Numerical Computing in C++ - CBL International

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Administration

- Course Git repository at **https://github.com/fcooper8472/cpp-cbl-2019**
  - Contains lecture notes and exercises
- Combination of lectures and practical sessions
  - Practical exercises (`practical*.pdf`) give you practice on the material covered in the lectures
- Those with prior C++ experience, here are a few suggestions:
  - C++ has changed a lot in the last few years. Have a look at and try out some new features, e.g. Parallel STL, `constexpr`, structured bindings, variadic templates, filesystem library, concepts, ranges, modules...
  - Something else...?

Outline

This training course covers the following topics:

1. basic types, flow control, `std::array`, input/output
2. pointers, references, functions, templates, `std::vector`
3. classes and object-oriented programming

This course gives you a practical toolbox of C++ programming up to C++14. *This is a small part of C++ as a whole!*.

Timetable

Monday to Wednesday:

- 09:00-10:30 Lecture & practical session
- 10:30-10:45 Break
- 10:45-12:15 Lecture & practical session

Thursday

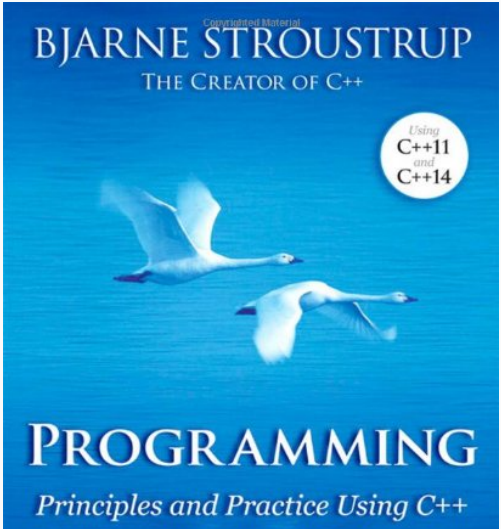
- 09:00-12:15 Work on project for assessment

Friday

- 09:00-10:30 Assessment

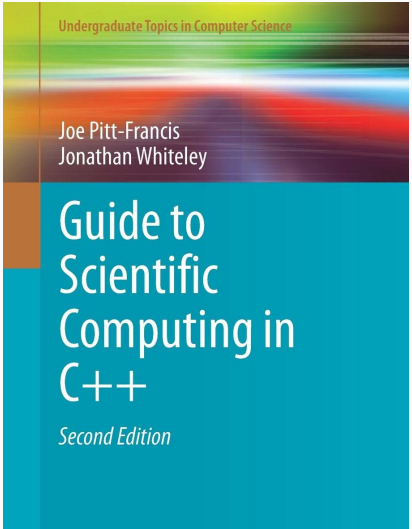
Books

- Programming: Principles and Practice Using C++



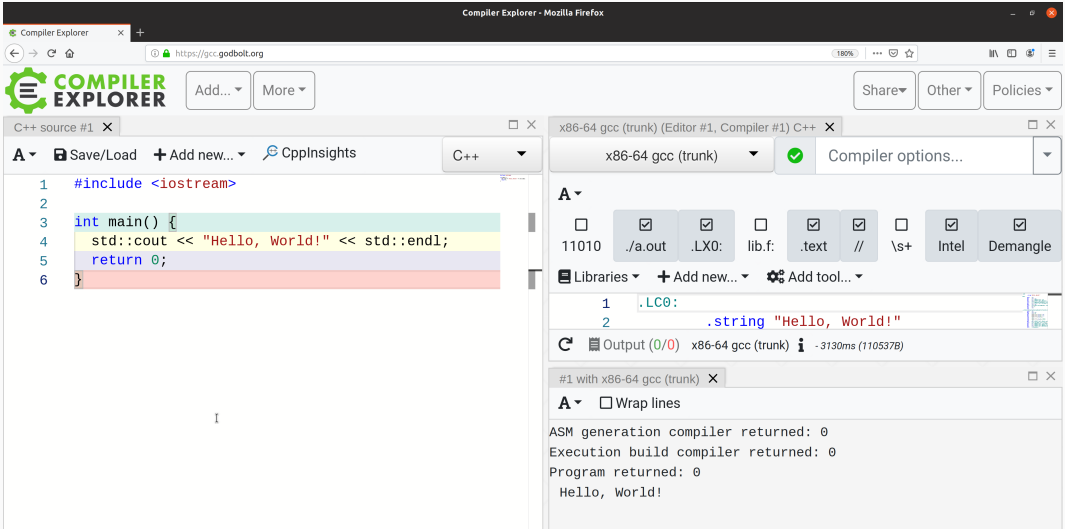
Books

- Guide to Scientific Computing in C++



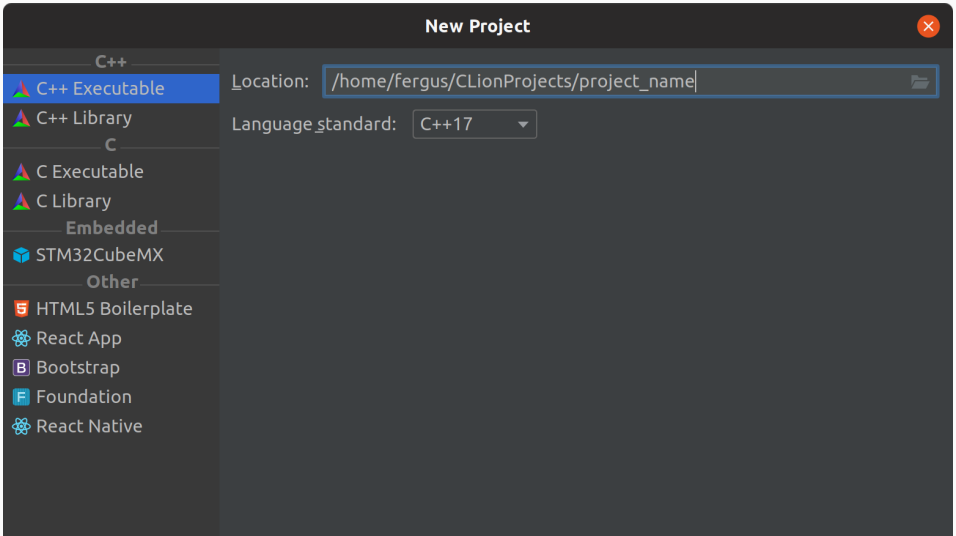
Software for the course

- Compiler explorer



Software for the course

- CLion



Software for the course

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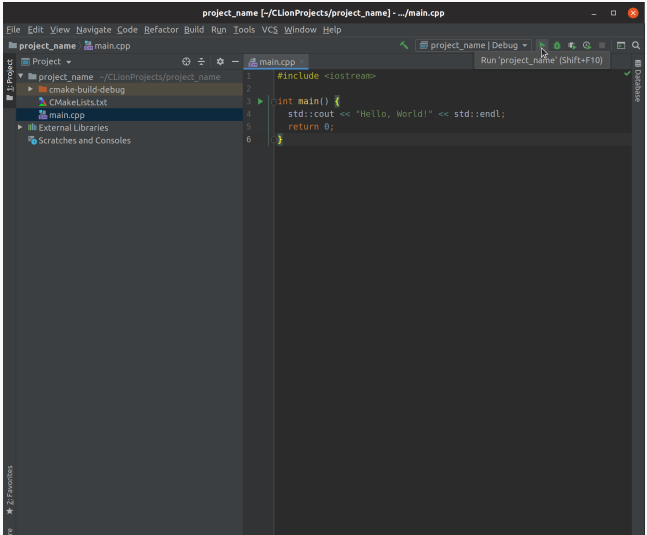

Acknowledgements

Material for this course adapted from:

- Pitt–Francis & Whiteley: Guide to Scientific Computing in C++
- C++ for Scientific Computing course by Joe Pitt–Francis: http://www.cs.ox.ac.uk/people/joe.pitt-francis/C++ScientificComputing/