Software and Tools for Computational Engineering

RWTH AACHEN UNIVERSITY

Software Lab Computational Engineering Science

Group 12, Exception Handling

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Contents

- Software always has a working domain.
- User of the software is not aware of all limitations.
- Software developer helps user by introducing appropriate exception handling.
- Our task is to introduce an exception handling to cppNum v2.4 and v2.5.

- Extend cppNum v2.4 and v2.5 with appropriate C++ exception handling.
- Desing at least three scalable sufficiently distinct case studies.
- Compare general behavior and run times with the exception handling-free version.

Functional:

- An exception is thrown, if system is not able to produce correct result, because input data are incorrect or outside the domain.
- An exception is thrown before potential crash of the system.
- An exception contains an explanatory string.

Nonfunctional:

- An exception is a class object.
- All cppNum exception classes have a single parent class to provide clear structure.
- All exception classes are inherited from std::exception to catch together with other exceptions, potentially generated by thirdparty libraries.

- std::exception to enherit exception classes from.
- Eigen library to prove applicability of LU and LLT decompositions.
- throw and try-catch mechanism to throw and catch exceptions.

Project Management

Live Software Demo

Summary and Conclusion