

DATA STRUCTURES AND ALGORITHMS (CO2003)

Requirement

Assignment 1

Version 1.0.0

1 Expected outcome

After completing this assignment, students will be able to:

- Implement stack data structure.
- Apply stack and array data structures to solve problems.

2 Instruction

The object to be implemented in this assignment is the stack frame of the JAVM virtual machine. Each test case is a function, which contains instructions of the JAVM virtual machine to be executed on the stack frame.

To complete this assignment, you should follow these steps:

- Read the JAVM's specification (version 1.0.x).
- Download `initial.zip` and unzip it.
- The unzipped folder should include these files: `main.cpp`, `errors.h`, `constants.h`, `StackFrame.h` and `StackFrame.cpp`.
- Modify the initial code in `StackFrame.h` and `StackFrame.cpp` as required in the specification.
- Sample testcases and expected results are attached in `testcase` and `solution` folder. (after unzip `initial.zip`)

Important notes:

- Use C++ 11 standard to compile the program. For example, with `g++` compiler:

```
$ g++ main.cpp StackFrame.cpp -o main -std=c++11
```

- **DO NOT** modify `main.cpp`, `errors.h` and `constants.h`.
- **DO NOT** import any libraries other than ones imported in the initial code of `StackFrame.h` and `StackFrame.cpp`.
- Make sure the `StackFrame` class is declared, and this class should have at least one `public` instance method `void run(string filename)` defined in `StackFrame.h` and `StackFrame.cpp`.

3 Submission

Students must submit 2 files: `StackFrame.h` and `StackFrame.cpp` before the deadline.

Students are encouraged to complete and submit the assignment early. Unsubmitted cases related to system overload near the deadline will not be resolved.

4 Plagiarism

Each student has to complete their own assignments and protect their own source code.

If there is unusual similarities between submissions, all submissions will be counted as cheating and all of the students involved will be punished according to the university's regulations.