

アジャイルソフトウェア開発教育のためのソフトウェア開発PBL における学生のビルド行動分析

Software builds:

- In software development, **build** is the process of taking all source files that make up an application, and compiling them into binaries or executable.

SDPBL by adopting Agile software development model:

- Software development exercises using project-based learning (**SDPBL**) which focus on multiple students developing software in a team is becoming popular.

INVESTIGATION TARGET

Project: an SDPBL in CloudSpiral (Cloud Specialist Program Initiative for Reality-based Advanced Learning project)

- One of the educational projects in Japan for the students in master course.
- The SDPBL is conducted as five days hackathon style.
- Students are required to develop a web application in teams consisting of five or six students using an agile development method.

RESEARCH QUESTIONS for ANALYSIS

RQ1 What types of build errors occurred?

- We added Annotation types of build errors.

RQ2 How often does each type of build error occur?

- The most number of build errors in remote build is Dependency error, it is same as expert developers' investigation in Google.
- We found that most of Dependency errors and Type Mismatch errors are caused by *poor team communication*.
- As well, most of Syntax, Annotation and a part of Semantics errors are caused by *technical factors* can be easily discovered if local build is performed (e.g. typo, misspelling, the lack of understanding on the usages of Annotation).

RQ3 How long does it take to fix each type of build error?

- When multiple types of build errors are occurred by one remote build, it is the longest time to be solved.

Conclusion: Investigation of build errors and its feedback facilitates students' comprehension of the errors.

Also, it decreased the number of the remote build errors.

