UNIVERSITY OF ŽILINA
Faculty of Management Science and Informatics

SP from Algorithms and Data Structures 1 - Third level

Assignment

Allow ***efficient search for information about the territorial unit*** (municipality/region/state/geographical division) ***whose name and type will be entered***. To do this, ***add tables to your application*** storing pointers to the loaded territorial units from level 1 and 2. You will search in the table where the territorial units with the given type will be stored. All existing functionality must be retained!

Tips

- Careful to preserve the loading efficiency from level 2. You don't need to check the uniqueness of the key when loading, but you do need to deal with potential duplicates.
    - In a table, you can modify the operation for inserting - use an overloaded method or make a subclass of the table and override the method in the subclass.
    - To deal with duplicate data, you can use the same principles as for dealing with collisions in a hash table.

Evaluation

Demonstration of functionality (optional)

- 5 points.
- When demonstrating the functionality, it is necessary to show the use of the table in the source code!
- The heap must be provably clean at the end of the demonstration of functionality.
- Takes place in the 13th week of the semester.
- Points are not dependent on bonus level.
- Points are not dependent on producing documentation.
- Due to the originality check, points are conditional on uploading the SP to Moodle.

During defense

- You must implement level two functionality (score at least a 1p for level two) to get a level three score.
- Points are not dependent on bonus level.
- Your table must pass the published tests (all methods).
- As the table is used:
    - Sorted sequence table – max. 6pts.
    - Binary search tree – max. 8pts.
    - Treap – max. 10pts.
    - Hash table – max. 10pts.

Documentation

The documentation is submitted with the final version of the SP at the end of the semester. The documentation must be prepared according to the published requirements (document SP rules).

In addition to the required parts, supplement the documentation with an analysis of the time complexity of the `insert` and `find` operations in the table of your choice (used in the work) - max 5pts.