Problem 2: Containers++

Working group assignment

Submit:

- Your group report (within a zip file) to http://deei-mooshak.ualg.pt/~jvo/IA/Entregas/ as TP1

  including:

  i)   The problem id, your group number, and its elements;

  ii)   Your description of the problem and the used algorithm(s)

  iii)   The unit tests developed, if any

  iv)   All design options taken

  v)   Javadoc

  vi)   The implementation UML class diagram

  vii)   Results, analysis, and discussion

  viii)   Main conclusions or remarks

  ix)   Bibliographic references used, if any

- Using your group login submit your code to mooshak
  http://deei-mooshak.ualg.pt/~jvo/ Problem C.

  All up to:
  October 28, 2024

- A submission will remain *pending* until validated by the Instructor during the lab class. Only *final* submissions will be considered for evaluation. Deadline for validation:

  November 22, 2024

Problem
In this assignment we are going to consider Problem 1 again, only with instances with longer solutions.

Task
1. Check whether the program develop for Problem 1 passes all the tests for the current problem;

2. Implement a heuristic state-space search algorithm with an admissible heuristic for solving larger instances of Problem 1. Your implementation should follow the approach presented in Tutorial 1. You can add members to the interface Ilayout as needed.

3. In the report include a table with the number of expanded nodes E, generated nodes G, length of the solution L, and the penetrance P, for each given instance and for i) uniform cost and ii) the implemented algorithm; when possible. Comment on the obtained results.

Please note that any other approach, however meritorious it may be, will be quoted with 0 (zero).

Input
See Problem 1. All inputs are well-formed.

Output
Different from Problem 1, here only the terminal node and the total cost are presented, with the same format, however.

Sample Input 1
A1B2C3 E1D5
CA B ED

Sample output 1
[B]
[C, A]
[E, D]

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Sample input 2
O6l3p5m1x2E9 M5u7 e6 o2t1s6I7 a2 A2
Isto e uM ExmplO a A

Sample output 2
[A]
[E, x, m, p, l, O]
[I, s, t, o]
[a]
[e]
[u, M]

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