

Project Process

Team Innov8tors

Agenda

1. Scrum
2. Requirements
3. Definition of Done
4. Tools
5. Testing
6. Progress Analytics
7. Documentation
8. Software Analytics
9. Reflection



Scrum - Who

* Got additional approval from tutor

Sprint	Scrum Master
1	Kalila Lin
2	Li Qian
3	Haofeng Chen
4	Kalila Lin *
5	Li Qian *

Scrum Reflection

Meetings effectiveness

1. Preparation

- Kanban and daily stand-up checking
- Go through dues and milestones

2. Communication

- User story
- Convey the communication outcome from lecturer and tutor to team members
- Go through dues and milestones

3. Task assignment

- Assess the working load and time
- Assign to people with strengths/with enough time to complete
- Assign the task according to team members willingness

4. Progress tracking

- Question collecting
- Know the progress from everyone's speak

Scrum Reflection

Scrum procedure

Went well

Architecture design and DOD

- Modular programming
- Improving and adjusting DOD
- Fully testing, code reviewing before merging.

Documentation

- Daily stand-up record
- Meeting minute
- Algorithms performance record, research result document and etc.

Competition result

- Passed five Test cases

Scrum Reflection

Scrum procedure

Went well – Competition result

Data	Compression	Speed
The intro one	93.82%	23.44%
The fast one	79.62%	2.06%
The combinatorial one	99.17%	3.03%
Steaming one	97.37%	20507
Streaming two	97.37%	20507

Scrum Reflection

Scrum procedure

To improve

1 Agenda document of meeting

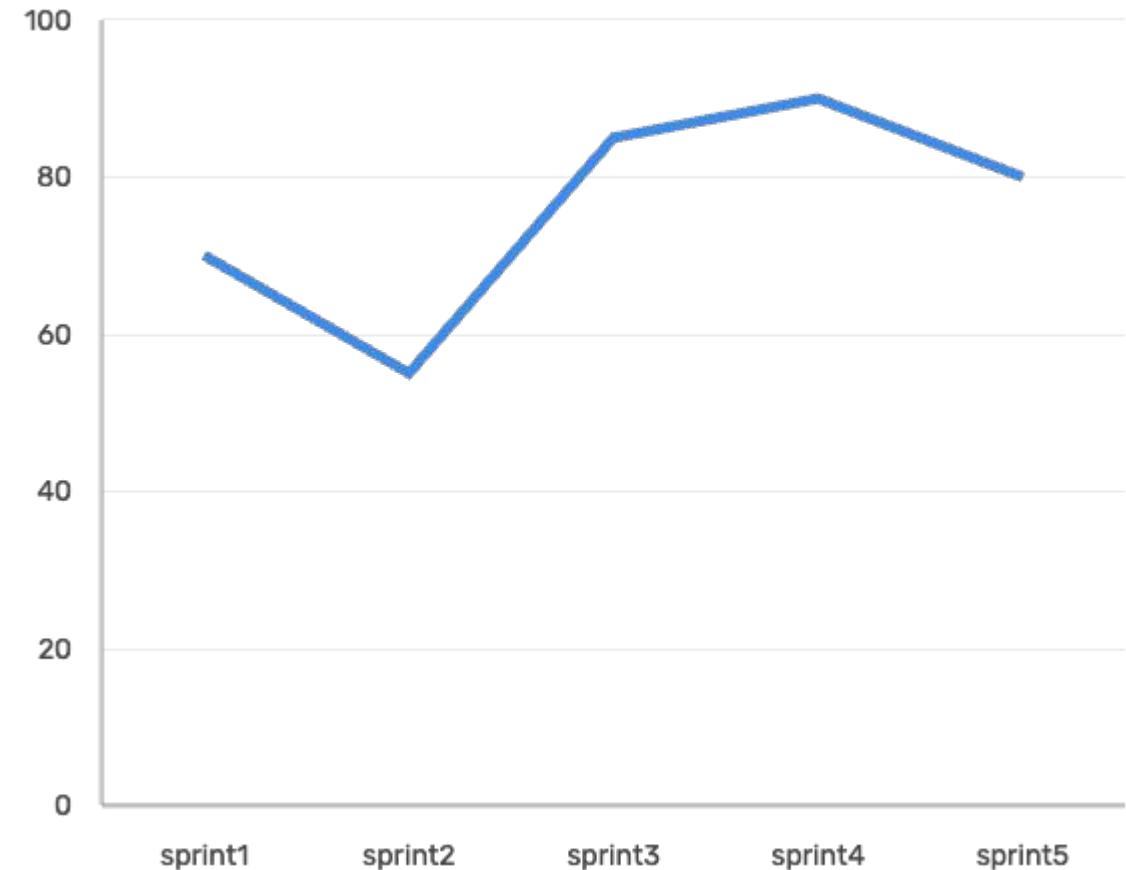
2 Data set investigation

3 Time management

Scrum Reflection

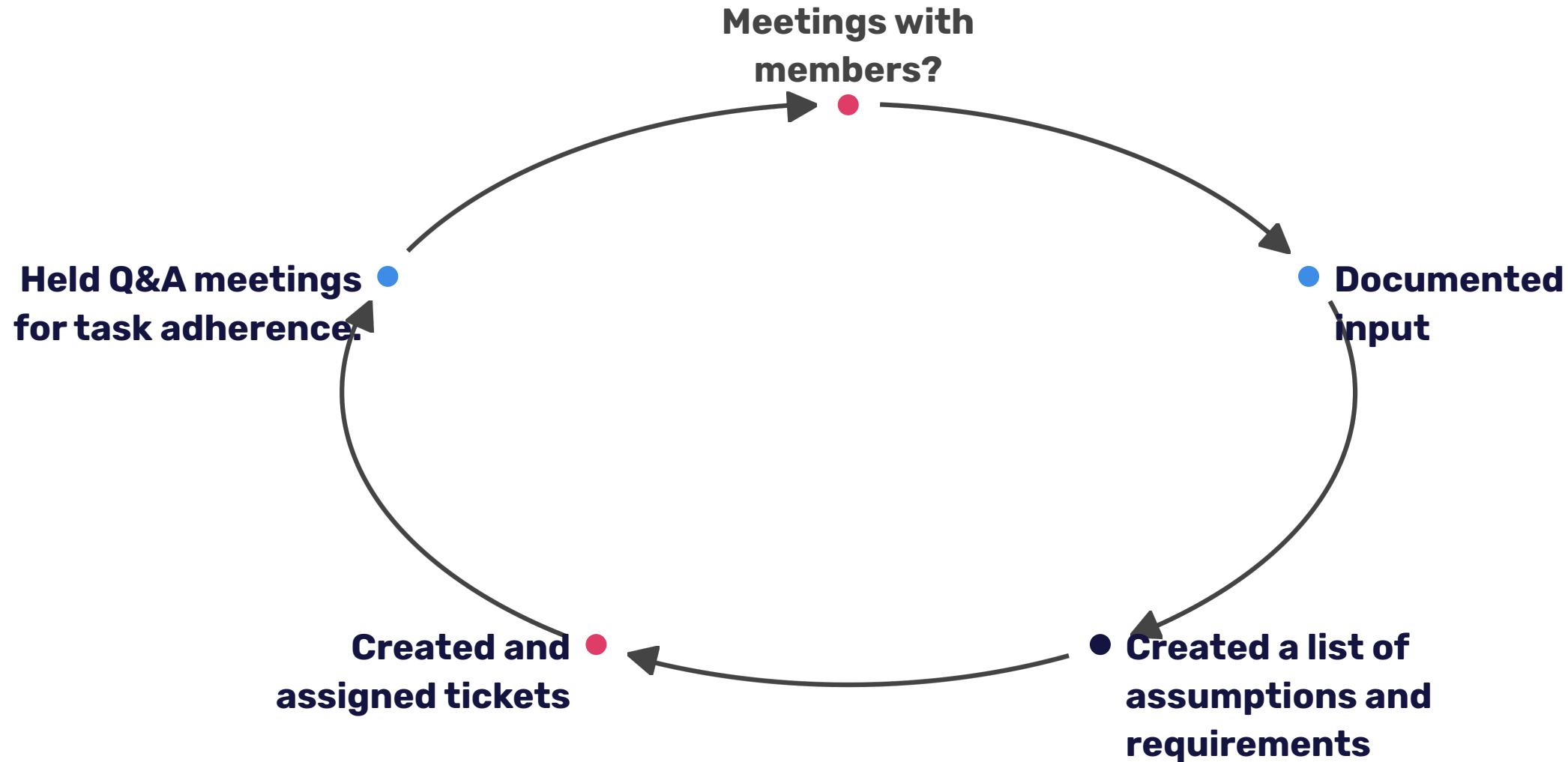
Team communication

- 1 Standup meeting sheet
- 2 Team meeting and subgroup meeting
 - Teams
- 3 Other communication channel
 - Wechat
 - Slack



Requirements

How were requirements gathered?



Requirement

Were all the needed requirements gathered early?

1. Requirements gathering starts a day before next sprint
2. Collected during and after retrospective meeting
3. Tickets creation and assignment on the same day
4. Q&A meeting held the following day or right after retrospective meeting

Story	To Do	In Process	To Verify	Done
As a user, I... 8 points	Code the... 9 Code the... 2 Test the... 8	Test the... 8 Code the... 8 Test the... SC 8 Test the... 4	Code the... DC 4 Test the... SC 6	Code the... Test the... SC 8 Test the... SC 6 Test the... SC 6
As a user, I... 5 points	Code the... 8 Code the... 4	Test the... 8 Code the... 6	Code the... DC 8	Test the... SC 6

Requirements

Were there any major requirement changes through the project?



Definition of Done

- **Design a balanced compression algorithm for speed and efficiency.**
- **Create a modular solution for diverse client needs.**
- **Pass all tests in Titan system.**
- **Code standards meet C++ core Guidelines.**

- **Develop diverse compression algorithms for high speed, compression ratio, and low memory use.**
- **Create a modular solution for diverse client needs.**
- **Ensure full compatibility with the Titan system modules.**
- **Code standards meet C++ core Guidelines and pass auto CPPCheck and CI/build system.**
- **Pass auto unit test system.**
- **Refine GitHub repository for clarity, with clean commits and detailed pull requests.**
- **Documentation completed.**

Initiation

Conclusion

Definition of Done

How did it evolve

Algorithms Expansion

- Single compression algorithm → Multiple compression algorithms to achieve different compression goals

Code Standard Checking automation

- Manual code review based on guideline → Pass CPPCheck and CI system with higher precision

Definition of Done

How did it evolve

Unit Test Completion

Has not been mentioned

→ Fully pass all automatic unit tests

GitHub Management

Has not been mentioned

→ Standardized and organized

Documentation completion

Has not been mentioned

→ Completed and reviewed by peers

Definition of Done

why did it evolve?

- Initial requirements were unclear.
- Timely client feedback generated new requirements.
- Quality standards increased as the project progressed.

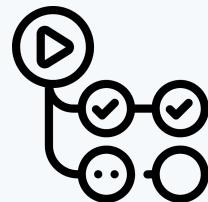
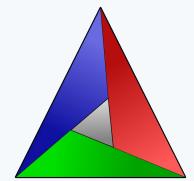
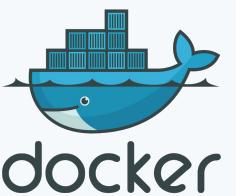
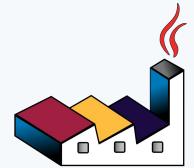
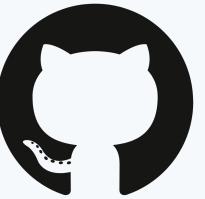
Definition of Done

Justify Definition of Done

Ensures project quality and client satisfaction:

- Clarity
- Adaptability
- Quality Assurance

Tools



Tools

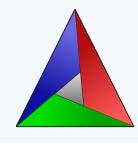
Development Tools



VSCode
Coding IDE



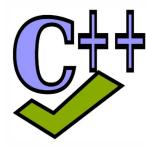
Commitizen
Standardize commit messages



CMake
Compiler-independent cross-platform build management



Docker
Testing under different environment



Cppcheck
Static analysis for C/C++ code, for finding bugs and improving software quality.



GoogleTest
Testing Framework



Msys2
Cpp version management



PlantUML
System design

GITHUB

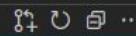
... Compressor.cpp MultiThreadsHandler.cpp main.cpp tasks.json launch.json MultiThreadsHandler.h BlockCompress.cpp BlockCompress.h C C++ windows-gcc-x64 Prettier

BLOCK14PG > src > compressor > C BlockCompress.h > ...

```
1 #ifndef BLOCK_COMPRESS_H
2 #define BLOCK_COMPRESS_H
3
4 #include <deque>
5 #include <map>
6 #include "../globals/globals.h"
7 #include "../cores/SafeOutputTasks.h"
8 #include <algorithm>
9 #include <set>
10 void blockCompress(std::deque<std::deque<Cuboid>> &planes);
11 struct Point
12 {
13     int x;
14     int y;
15     Point(int x = 0, int y = 0); // Added default values to keep the same struct constructor.
16     bool operator==(const Point &other) const;
17 };
18
19 struct CuboidKey
20 {
21     char tag;
22     Point topLeft;
23     Point bottomRight;
24     bool operator<(const CuboidKey &other) const;
25     bool operator==(const CuboidKey &other) const;
26 };
27
28 #ifdef TESTING
29
30 void transformToMap(std::deque<Cuboid> &plane, std::map<CuboidKey, Cuboid> &cuboids);
31 bool isOverLapped(const CuboidKey &cuboid1, const CuboidKey &cuboid2);
32 bool isAContainsB(const CuboidKey &a, const CuboidKey &b);
33 void CuboidsInSameArea(std::map<CuboidKey, Cuboid> &prevPlane, std::map<CuboidKey, Cuboid> &cuboidsFromPrevPlane, std::map<CuboidKey, Cuboid> &nextPlane);
34 void retrieveUniqueAndNonOverlapping(std::map<CuboidKey, Cuboid> &cuboidsFromPrevPlane, std::map<CuboidKey, Cuboid> &cuboidsFromNextPlane, std::set<CuboidKey> &uniqueCuboids);
35 int tryMerge(std::map<CuboidKey, Cuboid> &cuboidsFromPrevPlane, std::map<CuboidKey, Cuboid> &cuboidsFromNextPlane, CuboidKey &middleCuboid, std::set<CuboidKey> &nonOverlappedCuboids);
36 void divide(std::set<CuboidKey> nonOverlappedCuboids, CuboidKey &middleCuboid, std::set<CuboidKey> &dividedCuboids);
37 #endif
38 #endif
39
```

VS Code

PULL REQUESTS



> Local Pull Request Branches

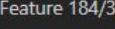
> Waiting For My Review

> Assigned To Me

> Created By Me

All Open

Feature 184/3 d compression test by @chang019 ✓



Description

tests/unit/compressor/blockCompress/valid_test...

block11_case.txt A

block11_expected.txt A

block11_raw.txt A

block12_case.txt A

ISSUES

My Issues

No Milestone

219: Algorithm final touched

211: Final report PG

210: Final Process Presentation

209: Final Video Presentation

195: Algorithm Compilation, submission and perform...

2: Block Model Compression

Created Issues

Recent Issues

```
22     globals/globals.cpp  
23     input/readInput.cpp  
24     input/Buffer.cpp  
25     multi-threads-handling/MultiThreadsHandler.cpp  
26     output/output.cpp  
27 )  
28  
29 # List header files (optional but can be useful in some IDEs like Visual Studio)  
30 set(HEADERS  
31     compressor/Compressor.h  
32     compressor/BlockCompress.h  
33     cores/Block.h  
34     cores/Cuboid.h  
35     cores/SafeInputTasks.h  
36     cores/SafeOutputTasks.h  
37     globals/globals.h  
38     input/readInput.h  
39     input/Buffer.h  
40     multi-threads-handling/MultiThreadsHandler.h
```

CMake

AWS SDK for C++ (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cppcoro r390.a87e97f-2
A library of C++ coroutine abstractions for the coroutines TS (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cppdap 1.58.0a-1
C++ library for the Debug Adapter Protocol (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cppreference-qt 20230810-1
A complete reference for the features in the C++ Standard Library, for qt help (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cpptest 2.0.0-2
A C++ Unit Testing Framework (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cppunit 1.15.1-2
A C++ unit testing framework (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cpputest 4.0-2
Unit testing and mocking framework for C and C++ (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-cppwinrt 2.0.230706.1-1
C++ language projection for Windows Runtime (WinRT) APIs (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-ecpprog 0.0.r36.a19ec56-1 (mingw-w64-clang-aarch64-eda)
ecpprog: basic driver for FTDI based JTAG probes, to program ECP5 FPGAs (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-godot-cpp 3.5.1-1
C++ bindings for the Godot script API (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-jsoncpp 1.9.5-2
A C++ library for interacting with JSON (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-krpc-cpp 0.5.2-1
KRPC Client for C++ (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-python-cpp 1.2.1-2
A collection of C++ headers which make it easier to write Python C extension modules (mingw-w64)
clangarm64/mingw-w64-clang-aarch64-unittest-cpp 2.0.0-2
A lightweight unit testing framework for C++
clangarm64/mingw-w64-clang-aarch64-utf8cpp 3.2.4-1
UTF-8 with C++ in a Portable Way (mingw-w64)

MSYS2

Containers Images Volumes Dev Environments BETA Docker Scout EARLY ACCESS Learning Center

Extensions • Telepresence Add Extensions

cpp_container

windows-cpp-env
143da6213e48

STATUS Exited (0) (3 minutes ago)

Logs Inspect Terminal Files Stats

2023-10-18 10:56:30 -- Detecting CXX compile features - done
2023-10-18 10:56:30 -- Configuring done
2023-10-18 10:56:30 -- Generating done
2023-10-18 10:56:30 -- Build files have been written to: /project/build
2023-10-18 10:56:44 root@143da6213e48:/project/build# make
2023-10-18 10:56:44 Scanning dependencies of target BLOCK
2023-10-18 10:56:44 [7%] Building CXX object CMakeFiles/BLOCK.dir/main.cpp.obj
2023-10-18 10:56:44 In file included from /project/src/globals/globals.h:7,
2023-10-18 10:56:44 | from /project/src/main.cpp:2:
2023-10-18 10:56:44 /project/src/globals/../../cores/SafeInputTasks.h:14:10: error: 'mutex' in namespace 'std' does not name a type
2023-10-18 10:56:44 14 | std::mutex mtx;
2023-10-18 10:56:44 | ^~~~~
2023-10-18 10:56:44 /project/src/globals/../../cores/SafeInputTasks.h:14:10: note: 'std::mutex' is defined in header '<mutex>'; did you forget to '#include <mutex>'?
2023-10-18 10:56:44 3 | #include "Block.h"
2023-10-18 10:56:44 +++ |+#include <mutex>
2023-10-18 10:56:44 4 | #ifndef SAFEINPUTTASKS_H
2023-10-18 10:56:44 In file included from /project/src/globals/globals.h:8,
2023-10-18 10:56:44 | from /project/src/main.cpp:2:
2023-10-18 10:56:44 /project/src/globals/../../cores/SafeOutputTasks.h:18:10: error: 'mutex' in namespace 'std' does not name a type
2023-10-18 10:56:44 18 | std::mutex mtx;
2023-10-18 10:56:44 | ^~~~~
2023-10-18 10:56:44 /project/src/globals/../../cores/SafeOutputTasks.h:4:1: note: 'std::mutex' is defined in header '<mutex>'; did you forget to '#include <mutex>'?
2023-10-18 10:56:44 3 | #include "Cuboid.h"
2023-10-18 10:56:44 +++ |+#include <mutex>
2023-10-18 10:56:44 4 |
2023-10-18 10:56:44 make[2]: *** [CMakeFiles/BLOCK.dir/build.make:63: CMakeFiles/BLOCK.dir/main.cpp.obj] Error 1
2023-10-18 10:56:44 make[1]: *** [CMakeFiles/Makefile2:76: CMakeFiles/BLOCK.dir/all] Error 2
2023-10-18 10:56:44 make: *** [Makefile:84: all] Error 2
2023-10-18 10:57:37 root@143da6213e48:/project/build# exit

Docker

RAM 2.79 GB CPU 0.25% Disk 47.64 GB avail. of 62.67 GB Connected to Hub v4.20.1

```
7
8 src/compressor/BlockCompress.cpp:254:19: note: Shadowed declaration
9     for (auto it = prevPlane.begin(); it != prevPlane.end();)
10        ^
11 src/compressor/BlockCompress.cpp:351:34: note: Shadow variable
12         for(auto it=dividedCuboids.begin();it!=dividedCuboids.end();it++){
13            ^
14 src/compressor/BlockCompress.cpp:36:41: style: Parameter 'plane' can be declared with const [constParameter]
15 void transformToMap(std::deque<Cuboid> &plane, std::map<CuboidKey, Cuboid> &cuboids)
16           ^
17 src/compressor/BlockCompress.cpp:127:217: style: Parameter 'middleCuboid' can be declared with const [constParameter]
18 void CuboidsInSameArea(std::map<CuboidKey, Cuboid> &prevPlane, std::map<CuboidKey, Cuboid> &cuboidsFromPrevPlane, std::map<CuboidKey, Cuboid>
19   &middleCuboid)
20
21
22
23
24
25
26
27
28
29
30
```

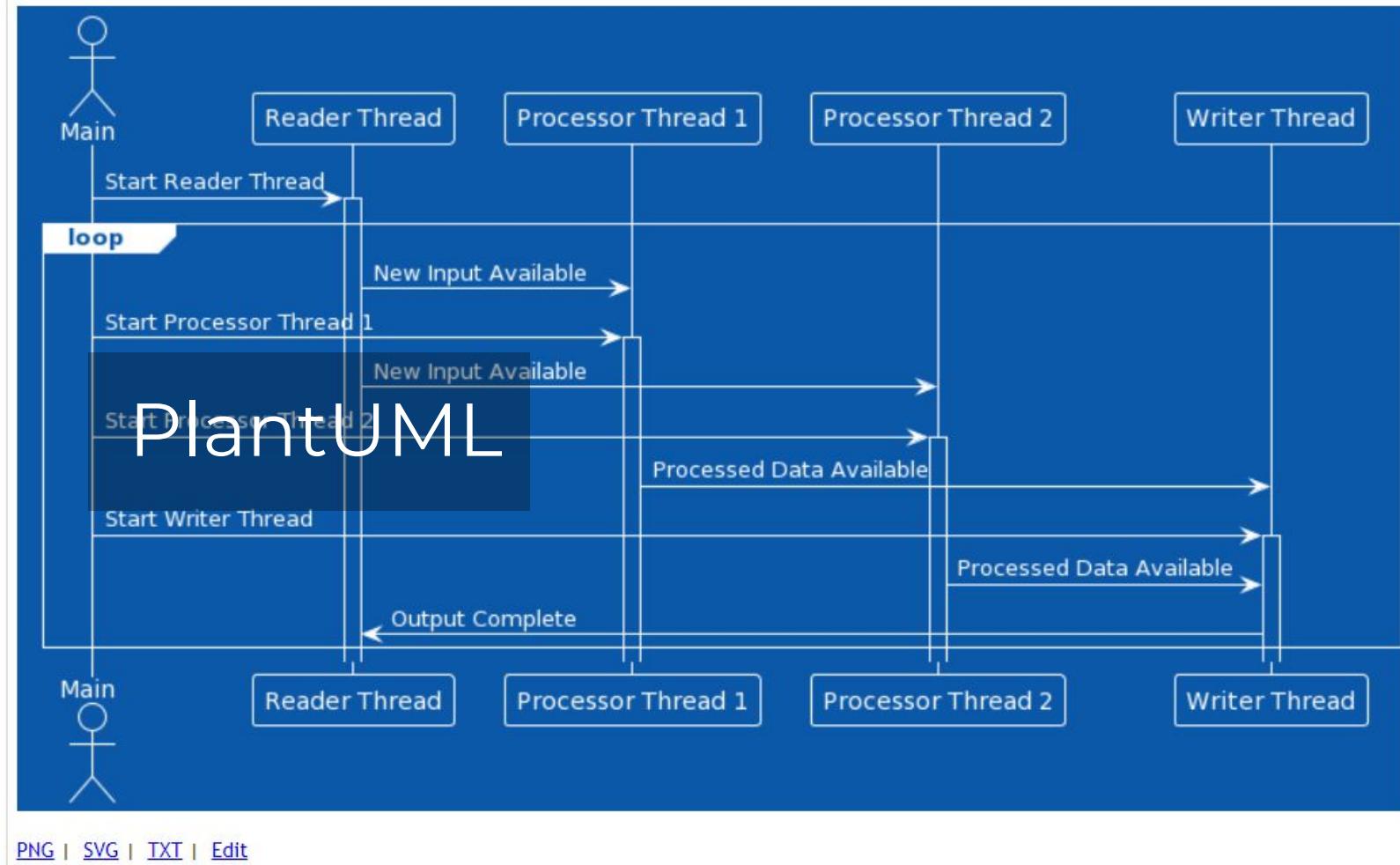
CPPCheck

```
src/compressor/BlockCompress.cpp:200:25: style: Unused variable: allPossibleCuboids [unusedVariable]
std::set<CuboidKey> allPossibleCuboids;
^
Checking src/compressor/BlockCompress.cpp: TEST...
Checking src/compressor/BlockCompress.cpp: TESTING...
1/14 files checked 37% done
Checking src/compressor/Compressor.cpp ...
Checking src/compressor/Compressor.cpp: TEST...
Checking src/compressor/Compressor.cpp: TESTING...
2/14 files checked 38% done
Checking src/compressor/LineCompress.cpp ...
```

File Manager Refresh (Alt+Enter) File: Default Diagram

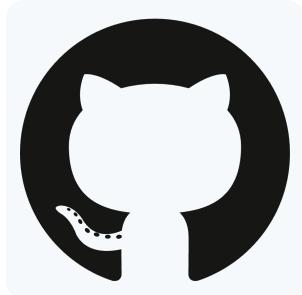
```

1 @startuml
2 !theme amiga
3
4 actor Main
5 participant "Reader Thread" as Reader
6 participant "Processor Thread 1" as Processor1
7 participant "Processor Thread 2" as Processor2
8 participant "Writer Thread" as Writer
9
10 Main -> Reader : Start Reader Thread
11 activate Reader
12
13
14 loop
15 Reader -> Processor1 : New Input Available
16
17 Main -> Processor1 : Start Processor Thread 1
18 activate Processor1
19
20 Reader -> Processor2 : New Input Available
21 Main -> Processor2 : Start Processor Thread 2
22 activate Processor2
23
24 Processor1 -> Writer : Processed Data Available
25 Main -> Writer : Start Writer Thread
26 activate Writer
27
28
29     Processor2 -> Writer : Processed Data Available
30
31     Writer -> Reader : Output Complete
32
33 end
34
35 @enduml
  
```



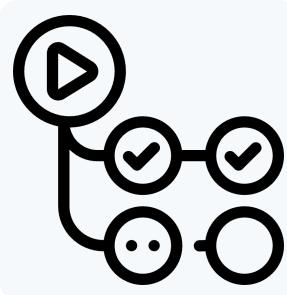
Tools

Version Control & Workflow Management



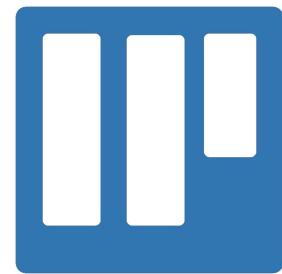
GitHub

Code collaboration and version control of source code



GitHub Actions

Automated across-platform compilation and static code analysis workflows



GitHub Kanban

Visualize Task Management
Tickets Tracking

 **BLOCK14PG** Private[Unwatch 1](#)[Fork 0](#)[Star 0](#)[main](#)

18 branches

2 tags

[Go to file](#)[Add file](#)[Code](#)[About](#)*No description, website, or topics provided.*[Readme](#)[Activity](#)[0 stars](#)[1 watching](#)[0 forks](#)[Releases](#)[2 tags](#)[Create a new release](#)[Packages](#)

No packages published

[Publish your first package](#)[Contributors 7](#)[Languages](#)

Github Repository

Merge branch 'main' into feature-17/bootstrap/multithread/handler-stub

208 commits

81c85ce on Sep 15

WanxiaJaneYang Merge pull request #166 from WanxiaJaneYang/160-github-action-y...

[.github/workflows](#)

ci: remove the cppcheck on push

last month

[googletest](#)

fix(make googletest nolonger a submodule): remove .git under the goo...

last month

[src](#)

fix: add reference for fillBlock const parameter

last month

[tests](#)

fix: improve style

last month

[.gitignore](#)

Merge branch 'main' into feature-17/bootstrap/multithread/handler-stub

2 months ago

[CMakeLists.txt](#)

fix: recover imput code

last month

[README.md](#)

chores: add blank lines to make readme clearer

last month

[README.md](#)

BLOCK14PG

Brief project description or introduction here.

Table of Contents

- [File Structure](#)
- [Tech Stack](#)

BLOCK14PG Project Building Tools

Actions

[New workflow](#)

All workflows

CI

Cppcheck

Management

Caches

Runners

Beta

All workflows

Showing runs from all workflows

 Filter workflow runs

Help us improve GitHub Actions

Tell us how to make GitHub Actions work better for you with three quick questions.

[Give feedback](#)

293 workflow runs

Event ▾ Status ▾ Branch ▾ Actor ▾

✖ Testmultithread

CI #182: Pull request [#205](#) opened by Mark-haofeng

testmultithread

2 weeks ago

1m 4s



✖ Testmultithread

Cppcheck #130: Pull request [#205](#) opened by Mark-haofeng

testmultithread

2 weeks ago

24s



✓ Feature 184/3 d compression test

CI #181: Pull request [#203](#) synchronize by chang019

feature-184/3D-compression-...

2 weeks ago

3m 19s



✖ 183 3d compression improved

Cppcheck #129: Pull request [#204](#) opened by WanxiaJaneYang

183-3d-compression-improved

2 weeks ago

24s



✓ 183 3d compression improved

CI #180: Pull request [#204](#) opened by WanxiaJaneYang

183-3d-compression-improved

2 weeks ago

3m 22s



✓ Feature 184/3 d compression test

CI #179: Pull request [#203](#) opened by chang019

feature-184/3D-compression-...

2 weeks ago

3m 27s



✖ Feature 182/2d compression test

Cppcheck #128: Pull request [#200](#) synchronize by Zhaotong-Zhou

Feature-182/2d-compression-...

3 weeks ago

30s



✖ Feature 182/2d compression test

CI #178: Pull request [#200](#) synchronize by Zhaotong-Zhou

Feature-182/2d-compression-...

3 weeks ago

1m 48s



✖ Feature 182/2d compression test

Feature-182/2d-compression-...

3 weeks ago



Github Actions

BLOCK14PG

View 1 + New View

-status:"Sprint Backlog"

175

Discard

User Story 6

Draft

As a user, I would like the program to be able to read the input in the given format and begin processing the data in an input stream format, so that I can compress the data block.

Draft

As a user, I would like to receive the correct output format of the compressed data so that I can stream data efficiently.

Draft

As a user, I would like the program to be able to read the csv form of data as input

Draft

As a user, I would like the program successfully submit on the <https://titan.maptek.net>, and pass both of the intro one and the fast one test cases, regardless of considering the speed and compression rate improvement.

Draft

+ Add item

Product Backlog 7

BLOCK14PG #2

Block Model Compression

BLOCK14PG #6

Code review

BLOCK14PG #7

Output compressed data

BLOCK14PG #8

Testing and Validation (QA Engineer)

BLOCK14PG #9

GPU utilization

BLOCK14PG #10

Multithreads utilization

BLOCK14PG #59

A colour correct visualisation of the last slice on the input stream as 2D image

+ Add item

Todo 0

This item hasn't been started

Kanban

In Progress 8

This is actively being worked on

BLOCK14PG #221

detect the aesthetical one data set and adjust our algorithms to pass it

BLOCK14PG #208

Snapshot 5.2

BLOCK14PG #209

Final Video Presentation

BLOCK14PG #210

Final Process Presentation

BLOCK14PG #211

Final report PG

BLOCK14PG #194

Hidden test investigation

BLOCK14PG #212

+ Add item

Done 154

This has been completed

BLOCK14PG #220

detect,debug and pass the stream 1 and 2 data sets

BLOCK14PG #219

Algorithm final touched

BLOCK14PG #180

Multithread-handler test

BLOCK14PG #195

Algorithm Compilation, submission and performance recording

BLOCK14PG #183

3D compression improved

BLOCK14PG #118

3rd review and planning meeting minute

BLOCK14PG #184

+ Add item

Tools

Communication Tools



Google Drive

Allows the team to edit documents collaboratively in real time



Microsoft Teams

Provides video meetings, call transcripts, and ability to save video conferences



Slack

Facilitates communication between clients, tutors and notifications



WeChat

Enables daily communication and file sharing capabilities

Type ▾ People ▾ Modified ▾

Name ↓

- Titan info
- System Design
- Sprint Retrospectives
- Snapshots
- SEP Official Docs
- presentation
- Meeting Minutes
- Knowledge Base
- Compression Algorithm Version Record And Copies
- Code Review Remaining Problem Record
- Ticket Recovery Table
- Meeting History
- Development Guideline
- Daily Stand-ups.xlsx

▼ 频道
block14pg
general
maptek-general
random
+ 添加频道
▼ 私信
wanxia yang 你
+ 添加同事
▼ 应用
+ 添加应用
☒ 免费试用中

10月19日星期四 ▾



Simon Ratcliffe 上午 10:48

Final Reminder: Maptek SEP Project Groups Only Seminar in the Braggs Lecture Theatre at 3pm today.

We will have four or five teams presenting their algorithms and/or competition exploits from the semester.

You are all welcome to attend. It's an in person event, no live stream, but a nice day to be on campus today anyway!

Nauman, Abdul, Will and I will all be there and look forward to catching up with you. If you want to come up and chat with us afterwards to give your opinions and feedback on the course and the project, that would be great.

10月24日星期二 ▾



William Reid 中午 11:50

Hi everyone, Titan will stop processing jobs from 9am this Friday. You will still be able to view the website for a few more days after this.

3

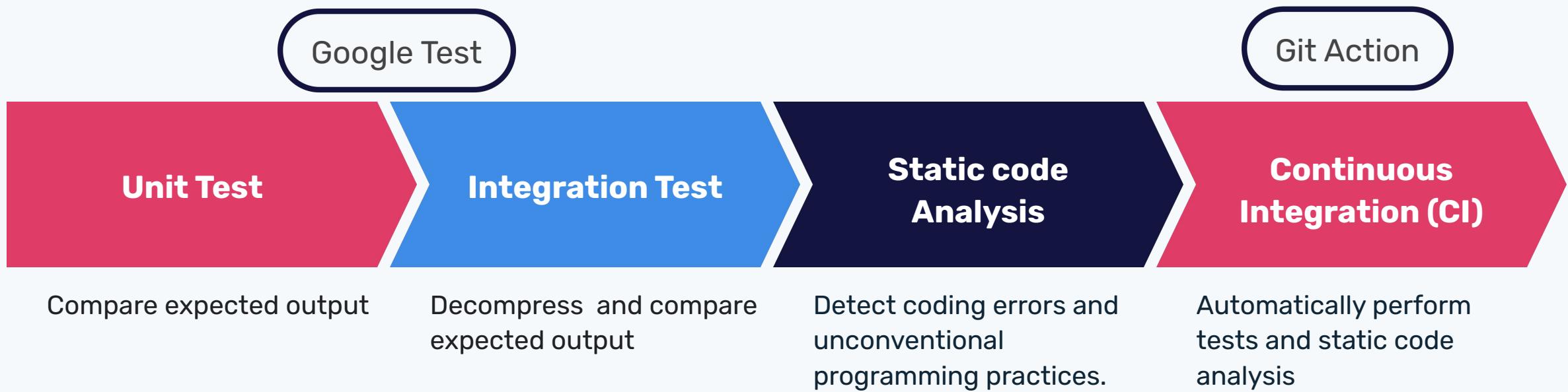
团队
...
应用
Wanxia Yang (Student)(你)
▼ 最近
BLOCK14PG 10/28
Li: Everyone please write ur own ...
Haofeng Chen (Student) 9/21
你: 你先做别的吧
Kaini Chang (Student) 9/4
他家的bug急需你去修复
BLOCK14PG system archit... 8/22
已添加用户
Sem 2 2023 Orientation C... 7/20
Anith Sees: It was fun and well or...
Lyn Lu (Student) 7/18
你: Both work for me
CNA Exam consulting Michael: 发送了一张图片 6/15

block14pg #209
Final Video Presentation #209
 LinJiaYi11 opened 2 days ago

LinJiaYi11 now (edited)
DoD-Final Video Presentation.pdf
• Scrum (Li Qian)
• Requirements (Kalilia)
• Definition of Done (Qingyan Yang)
• Tools (Wanxia Yang)
• Testing (haofeng chen)
• Progress Analytics (Zhaotong Zhou)
• Documentation (Kalilia)
• Software Analytics (Kaini chang)
• Final Reflection (Chang liu)

Final Process Presentation #210
 LinJiaYi11 opened 2 days ago

Test



Test

Test driven programming

```
✓ tests
  > integration
  ✓ unit
    ✓ compressor
      > blockCompress
      ✓ lineCompress
        ⓘ readme.md
    ✓ planeCompress
      > valid_test_cases
      ⚡ planeCompressTestHelper.cpp
      ⚡ planeCompressTestHelper.h
        ⓘ readme.md
      ⚡ validTests.cpp
    > output
    > readInput
    ⓘ Readme.md
```

Uni test

```
✓ tests
  ✓ integration
    > invalid_test_cases
    > valid_test_cases
      ⚡ IntegrationTestHelper.cpp
      ⚡ IntegrationTestHelper.h
      ⚡ integrationValidTests.cpp
    > unit
    ⓘ Readme.md
```

Integration test

```
Running main() from /Users/kaini/Documents/SEP/BLOCK1
....tests/integration/valid_test_cases/plane5_compr
....tests/integration/valid_test_cases/plane4_compr
....tests/integration/valid_test_cases/plane2_compr
....tests/integration/valid_test_cases/plane3_compr
....tests/integration/valid_test_cases/plane_compr
[=====] Running 5 tests from 1 test suite.
[-----] Global test environment set-up.
[-----] 5 tests from FileBasedTests/IntegrationT
[ RUN   ] FileBasedTests/IntegrationTest.HandlesVa
[      OK ] FileBasedTests/IntegrationTest.HandlesVa
[-----] 5 tests from FileBasedTests/IntegrationT
[-----] Global test environment tear-down
[=====] 5 tests from 1 test suite ran. (2 ms tota
[  PASSED ] 5 tests.
```

Integration output

Test

Test Driven

- Early Identification of Issues
- Improved Code Quality
- Solid Foundation for Continuous Integration

Not Test Driven

- Delayed Discovery of Issues
- Possible Decline in Code Quality
- Potential Insufficiency in Test Coverage

Test

Dealing with bug

- Insufficient Test Coverage
- Human Errors

Strategy for fix bug

- Increasing Test Coverage
- More reviewer

Progress Analytics

Major things impede our progress to start

- 1 Fully understand the project requirements
- 2 Research and learn the block model compression algorithms
- 3 Investigate and understand the testing scripts on the Maptek Titan platform

Progress Analytics

- Sprint 1

User Stories	Velocity Points
As a user, I would like the program to read the input stream in the given format	5
As a user, I would like the program to convert input stream to correct output format	3

- Sprint 2

User Stories	Velocity Points
As a user, I would like the program to be able to read the CSV input data	5
As a user, I would like the program to pass all tests of the Intro one , the Fast one and the Combinatorial one on the Titan platform	8

Progress Analytics

- Sprint 3

User Stories	Velocity Points
As a user, I would like to involve the multithreading design to the current program	5
As a user, I would like to have multiple block compression algorithms	13

- Sprint 4

User Stories	Velocity Points
As a user, I would like the program to involve an effective multithread handler to improve the processing speed	8
As a user, I would like to improve the compression algorithms to achieve better compression rate	13

Progress Analytics

- Sprint 5

User Stories	Velocity Points
As a user, I would like the multithreaded program to pass all tests on the Maptek Titan platform, including the Hidden one, the Streaming one, the Streaming two and the Aesthetical one.	13

Progress Analytics

Possible changes to improve our progress



Effective Communication



Effective Risk Management

Documentation

Types of Documentation

- Meeting minutes
- Technical research
- Daily standup records
- Retrospective reports
- Initial/final reports
- Presentations

Audience for Documentation

- Team members
- Professors
- Tutors
- Clients
- Users

Documentation

Documentation Standard

- Agile
- Minimal
- Simple
- Efficient

Documentation Management

- Frequent update
- Easy to find
- Easy to understand
- Consistently followed the Documentation Standard

Software Analytics

circumstances that lead to better code



Test-Driven Development

- Known test coverage
- Write tests first
- Minimal code to pass the test, then refactor



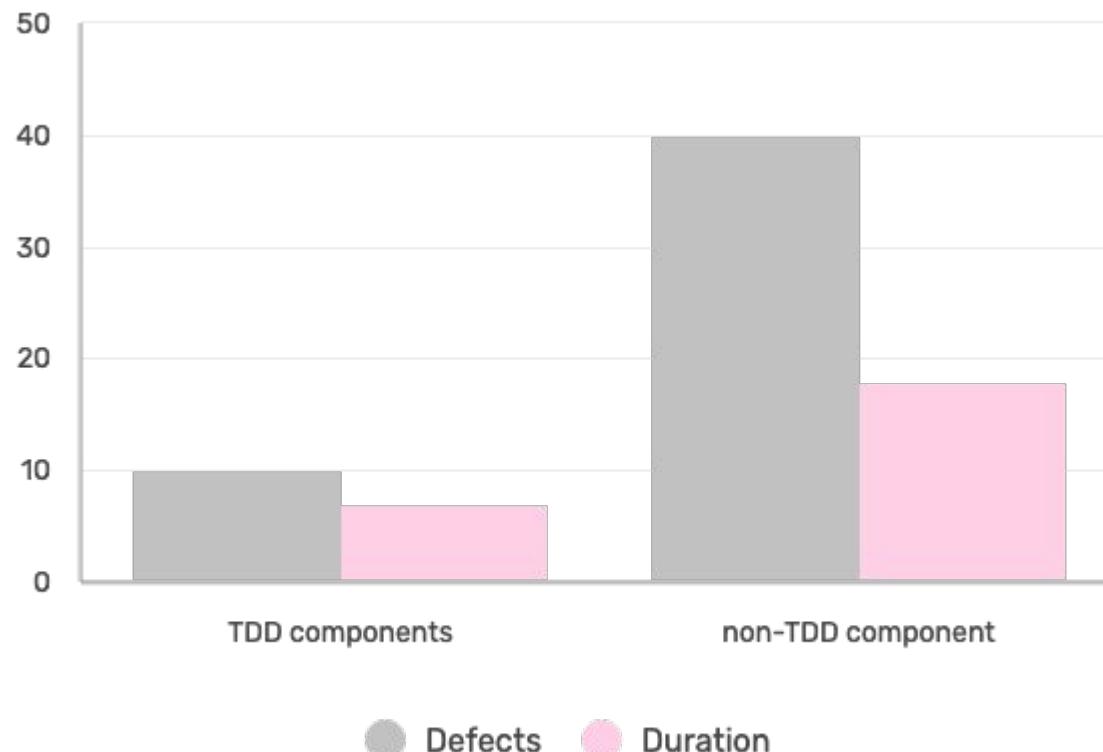
Pair programming

- Driver-Navigator model
- Role rotation
- Efficient review

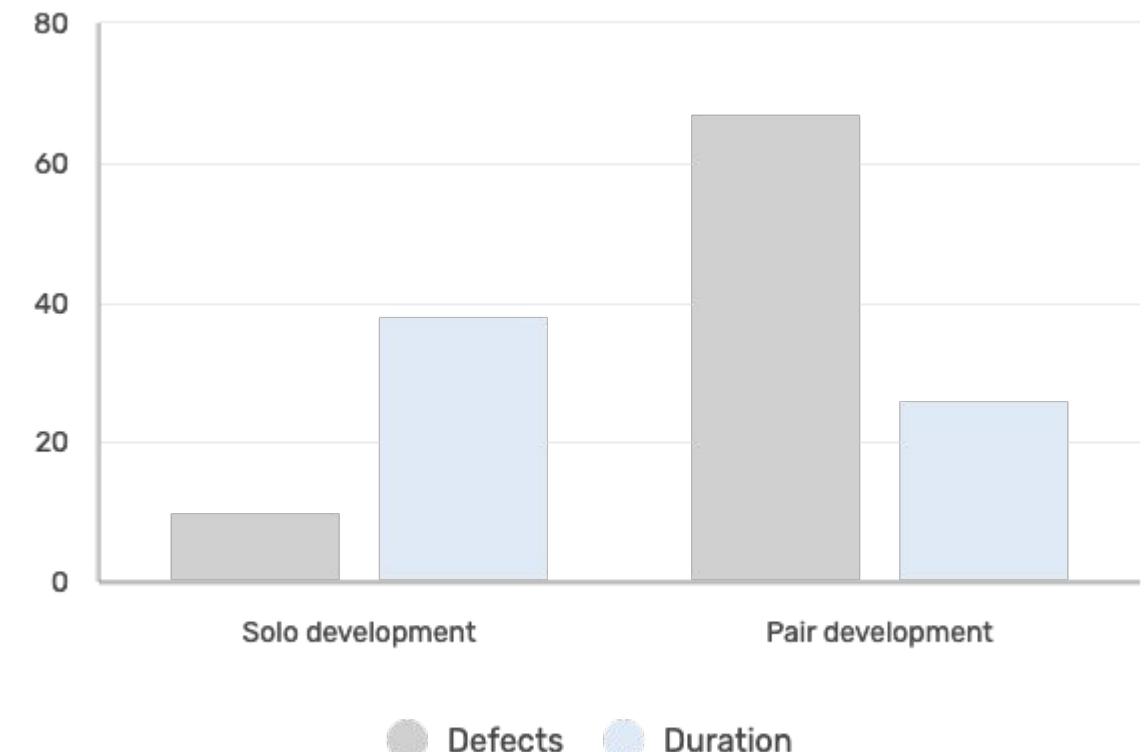
Software Analytics

data analytics on our project data

Adopting TDD practices will result in fewer defects and faster deliveries.



Pair programmed code will have fewer issues raised after PR



Final Reflection

Strengths

- **Efficient Meeting Management**
- **Effective Periodic Reviews**
- **Responsive Adaptability Based on Feedback**

Weaknesses

- **Over-reliance on a Few Members**
- **Lack of a Clear Decision-making Process**

Thank you!
