AlgraviS
Documentation of tests

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In the following, tests used for testing the software "AlgraviS" are described.

1 Undirected graph

All methods have been tested separately (with different cases).

2 Directed graph

All methods have been tested separately (with different cases).

3 Reader

These are the cases tested for the class Reader.java (see figure 1):

empty file opening empty files per chance occurs quite often

empty graph extreme case for graphs

graph without edges extreme case for graphs

wrong format error of format occur quite often

Rwrong.txt blank line in otherwise correct format

Rwrong2.txt random text

Rwrong3.txt edge to a not existing endpoint

directed graph right format of an directed graph with specified edge weight as well as non specified edge weight

undirected graph right format of an directed graph with specified edge weight as well as non specified edge weight

4 ReaderBUILD

These are the cases tested for the class ReaderBUILD.java (see figure 2):

empty file opening empty files per chance occurs quite often

wrong format error of format occur quite often

RBwrongFormat.txt wrong number of leaves

RBwrong.txt triple with a not existing leaf

RBwrong2.txt random text

RBwrong3.txt format of a graph text file (edge to a not existing endpoint)

empty leafset extreme case for leafsets

empty tripleset extreme case for triplesets

right input right format

5 DFS

These are the cases tested for the class DFS.java (see figure 3):

null wrong input

empty graph wrong input

graph without edges extreme case (only one vertex)

tree to ensure the order of visiting the vertices

circle to ensure the order of visiting the vertices

two components to ensure that only vertices of the component of the startvertex are visited

6 Connected Components

These are the cases tested for the class ConnectedComponents.java (see figure 4):

null wrong input

empty graph wrong input

three components to ensure finding of all connected components

7 Maximal Matching

These are the cases tested for the class MaximalMatching.java (see figure 5):

null wrong input

empty graph wrong input

graph without edges empty matching

star and circle star to ensure deleting of all incident edges, a second component to ensure finding of all connected components

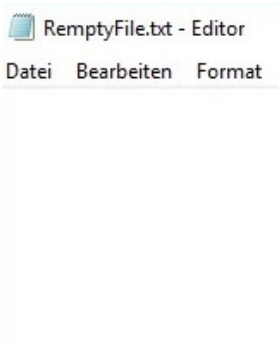
8 BUILD

Testing empty or wrong input or empty leafsets is not necessary since they cannot occur in "AlgraviS" because before executing BUILD a text file is read by ReaderBUILD.java and these cases are tested there. These are the cases tested for the class Build.java (see figure 6):

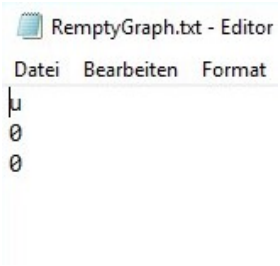
empty tripleset extreme case for triplesets but consistent

inconsistent tripleset output of BUILD should be null

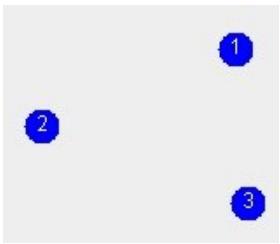
consistent tripleset extreme case with all triples



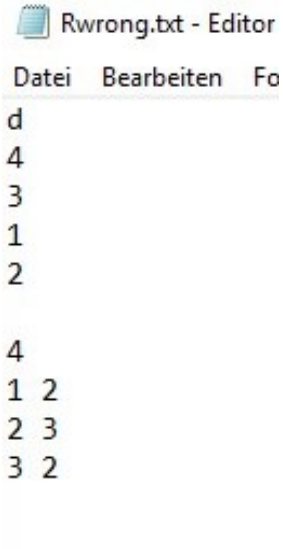
(a) empty file



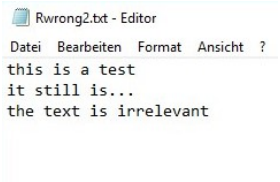
(b) empty graph



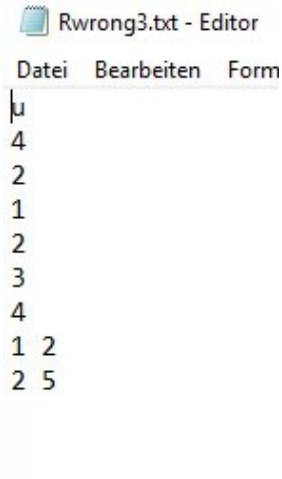
(c) gaph without edges



(d) Rwrong.txt

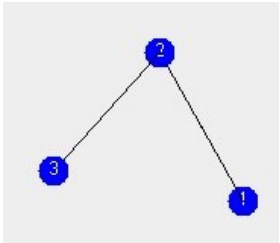


(e) Rwrong2.txt



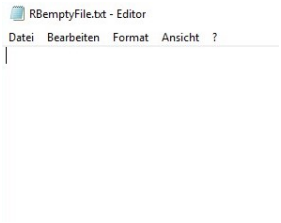
(f) Rwrong3.txt

(g) directed graph



(h) undirected graph

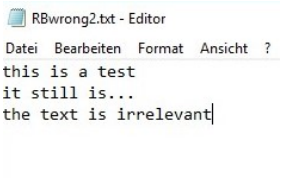
Figure 1: Graphs used to test class Reader.java.



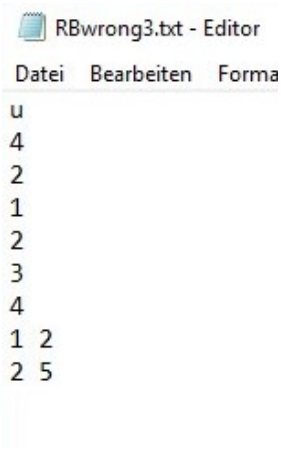
(a) empty file

(b) RBwrongFormat.txt

(c) RBwrong.txt

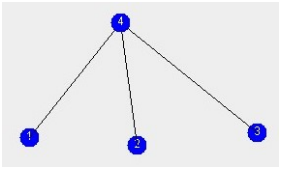


(d) RBwrong2.txt

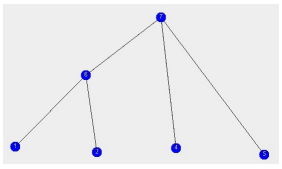


(e) RBwrong3.txt

(f) empty leafset

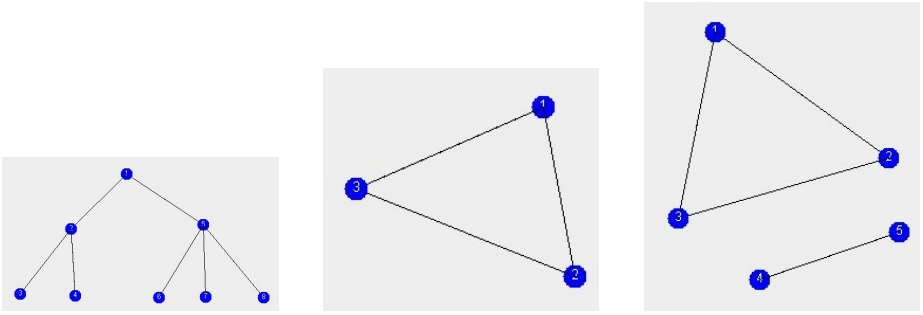


(g) empty tripleset



(h) right input

Figure 2: Graphs used to test class ReaderBUILD.java.



(a) tree (b) circle (c) two components

Figure 3: Graphs used to test class DFS.java.

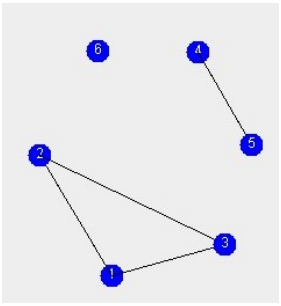
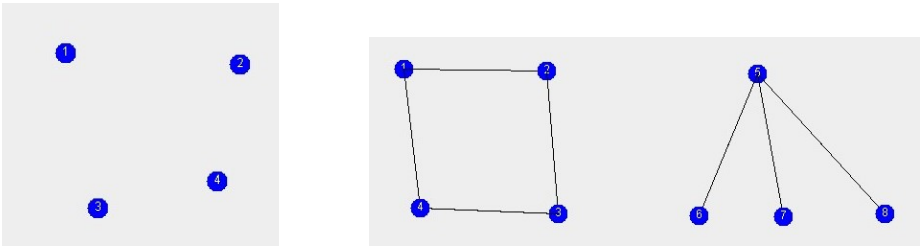
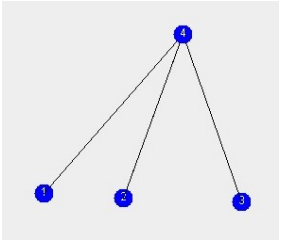


Figure 4: Graphs used to test class ConnectedComponents.java.

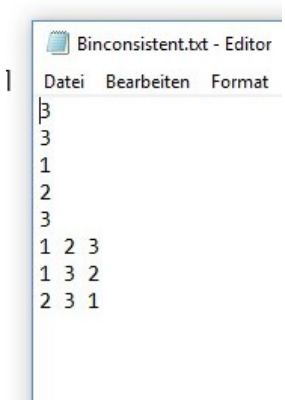


(a) graph without edges (b) star and circle

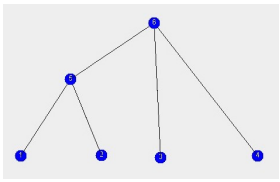
Figure 5: Graphs used to test class MaximalMatching.java.



(a) empty tripleset



(b) inconsistent tripleset



(c) consistent tripleset

Figure 6: Graphs used to test class Build.java.