

2IO23 Design-Based Learning

Assignment I

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Introduction

This assignment requires that a subgroup in your team formally specifies and subsequently implements an algorithm that processes a text file. The remaining team members subsequently assess the formal specification and create testcases based on the formal specification. These testcases must subsequently be executed on the implementation.

Details

The text files that are to be processed by your program are simple text files containing numbers. Numbers are separated by a single space character. There is no *a priori* bound to the size of the text file.

Assignment

The program you must create computes the middle number of all cubes present in the input text file. By middle, we mean middle as in size. As an example, consider the input sequence [1, 5, **27**, 33, **8**, 15, **27**, 1, 9, **27**]. All cubes in this sequence are typeset in boldface, i.e., the cubes in this sequence belong to the set {1, 8, 27}. The middle number (in terms of size) is 8.

Disambiguate the informal specification, create a formal Z specification and implement your specification. Let the remaining team members assess the formal specification and create testcases. Execute these testcases and write down your test report.