

1. Block 4.2: CS6514: Software Architecture Design Portfolio

Fluctuating Finite Element Analysis (FFEA) Case Study

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2. Table of Contents

Contents

1. Block 4.2: CS6514: Software Architecture Design Portfolio	1
2. Table of Contents	2
3. Tech Stack	3
4. Utility Tree	4
5. Use Case Diagram	5
6. 4+1 Diagram	5
7. Codescene	6
8. Understand	7
9. Sonarqube	9

List of Figures

Figure 1 Use Case Diagram	5
Figure 2 Dependency Coupling Graph	6
Figure 3 Technical Debt Codescene	7
Figure 4 Understand High Level Info	7
Figure 5 Understand complexity ratings	8
Figure 6 Class Diagram Inheritance	8
Figure 7 Class Diagram flat	8
Figure 8	9
Figure 9	9
Figure 10	10
Figure 11	10

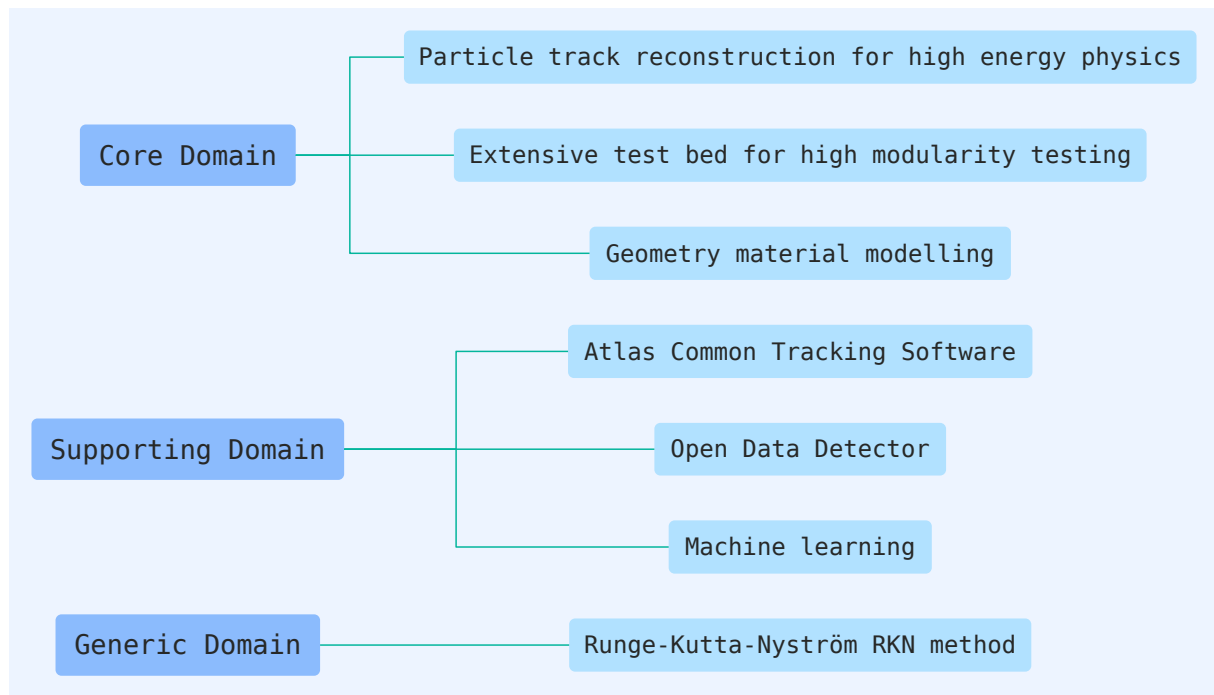
3. Tech Stack

Main Language: C++

Heavily used external libraries: Eigen, boost, cmake

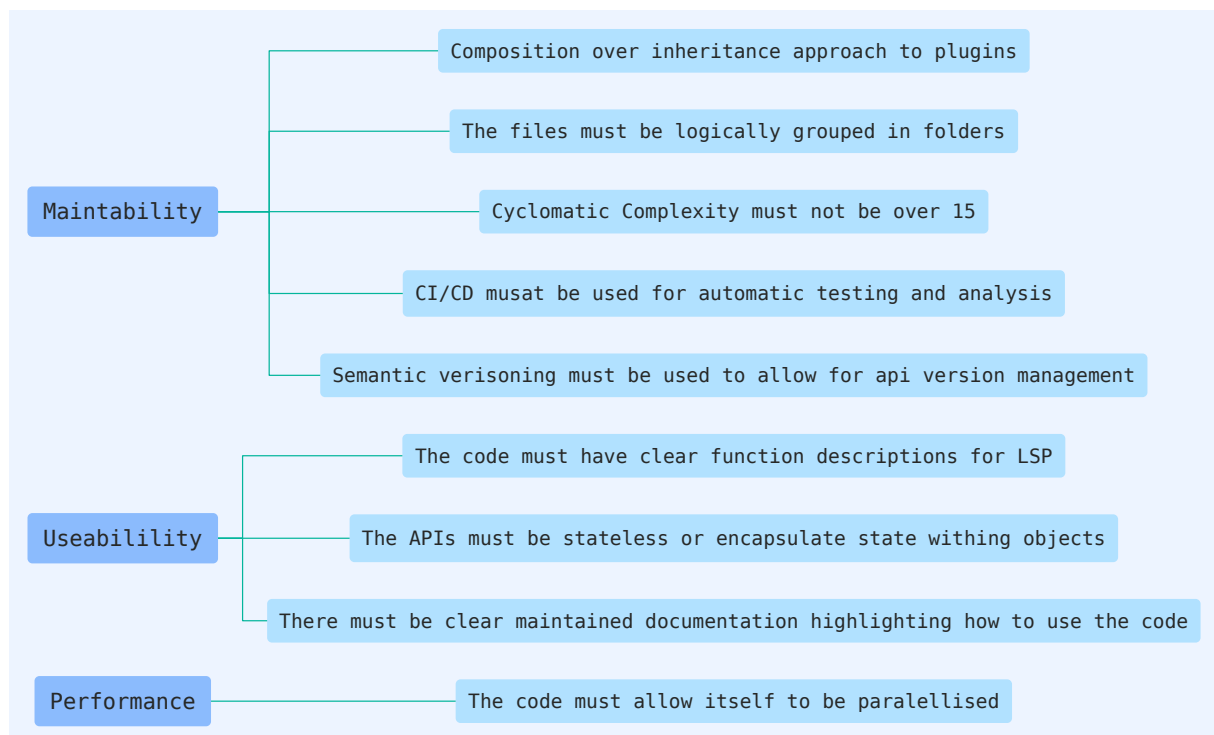
Used for example scripts: Python bindings using pybind11

Containerisation: Docker



Listing 1: Domain Model

4. Utility Tree



Listing 2: Utility Tree

5. Use Case Diagram

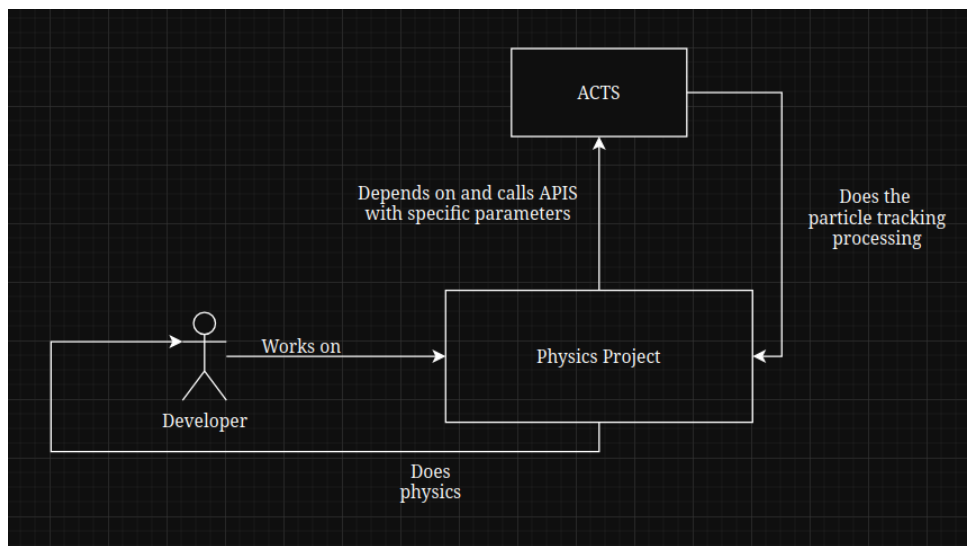
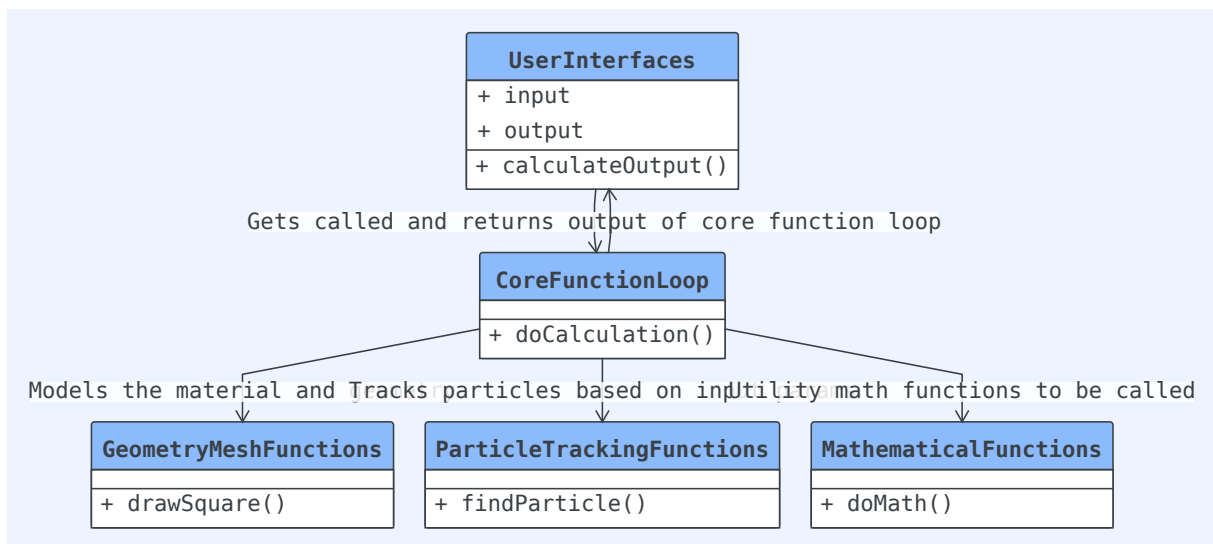


Figure 1: Use Case Diagram

6. 4+1 Diagram



Listing 3:

7. Codescene



Figure 2: Dependency Coupling Graph

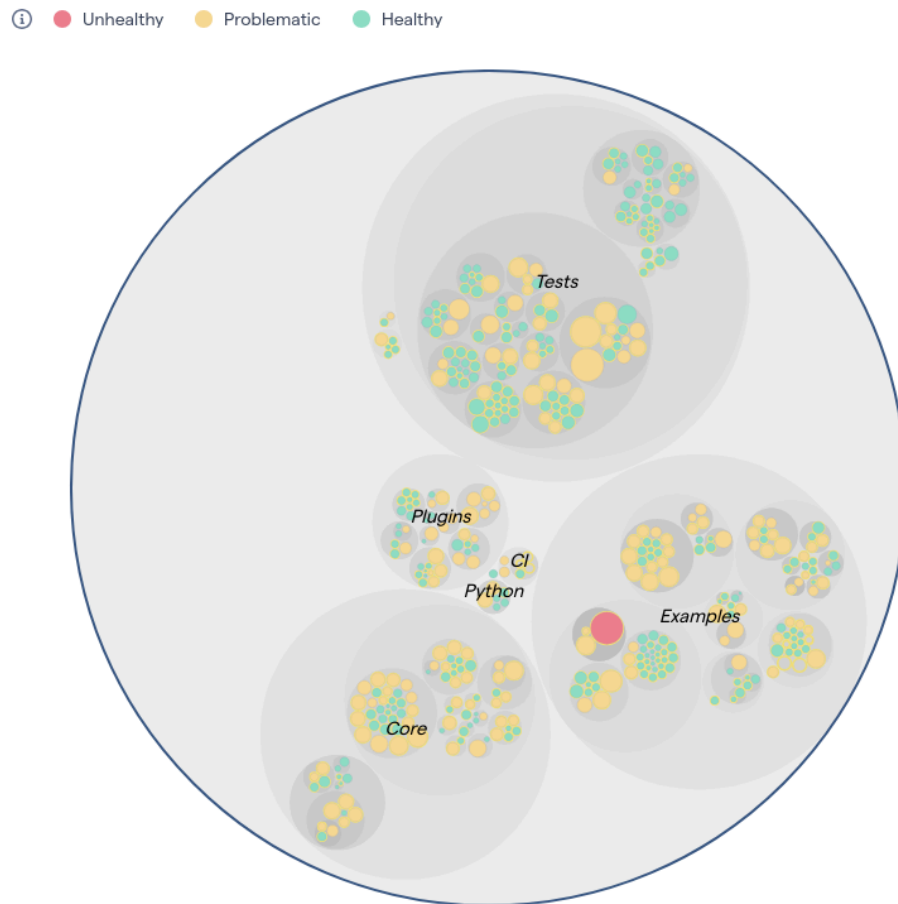


Figure 3: Technical Debt Codescene

8. Understand

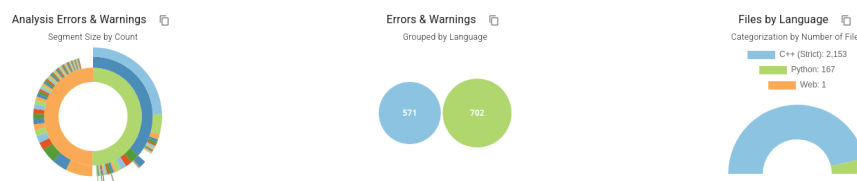


Figure 4: Understand High Level Info

9. Sonarqube

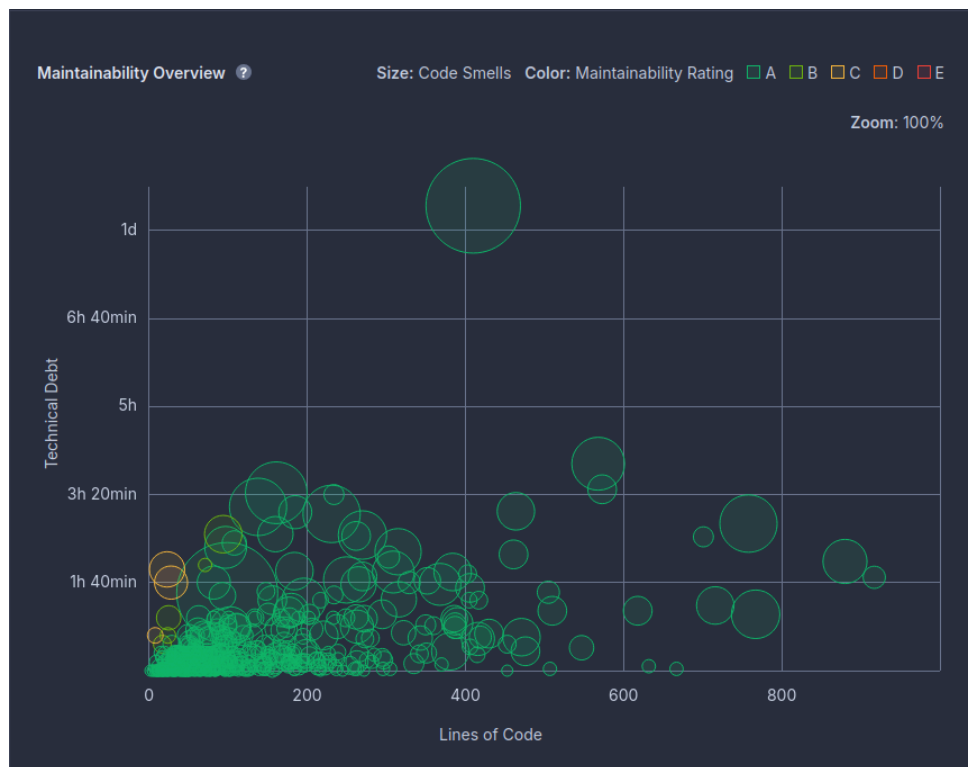


Figure 8:

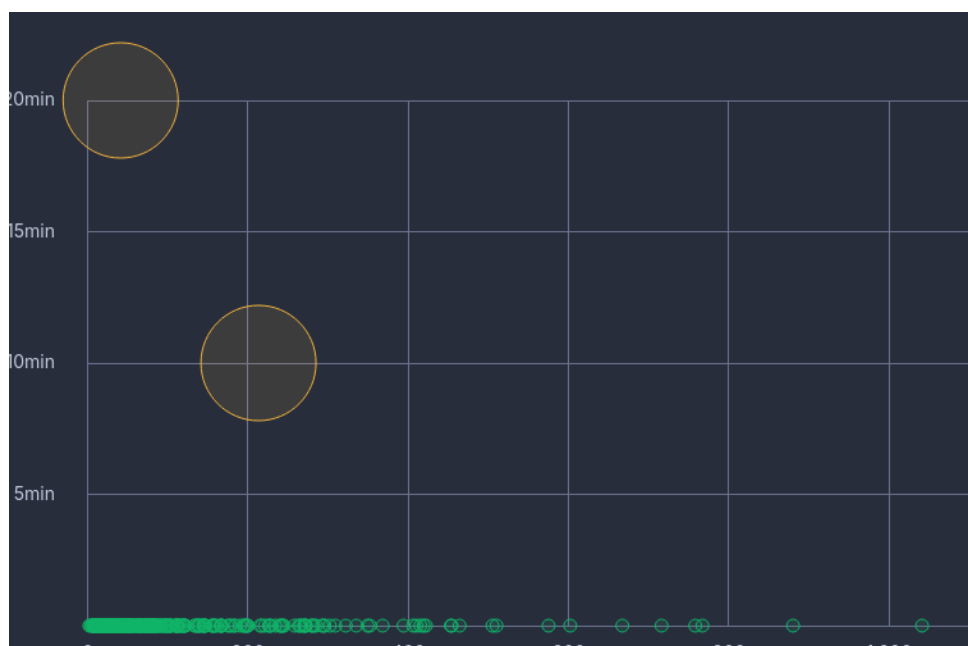


Figure 9:

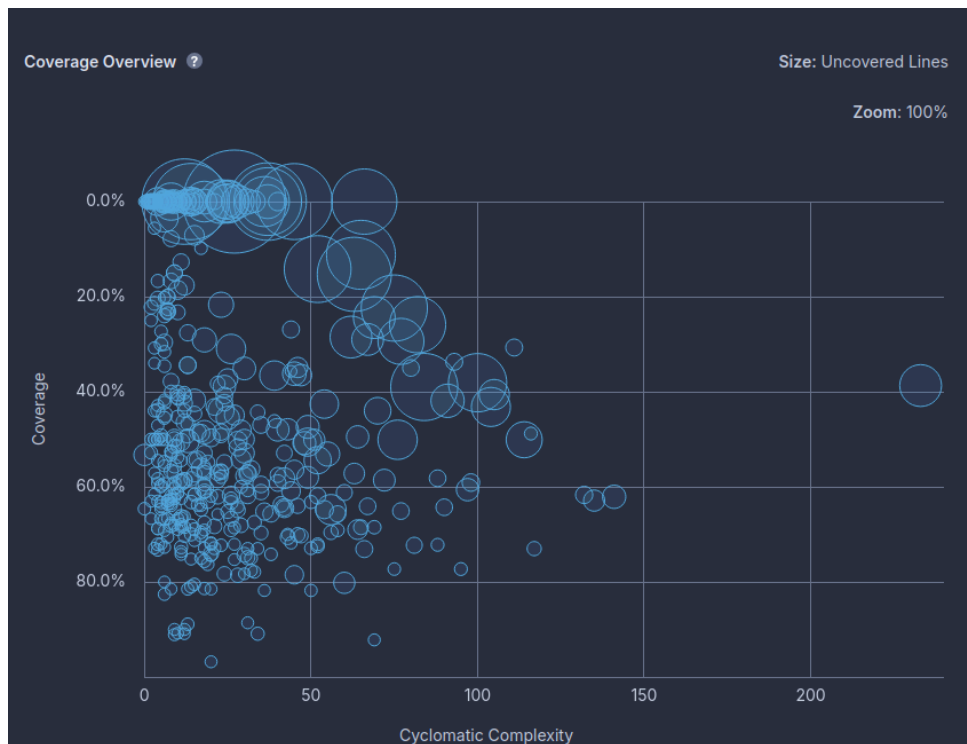


Figure 10:

acts > Core > src > Geometry

View as List

60 files

Cyclomatic Complexity 2,133 New code: since v44.0.0

Core/src/Geometry/TrackingVolume.cpp	135
Core/src/Geometry/CylinderVolumeStack.cpp	132
Core/src/Geometry/GridPortalLink.cpp	111
Core/src/Geometry/CylinderVolumeHelper.cpp	100
Core/src/Geometry/CuboidVolumeStack.cpp	98
Core/src/Geometry/CylinderPortalShell.cpp	97
Core/src/Geometry/CylinderVolumeBuilder.cpp	82
Core/src/Geometry/GridPortalLinkMerging.cpp	80
Core/src/Geometry/Portal.cpp	77
Core/src/Geometry/detail/MaterialDesignator.hpp	70
Core/src/Geometry/CuboidPortalShell.cpp	67
Core/src/Geometry/CompositePortalLink.cpp	52
Core/src/Geometry/ConeVolumeBounds.cpp	52
Core/src/Geometry/Layer.cpp	50

Figure 11: