRef(State)

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.stateReferenceTS

Local variable named stateRef

At TabuSearch.java:[line 97]

May expose internal representation by incorporating reference to mutable object
metaheuristics.generators.TabuSearch.updateReference(State, Integer) may expose internal
representation by storing an externally mutable object into TabuSearch.stateReferenceTS

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In method metaheuristics.generators.TabuSearch.updateReference(State, Integer)

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.stateReferenceTS

Local variable named stateCandidate

At TabuSearch.java:[line 106]

Field isn't final but should be
metaheuristics.generators.TabuSearch.countBetterGender isn't final but should be

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.countBetterGender

At TabuSearch.java:[line 38]

Field isn't final but should be
metaheuristics.generators.TabuSearch.countGender isn't final but should be

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.countGender

At TabuSearch.java:[line 37]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.TabuSearch.countBetterGender

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.countBetterGender

At TabuSearch.java:[line 38]

Unread public/protected field
Unread public/protected field: metaheuristics.generators.TabuSearch.countGender

At TabuSearch.java:[lines 33-192]

In class metaheuristics.generators.TabuSearch

In TabuSearch.java

Field metaheuristics.generators.TabuSearch.countGender

At TabuSearch.java:[line 37]

Method names should start with a lower case letter

The method name problem.definition.ObjetiveFunction.Evaluation(State) doesn't start with a lower case letter

At ObjetiveFunction.java:[lines 5-24]

In class problem.definition.ObjetiveFunction

In method problem.definition.ObjetiveFunction.Evaluation(State)

In ObjetiveFunction.java

May expose internal representation by returning reference to mutable object

problem.definition.Problem.getFunction() may expose internal representation by returning Problem.function

At Problem.java:[lines 27-107]

In class problem.definition.Problem

In method problem.definition.Problem.getFunction()

In Problem.java

Field problem.definition.Problem.function

At Problem.java:[line 31]

May expose internal representation by returning reference to mutable object

problem.definition.Problem.getState() may expose internal representation by returning Problem.state

At Problem.java:[lines 27-107]

In class problem.definition.Problem

In method `problem.definition.Problem.getState()`

In `Problem.java`

Field `problem.definition.Problem.state`

At `Problem.java`: [line 39]

May expose internal representation by incorporating reference to mutable object
`problem.definition.Problem.setFunction(ArrayList)` may expose internal representation by storing an externally mutable object into `Problem.function`

At `Problem.java`: [lines 27-107]

In class `problem.definition.Problem`

In method `problem.definition.Problem.setFunction(ArrayList)`

In `Problem.java`

Field `problem.definition.Problem.function`

Local variable named `function`

At `Problem.java`: [line 35]

May expose internal representation by incorporating reference to mutable object
`problem.definition.Problem.setState(State)` may expose internal representation by storing an externally mutable object into `Problem.state`

At `Problem.java`: [lines 27-107]

In class `problem.definition.Problem`

In method `problem.definition.Problem.setState(State)`

In `Problem.java`

Field `problem.definition.Problem.state`

Local variable named `state`

At Problem.java:[line 43]

Method names should start with a lower case letter

The method name `problem.definition.Problem.Evaluate(State)` doesn't start with a lower case letter

At Problem.java:[lines 27-107]

In class `problem.definition.Problem`

In method `problem.definition.Problem.Evaluate(State)`

At Problem.java:[lines 77-88]

Field not initialized in constructor but dereferenced without null check

`Problem.function` not initialized in constructor and dereferenced in `problem.definition.Problem.Evaluate(State)`

At Problem.java:[lines 27-107]

In class `problem.definition.Problem`

In Problem.java

Field `problem.definition.Problem.function`

In method `problem.definition.Problem.Evaluate(State)`

At Problem.java:[line 78]

Class defines `clone()` but doesn't implement `Cloneable`

`problem.definition.State` defines `clone()` but doesn't implement `Cloneable`

At State.java:[lines 9-85]

In class `problem.definition.State`

In method `problem.definition.State.clone()`

At State.java:[line 63]

May expose internal representation by returning reference to mutable object
problem.definition.State.getCode() may expose internal representation by returning State.code

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.getCode()

In State.java

Field problem.definition.State.code

At State.java:[line 33]

May expose internal representation by returning reference to mutable object
problem.definition.State.getEvaluation() may expose internal representation by returning State.evaluation

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.getEvaluation()

In State.java

Field problem.definition.State.evaluation

At State.java:[line 49]

May expose internal representation by incorporating reference to mutable object
new problem.definition.State(ArrayList) may expose internal representation by storing an externally mutable object into State.code

At State.java:[lines 9-85]

In class problem.definition.State

In method new problem.definition.State(ArrayList)

In State.java

Field problem.definition.State.code

Local variable named code

At State.java:[line 25]

May expose internal representation by incorporating reference to mutable object
problem.definition.State.setCode(ArrayList) may expose internal representation by storing an externally mutable object into State.code

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.setCode(ArrayList)

In State.java

Field problem.definition.State.code

Local variable named listCode

At State.java:[line 37]

May expose internal representation by incorporating reference to mutable object
problem.definition.State.setEvaluation(ArrayList) may expose internal representation by storing an externally mutable object into State.evaluation

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.setEvaluation(ArrayList)

In State.java

Field problem.definition.State.evaluation

Local variable named evaluation

At State.java:[line 53]

Method names should start with a lower case letter

The method name problem.definition.State.Comparator(State) doesn't start with a lower case letter

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.Comparator(State)

At State.java:[lines 72-76]

Method names should start with a lower case letter

The method name problem.definition.State.Distance(State) doesn't start with a lower case letter

At State.java:[lines 9-85]

In class problem.definition.State

In method problem.definition.State.Distance(State)

At State.java:[lines 79-85]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.CalcularMax(ArrayList) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.CalcularMax(ArrayList)

At MetricasMultiobjetivo.java:[lines 118-125]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.CalcularMedia(ArrayList) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.CalcularMedia(ArrayList)

At MetricasMultiobjetivo.java:[lines 128-134]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.CalcularMin(ArrayList) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.CalcularMin(ArrayList)

At MetricasMultiobjetivo.java:[lines 107-114]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.Contains(State, List) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.Contains(State, List)

At MetricasMultiobjetivo.java:[lines 96-104]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.Dispersion(ArrayList) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.Dispersion(ArrayList)

At MetricasMultiobjetivo.java:[lines 57-93]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.DistanciaGeneracional(List, List) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.DistanciaGeneracional(List, List)

At MetricasMultiobjetivo.java:[lines 30-52]

Method names should start with a lower case letter

The method name problem.extension.MetricasMultiobjetivo.TasaError(List, List) doesn't start with a lower case letter

At MetricasMultiobjetivo.java:[lines 12-134]

In class problem.extension.MetricasMultiobjetivo

In method problem.extension.MetricasMultiobjetivo.TasaError(List, List)

At MetricasMultiobjetivo.java:[lines 16-25]

Bad practice

Malicious code vulnerability

Performance

Correctness

Dodgy code

Multithreaded correctness

Field not initialized in constructor but dereferenced without null check

<p> This field is never initialized within any constructor, and is therefore could be null after the object is constructed. Elsewhere, it is loaded and dereferenced without a null check. This could be either an

error or a questionable design, since it means a null pointer exception will be generated if that field is dereferenced before being initialized. </p>

Dead store to local variable

<p> This instruction assigns a value to a local variable, but the value is not read or used in any subsequent instruction. Often, this indicates an error, because the value computed is never used. </p>

<p> Note that Sun's javac compiler often generates dead stores for final local variables. Because SpotBugs is a bytecode-based tool, there is no easy way to eliminate these false positives. </p>

Integral division result cast to double or float

<p> This code casts the result of an integral division (e.g., int or long division) operation to double or float. Doing division on integers truncates the result to the integer value closest to zero. The fact that the result was cast to double suggests that this precision should have been retained. What was probably meant was to cast one or both of the operands to double before performing the division.

Here is an example: <p> <pre><code>int x = 2; int y = 5; // Wrong: yields result 0.0 double value1 = x / y; // Right: yields result 0.4 double value2 = x / (double) y; </code></pre>

Primitive value is boxed and then immediately unboxed

<p> A primitive is boxed, and then immediately unboxed. This probably is due to a manual boxing in a place where an unboxed value is required, thus forcing the compiler to immediately undo the work of the boxing. </p>

May expose internal representation by incorporating reference to mutable object

<p> This code stores a reference to an externally mutable object into the internal representation of the object. If instances are accessed by untrusted code, and unchecked changes to the mutable object would compromise security or other important properties, you will need to do something different. Storing a copy of the object is better approach in many situations. </p>

Array-type field is public

<p> SEI CERT rule OBJ01-J requires that accessibility of fields must be limited. Making an array-type field final does not prevent other classes from modifying the contents of the array. However, in general, requiring that no fields are allowed to be public is overkill and unrealistic. There may be usages for public fields: some public fields may serve as "flags" that affect the behavior of the class. Such flag fields are expected to be read by the current instance (or the current class, in case of static fields), but written by others. If a field is both written by the methods of the current instance (or the current class, in case of static fields) and from the outside, the code is suspicious. Consider making these fields private and provide appropriate setters, if necessary. Please note that constructors, initializers and finalizers are exceptions, if only they write the field inside the class, the field is not considered as written by the class itself. </p>

Field isn't final but should be

<p> This <code>public static</code> or <code>protected static</code> field is not final, and could be changed by malicious code or by accident from another package. The field could be made final to avoid this vulnerability. </p>

Incorrect lazy initialization of static field

<p> This method contains an unsynchronized lazy initialization of a non-volatile static field. Because the compiler or processor may reorder instructions, threads are not guaranteed to see a completely initialized object, if the method can be called by multiple threads. You can make the field volatile to correct the problem. For more information, see the Java Memory Model web site. </p>

Method names should start with a lower case letter

<p> Methods should be verbs, in mixed case with the first letter lowercase, with the first letter of each internal word capitalized. </p>

Unwritten public or protected field

<p> No writes were seen to this public/protected field. All reads of it will return the default value. Check for errors (should it have been initialized?), or remove it if it is useless.</p>

Unread field

<p> This field is never read. Consider removing it from the class.</p>

Exception is caught when Exception is not thrown

<p> This method uses a try-catch block that catches Exception objects, but Exception is not thrown within the try block, and RuntimeException is not explicitly caught. It is a common bug pattern to say try { ... } catch (Exception e) { something } as a shorthand for catching a number of types of exception each of whose catch blocks is identical, but this construct also accidentally catches RuntimeException as well, masking potential bugs. </p> <p>A better approach is to either explicitly catch the specific exceptions that are thrown, or to explicitly catch RuntimeException exception, rethrow it, and then catch all non-Runtime Exceptions, as shown below:</p> <pre><code>try { ... } catch (RuntimeException e) { throw e; } catch (Exception e) { ... deal with all non-runtime exceptions ... } </code></pre>

Use the nextInt method of Random rather than nextDouble to generate a random integer

<p>If <code>r</code> is a <code>java.util.Random</code>, you can generate a random number from <code>0</code> to <code>n-1</code> using <code>r.nextInt(n)</code>, rather than using <code>(int)(r.nextDouble() * n)</code>. </p> <p>The argument to nextInt must be positive. If, for example, you want to generate a random value from -99 to 0, use <code>-r.nextInt(100)</code>. </p>

Public static method may expose internal representation by returning a mutable object or array

<p> A public static method returns a reference to a mutable object or an array that is part of the static state of the class. Any code that calls this method can freely modify the underlying array. One fix is to return a copy of the array.</p>

Possible null pointer dereference in method on exception path

<p> A reference value which is null on some exception control path is dereferenced here. This may lead to a <code>NullPointerException</code> when the code is executed. Note that because SpotBugs currently does not prune infeasible exception paths, this may be a false warning.</p> <p> Also note that SpotBugs considers the default case of a switch statement to be an exception path, since the default case is often infeasible.</p>

Field should be package protected

<p> A mutable static field could be changed by malicious code or by accident. The field could be made package protected to avoid this vulnerability.</p>

Write to static field from instance method

<p> This instance method writes to a static field. This is tricky to get correct if multiple instances are being manipulated, and generally bad practice. </p>

Unchecked/unconfirmed cast of return value from method

<p> This code performs an unchecked cast of the return value of a method. The code might be calling the method in such a way that the cast is guaranteed to be safe, but SpotBugs is unable to verify that the cast is safe. Check that your program logic ensures that this cast will not fail. </p>

May expose internal representation by returning reference to mutable object

<p> Returning a reference to a mutable object value stored in one of the object's fields exposes the internal representation of the object. If instances are accessed by untrusted code, and unchecked changes to the mutable object would compromise security or other important properties, you will need to do something different. Returning a new copy of the object is better approach in many situations.</p>

Field isn't final and cannot be protected from malicious code

<p> A mutable static field could be changed by malicious code or by accident from another package. Unfortunately, the way the field is used doesn't allow any easy fix to this problem.</p>

Test for floating point equality

<p> This operation compares two floating point values for equality. Because floating point calculations may involve rounding, calculated float and double values may not be accurate. For values that must be precise, such as monetary values, consider using a fixed-precision type such as BigDecimal. For values that need not be precise, consider comparing for equality within some range, for example: `if (Math.abs(x - y) < .0000001)`. See the Java Language Specification, section 4.2.4. </p>

Method invokes inefficient Number constructor; use static valueOf instead

<p> Using `new Integer(int)` is guaranteed to always result in a new object whereas `Integer.valueOf(int)` allows caching of values to be done by the compiler, class library, or JVM. Using of cached values avoids object allocation and the code will be faster. </p>

<p> Values between -128 and 127 are guaranteed to have corresponding cached instances and using `valueOf` is approximately 3.5 times faster than using constructor. For values outside the constant range the performance of both styles is the same. </p> <p> Unless the class must be compatible with JVMs predating Java 5, use either autoboxing or the `valueOf()` method when creating instances of `Long`, `Integer`, `Short`, `Character`, and `Byte`.</p>

Primitive field is public

<p> SEI CERT rule OBJ01-J requires that accessibility to fields must be limited. Otherwise, the values of the fields may be manipulated from outside the class, which may be unexpected or undesired behaviour. In general, requiring that no fields are allowed to be public is overkill and unrealistic. Even the rule mentions that final fields may be public. Besides final fields, there may be other usages for public fields: some public fields may serve as "flags" that affect the behavior of the class. Such flag fields are expected to be read by the current instance (or the current class, in case of static fields), but written by others. If a field is both written by the methods of the current instance (or the current class, in case of static fields) and from the outside, the code is suspicious. Consider making these fields private and provide appropriate setters, if necessary. Please note that constructors, initializers and finalizers are exceptions, if only they write the field inside the class, the field is not considered as written by the class itself.</p>

Non-final field names should start with a lower case letter, final fields should be uppercase with words separated by underscores

<p> Names of fields that are not final should be in mixed case with a lowercase first letter and the first letters of subsequent words capitalized. Names of final fields should be all uppercase with words separated by underscores ('_'). </p>

Unread public/protected field

<p> This field is never read. The field is public or protected, so perhaps it is intended to be used with classes not seen as part of the analysis. If not, consider removing it from the class.</p>

May expose internal static state by storing a mutable object into a static field

<p> This code stores a reference to an externally mutable object into a static field. If unchecked changes to the mutable object would compromise security or other important properties, you will need to do something different. Storing a copy of the object is better approach in many situations.</p>

Unused public or protected field

<p> This field is never used. The field is public or protected, so perhaps it is intended to be used with classes not seen as part of the analysis. If not, consider removing it from the class.</p>

Instance-getter method of class using singleton design pattern is not synchronized.

<p> Instance-getter method of class using singleton design pattern is not synchronized. When this method is invoked by two or more threads simultaneously, multiple instantiation of a singleton class becomes possible.

<a

href="https://wiki.sei.cmu.edu/confluence/display/java/MS07-

J.+Prevent+multiple+instantiations+of+singleton+objects">SEI CERT MSC07-J rule </p>

Consider returning a zero length array rather than null

<p> It is often a better design to return a length zero array rather than a null reference to indicate that there are no results (i.e., an empty list of results). This way, no explicit check for null is needed by clients of the method.</p> <p> On the other hand, using null to indicate "there is no answer to this question" is probably appropriate. For example, <code>File.listFiles()</code> returns an empty list if given a directory containing no files, and returns null if the file is not a directory.</p>

Method invokes inefficient floating-point Number constructor; use static valueOf instead

<p> Using <code>new Double(double)</code> is guaranteed to always result in a new object whereas <code>Double.valueOf(double)</code> allows caching of values to be done by the compiler, class library, or JVM. Using of cached values avoids object allocation and the code will be faster. </p> <p> Unless the class must be compatible with JVMs predating Java 5, use either autoboxing or the <code>valueOf()</code> method when creating instances of <code>Double</code> and <code>Float</code>. </p>

Questionable cast to concrete collection

<p> This code casts an abstract collection (such as a Collection, List, or Set) to a specific concrete implementation (such as an ArrayList or HashSet). This might not be correct, and it may make your code fragile, since it makes it harder to switch to other concrete implementations at a future point. Unless you have a particular reason to do so, just use the abstract collection class. </p>

An overridable method is called from a constructor

<p> Calling an overridable method during in a constructor may result in the use of uninitialized data. It may also leak the this reference of the partially constructed object. Only static, final or private methods should be invoked from a constructor.</p> <p> See SEI CERT rule MET05-J. Ensure that constructors do not call overridable methods. </p>

Random value from 0 to 1 is coerced to the integer 0

<p> A random value from 0 to 1 is being coerced to the integer value 0. You probably want to multiply the random value by something else before coercing it to an integer, or use the <code>Random.nextInt(n)</code> method. </p>

Class defines clone() but doesn't implement Cloneable

<p> This class defines a clone() method but the class doesn't implement Cloneable. There are some situations in which this is OK (e.g., you want to control how subclasses can clone themselves), but just make sure that this is what you intended. </p>

Confusing method names

<p> The referenced methods have names that differ only by capitalization.</p>

Bad casts of object references

Misuse of static fields

Null pointer dereference

Bad use of return value from method

Method returning array may expose internal representation

Unwritten field

Mutable static field

Unused field

Unread field

Dubious method used

Singleton problems

Dead local store

Bad implementation of cloneable idiom

Casting from integer values

Storing reference to mutable object

Public Attribute

RuntimeException capture

Questionable Boxing of primitive value

Dangerous call to overridable method

Prefer zero length arrays to null to indicate no results

Unsynchronized Lazy Initialization

Confusing method name

Test for floating point equality

