MODEL-BASED TESTING WITH DSM APPROACH

Chu Thị Minh Huệ, Nguyễn Ngọc Bình, Đặng Đức Hạnh
College of Technology, Vietnam National University, Hanoi
Email: Huectm.dil2@vnu.edu.vn

Abstract

In software development, testing is an important process and indispensable to develop a reliable and high-quality software system. Test case design is one of the important processes in the software testing. The system testing level is to verify if the whole system functions in correspondence to the system requirements. Our research focuses on studying a method for automatic test cases generation from use case specification with Model-based testing technique.

Main Objectives

1. Model-Based Testing (MBT)
2. Model-Driven Software Engineering (MDSE)
3. Generate Test Cases from Use Case Specification

Methods

- We proposed a formal method for Requirements specification
- We proposed testing generation algorithms and rated test coverage criterion

```
USL FrameWork
USL Models
USL Generator

Test scenarios + Test Cases

Software Digester

Requirements

1. Model
2. Generate
3. Concretize
4. Analyze
5. Execute

The model-based testing process [8]
```

Results

- We proposed a method for automated test case generation from use case scenarios.

```
1. Pre-Condition
2. Post-Condition
3. Trigger

Basic flow

1. A: Insert Card
2. S: Validates card and asks for PIN
3. A: Enters PIN
4. S: Validates PIN
5. S: Allows access to account

Alternate flow

2a. Card not valid
   S: Display message and reject card
4a. PIN not valid
   S: Display message and ask for retry(Twice), return 3
4b. PIN invalid 3 times
   S: Eat card and exit
```

Conclusion

- In this research, we concentrate on automating test case generation process in the model-based testing process.
- Our research aims to generate automatic test cases for system testing with the input is use cases Specifications.

References

5. Ivar Jacobson and Magnus Christerson. A growing consensus on use cases. JOOP, 1995.