"*Creating of Culture of Excellence*"

Assignment:2

Course Code: CSE-325

Course Title: System analysis & Design

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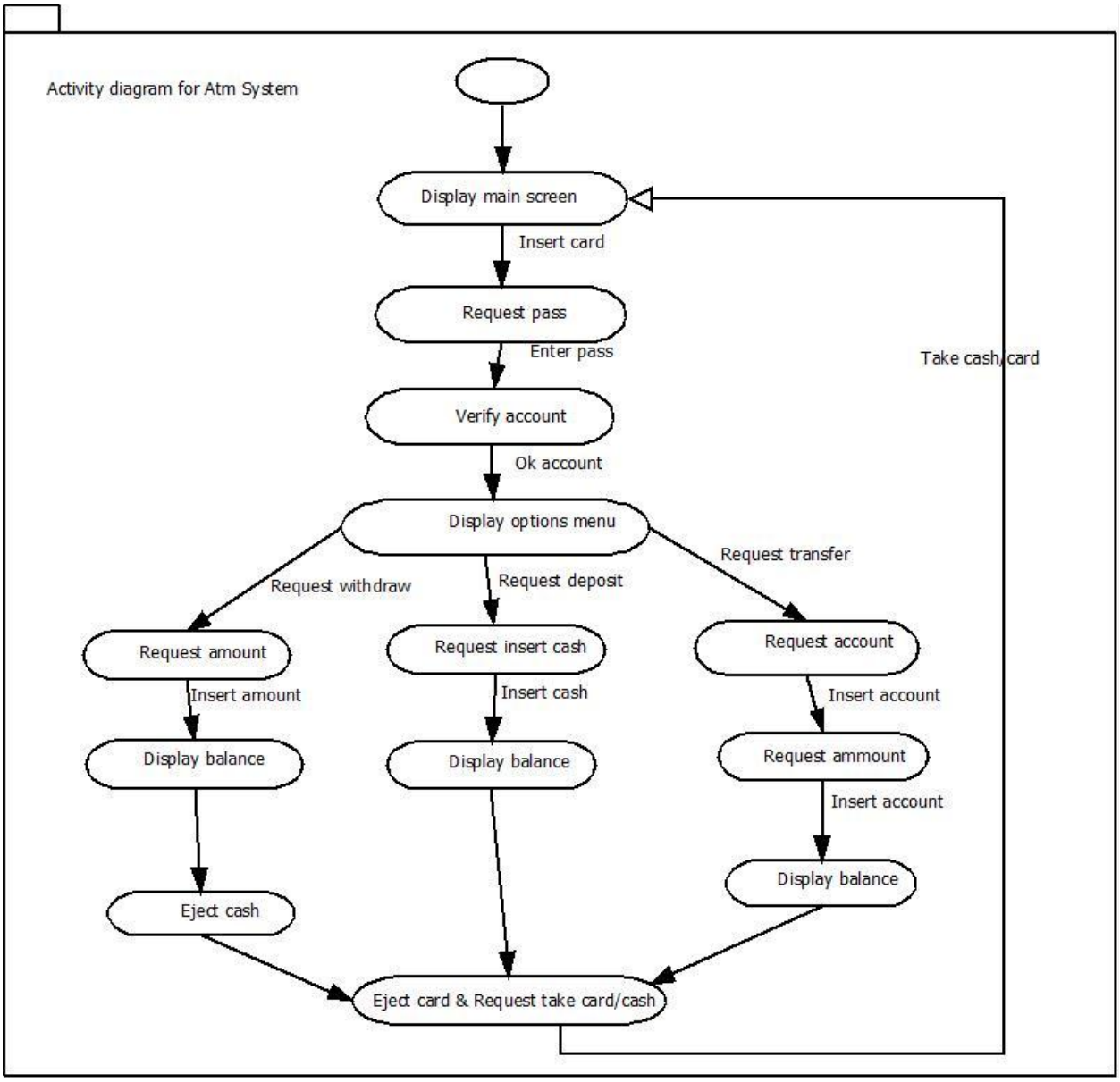
Assignment name: Design activity diagram for ATM System

Unified Modeling Language (UML) is widely used as a system level specification language in embedded system design. Due to the increasing complexity of embedded systems, the analysis and validation of UML specifications is becoming a challenge. UML activity diagram is promising to modeling the overall system behavior. However, lack of techniques for automated test case generation is one major bottleneck in the UML activity diagram validation. This article presents a methodology for automatically generating test cases based on various model checking techniques. It makes three primary contributions: First, we propose coverage-driven mapping rules that can automatically translate activity diagram to formal models. Next, we present a procedure for automatic property generation according to error models. Finally, we apply various model checking based test case generation techniques to enable efficient test case generation. Our experimental results demonstrate that our approach can reduce the validation effort drastically by reducing both test case generation time and required number of test cases to achieve a functional coverage goal.


Activity diagram for Atm System
Display main screen
Insert card
Request pass
Enter pass
Take cash/card
Verify account
Ok account
Display options menu
Request withdraw
Request deposit
Request transfer
Request amount
Request insert cash
Request account
Insert amount
Insert cash
Insert account
Display balance
Display balance
Request ammount
Insert account
Display balance
Eject cash
Eject card & Request take card/cash