



CS6411 final individual project

LEGO simulator using STEP BOOK

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Purpose

1. Understanding OO information modeling
2. Understanding the issues of handling complex engineering objects
3. Understanding the issues of OODBMS
4. Evaluating engineering OODBMSs

Engineering OODBMSs

1. STEP BOOK

: LKSoft (<http://www.lksoft.com>)

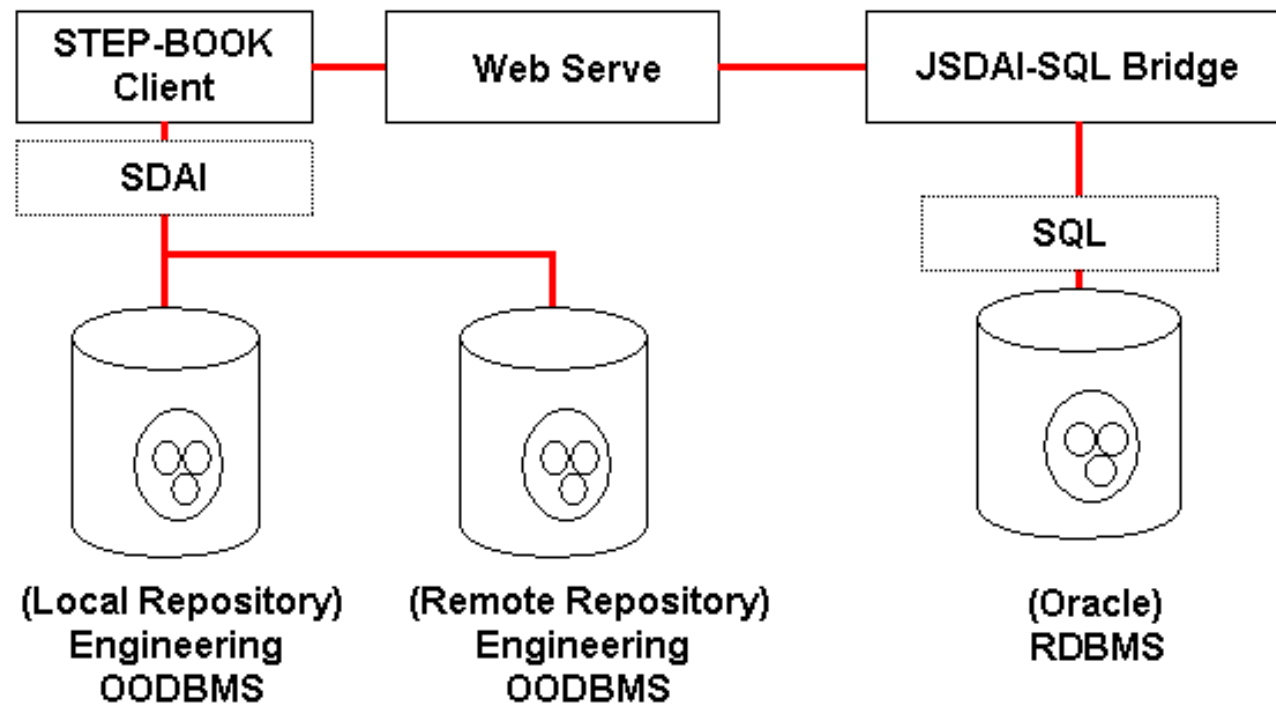
2. EDM

: EPM (<http://www.epmtech.jotne.com/>)

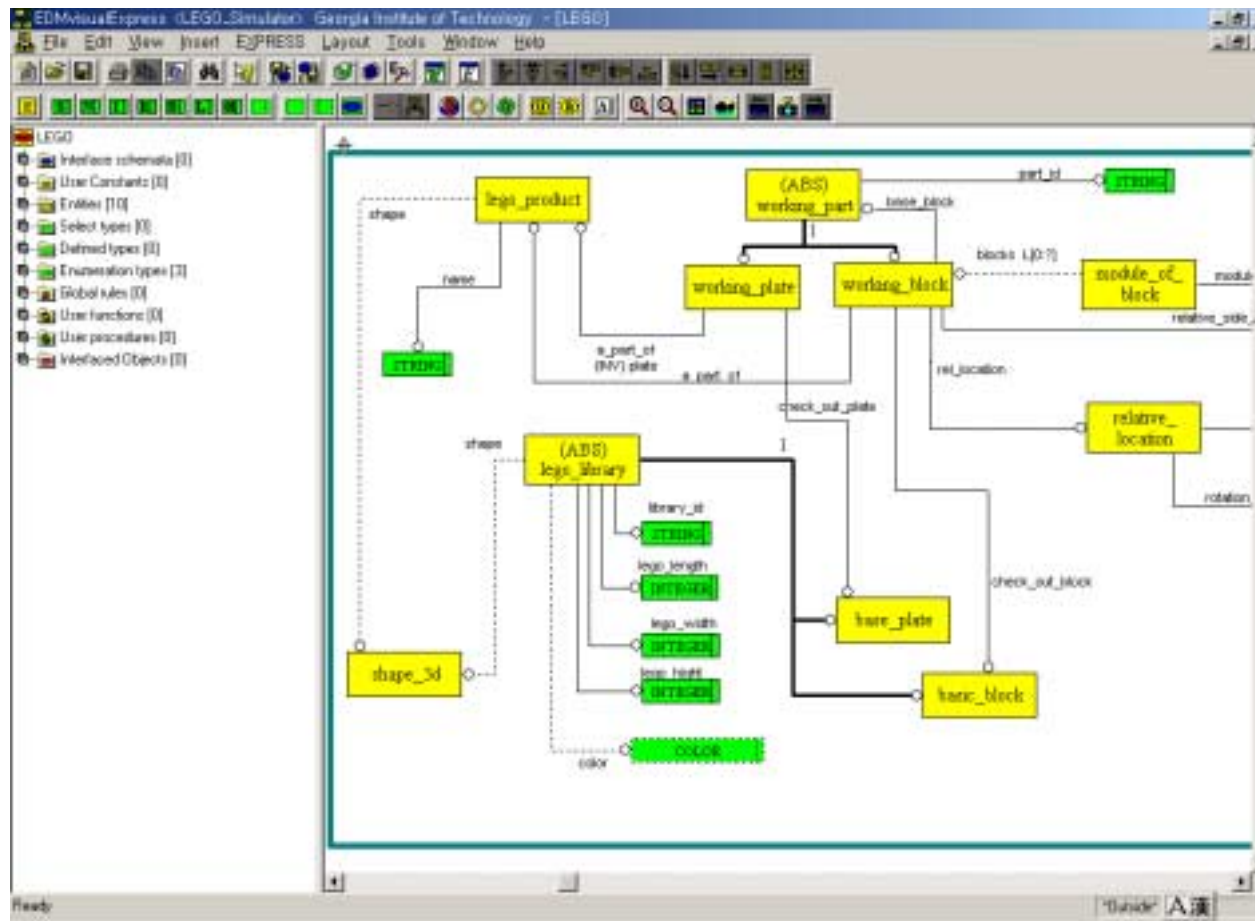
3. ST-Developer

: STEP Tools (<http://www.steptools.com/>)

Engineering OODBMSs : STEP BOOK



Engineering OODBMSs : EDM Visual Express

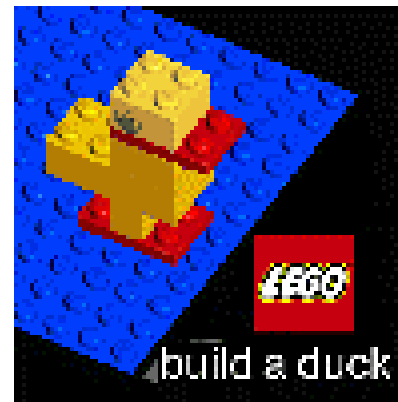


Schema development Of playing LEGO (1)

LEGO Library



LEGO Product

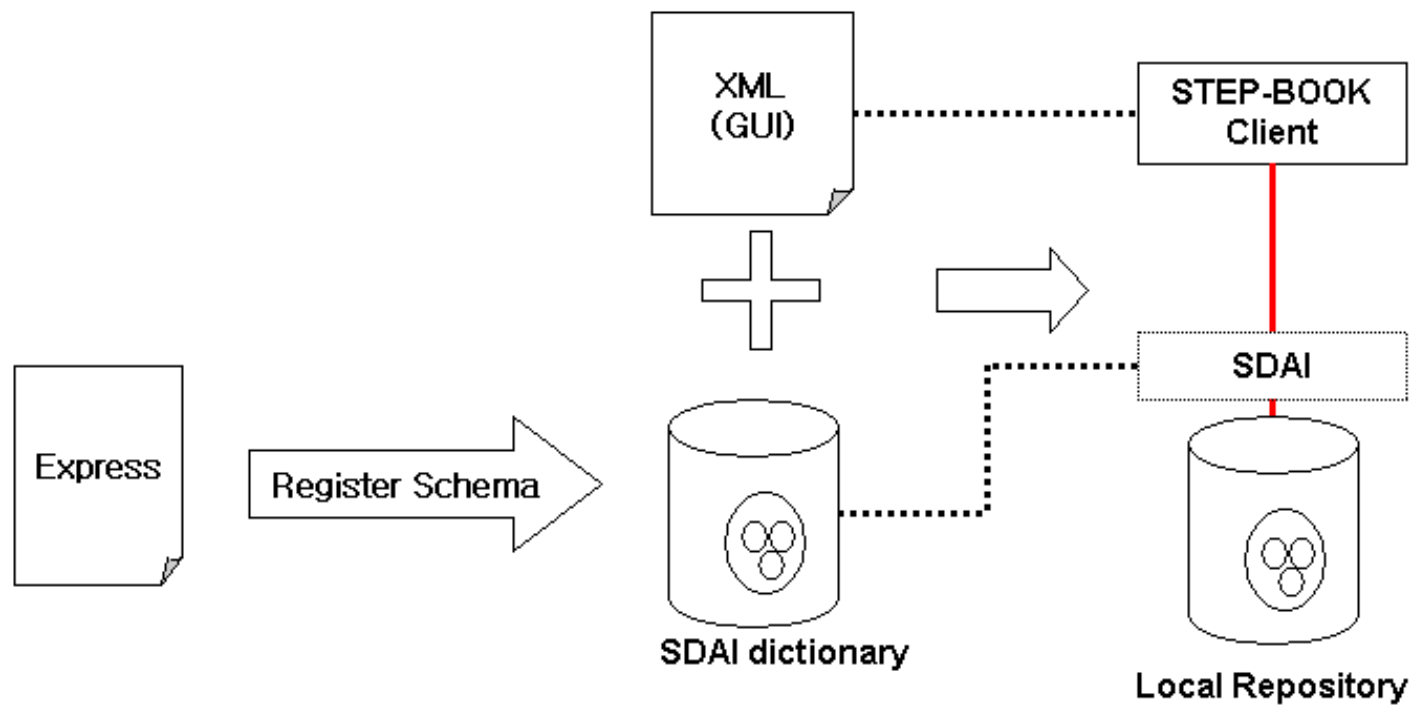


Schema development Of playing LEGO (3)

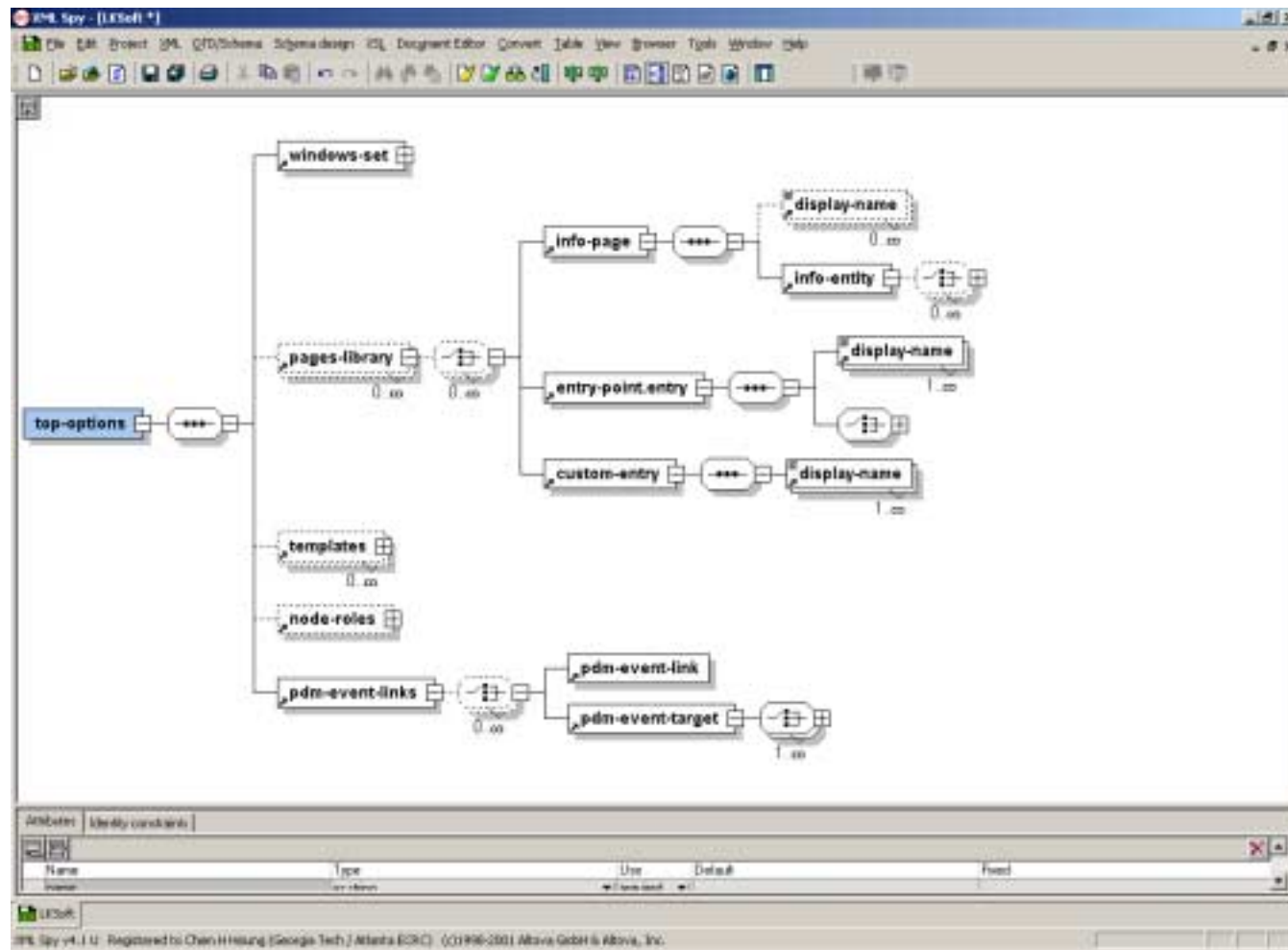
[Issues]

- Geometric Objects
- OID vs Unique attribute
- Inverse attribute

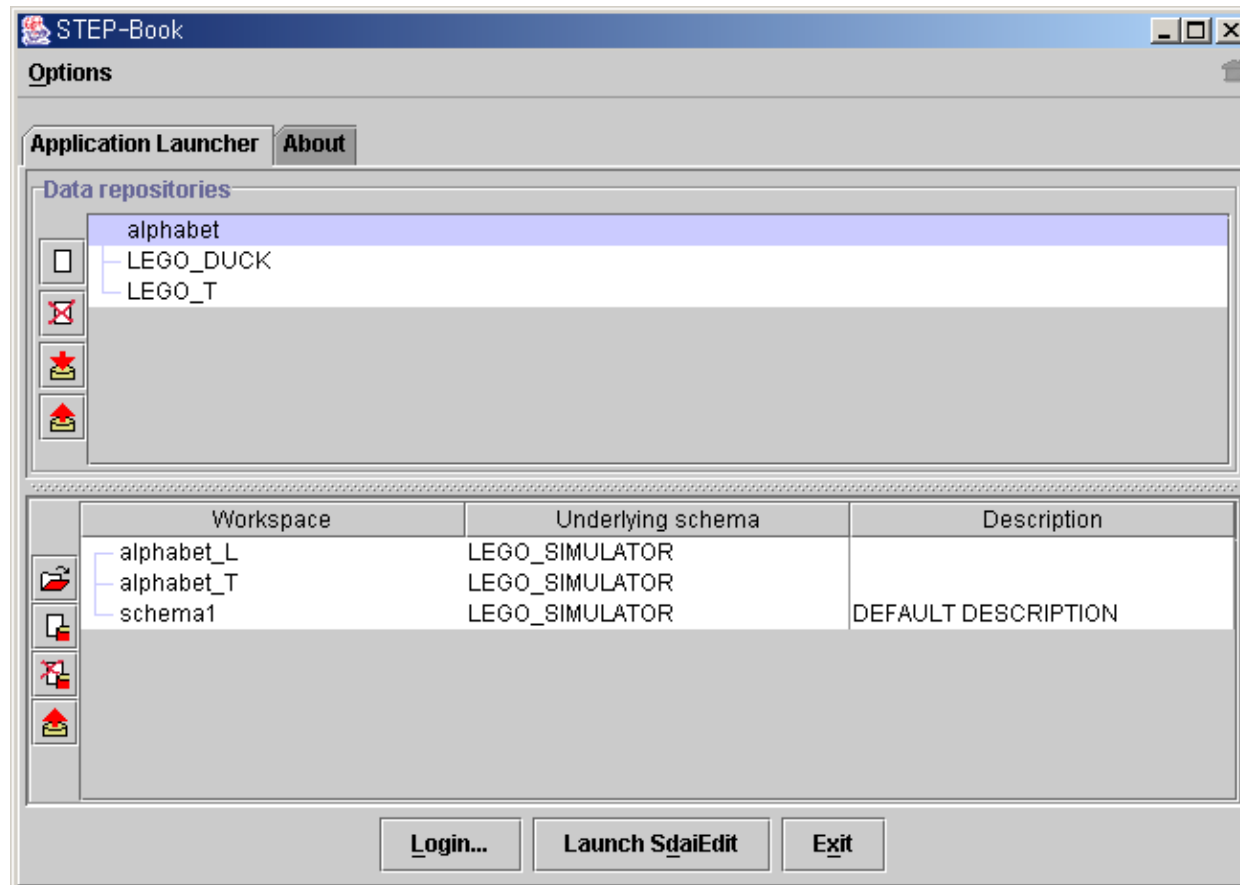
Implementation of LEGO simulator (1)



Implementation of LEGO simulator (2)

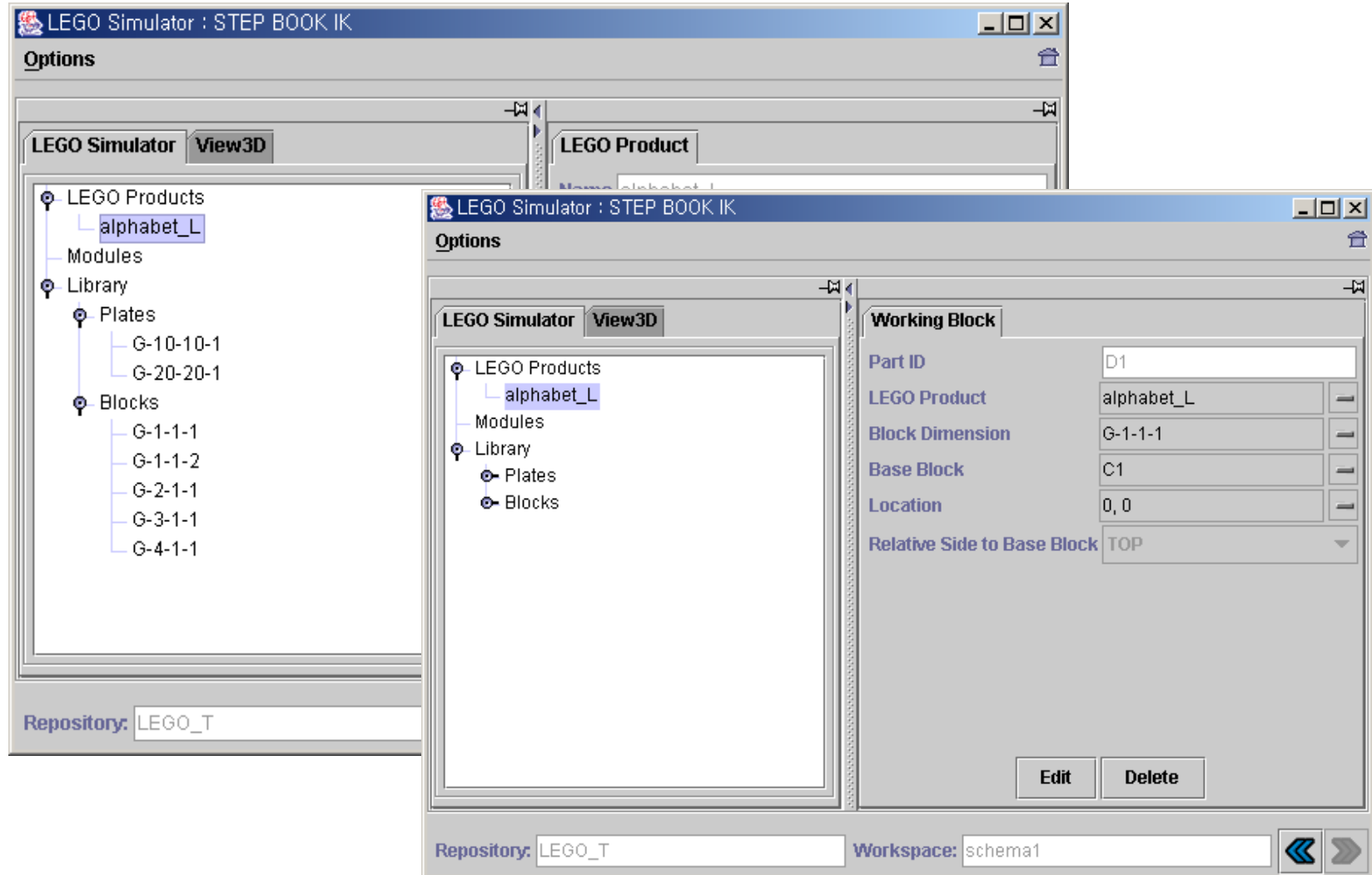


Test cases : Repositories and Models



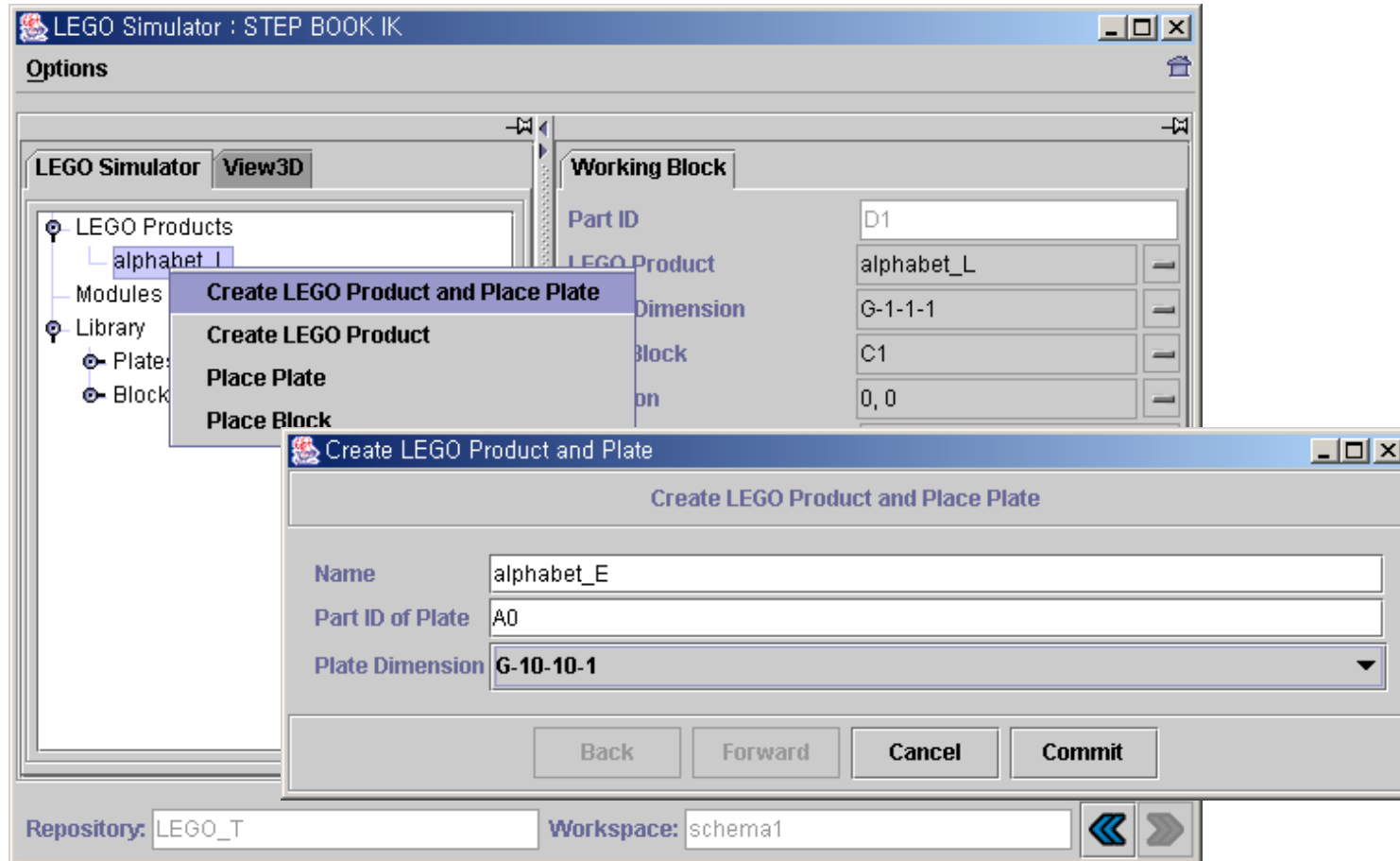
Test cases

: Data navigation



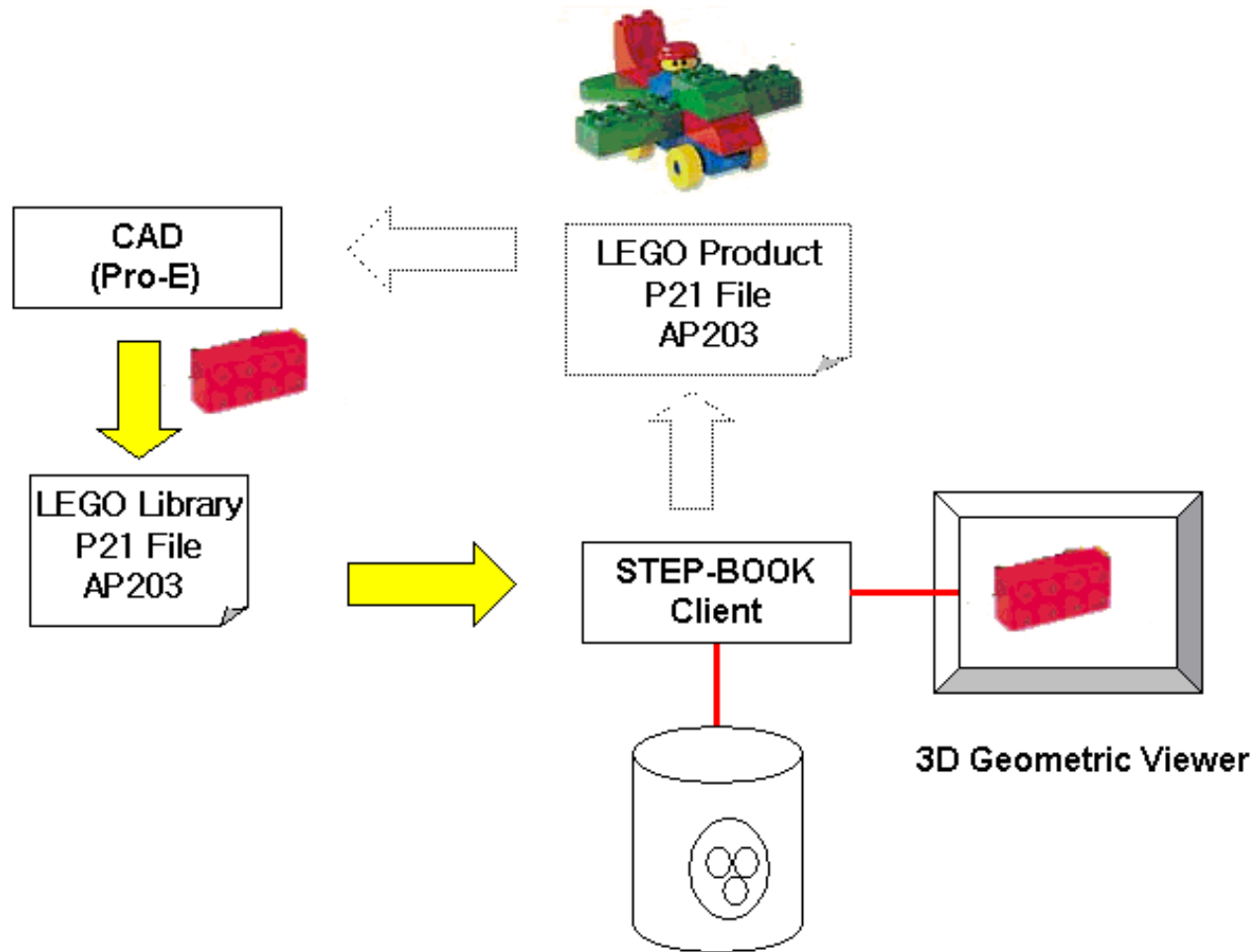
Test cases

: Data manipulation



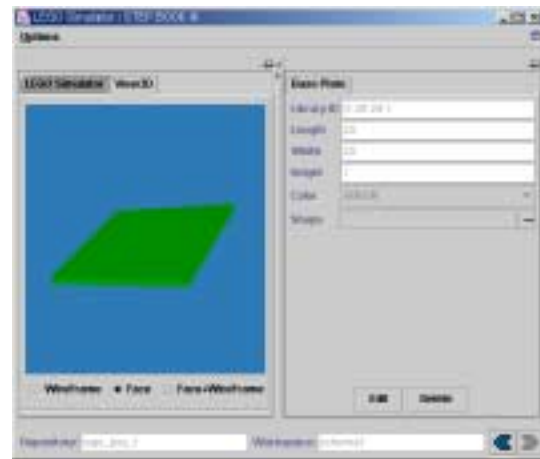
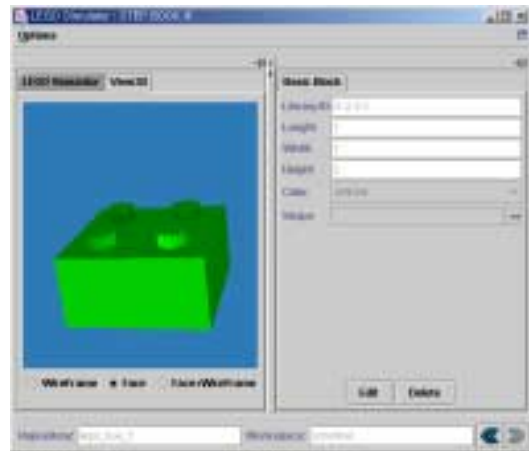
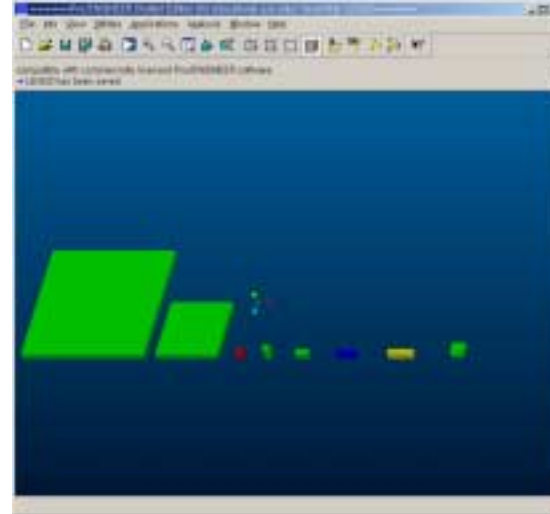
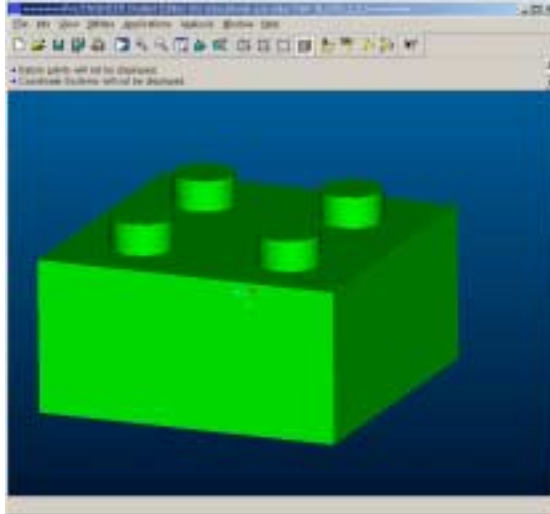
Test cases

: Geometric objects (1)



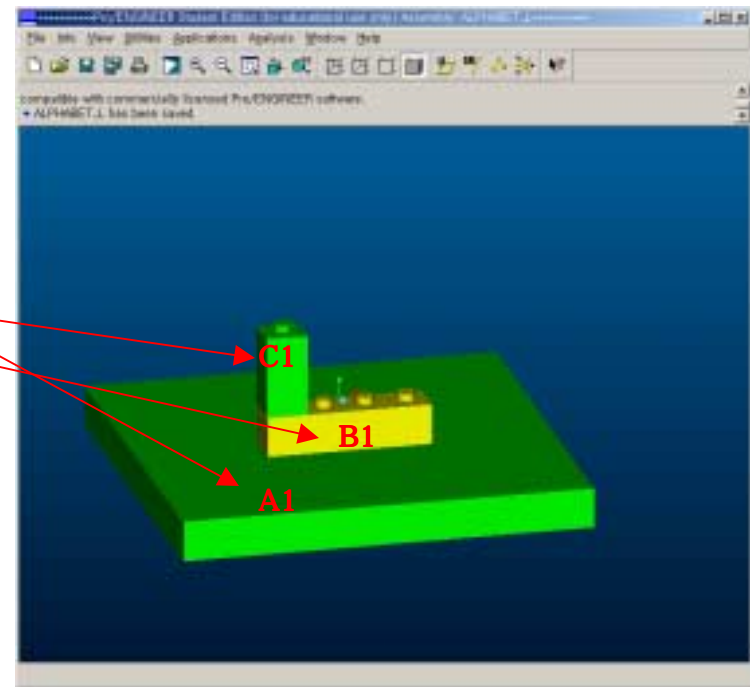
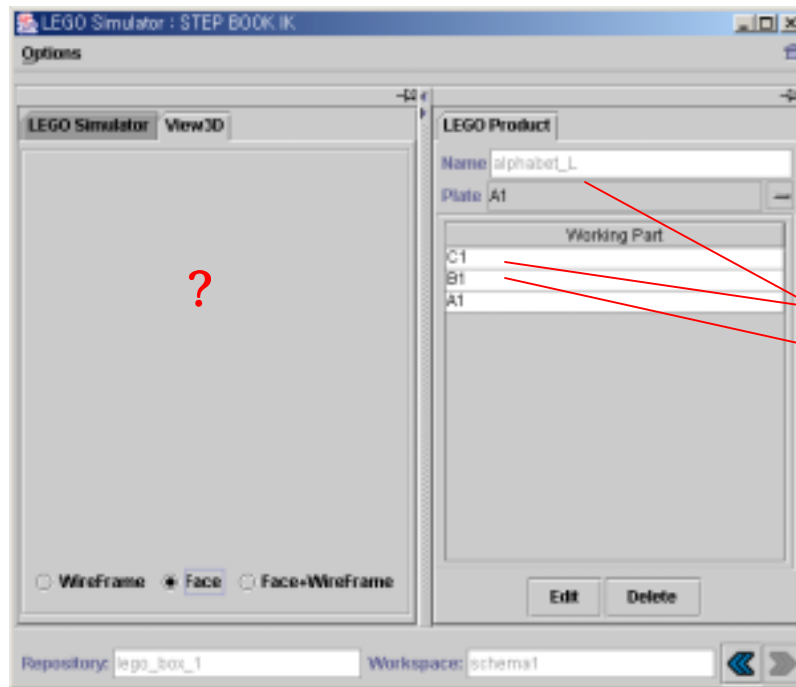
Test cases

: Geometric objects (2)

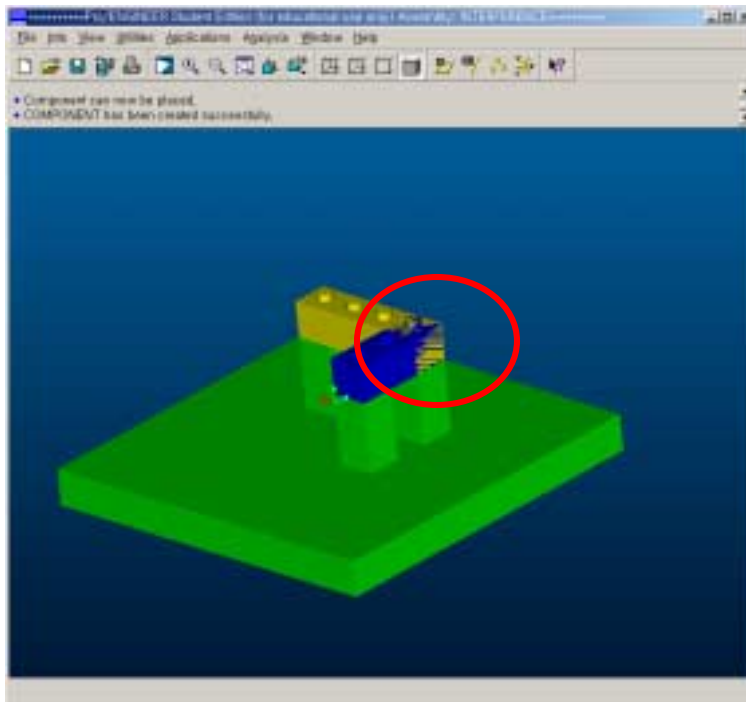


Test cases

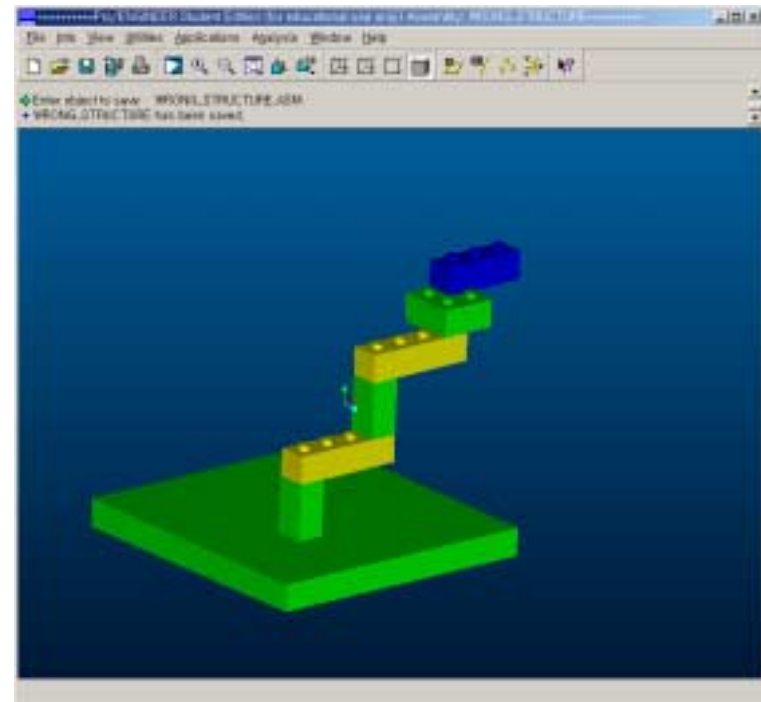
: Geometric objects (3)



Test cases : issues



Interference



Weak structure

Discussion

1. Complex and dynamic engineering data
2. Express as a data model
3. Object view and OQL in engineering OODBMSs

Summary

1. Schema of playing LEGO
2. LEGO simulator using STEP BOOK
3. Issues
 - a. OID and Unique attribute
 - b. Geometric objects
 - c. Variant engineering constraints
 - d. Integration between design and analysis systems