CSP 587 Process Improver Design Report

Team E

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1. System and Data Models

1.1 System models

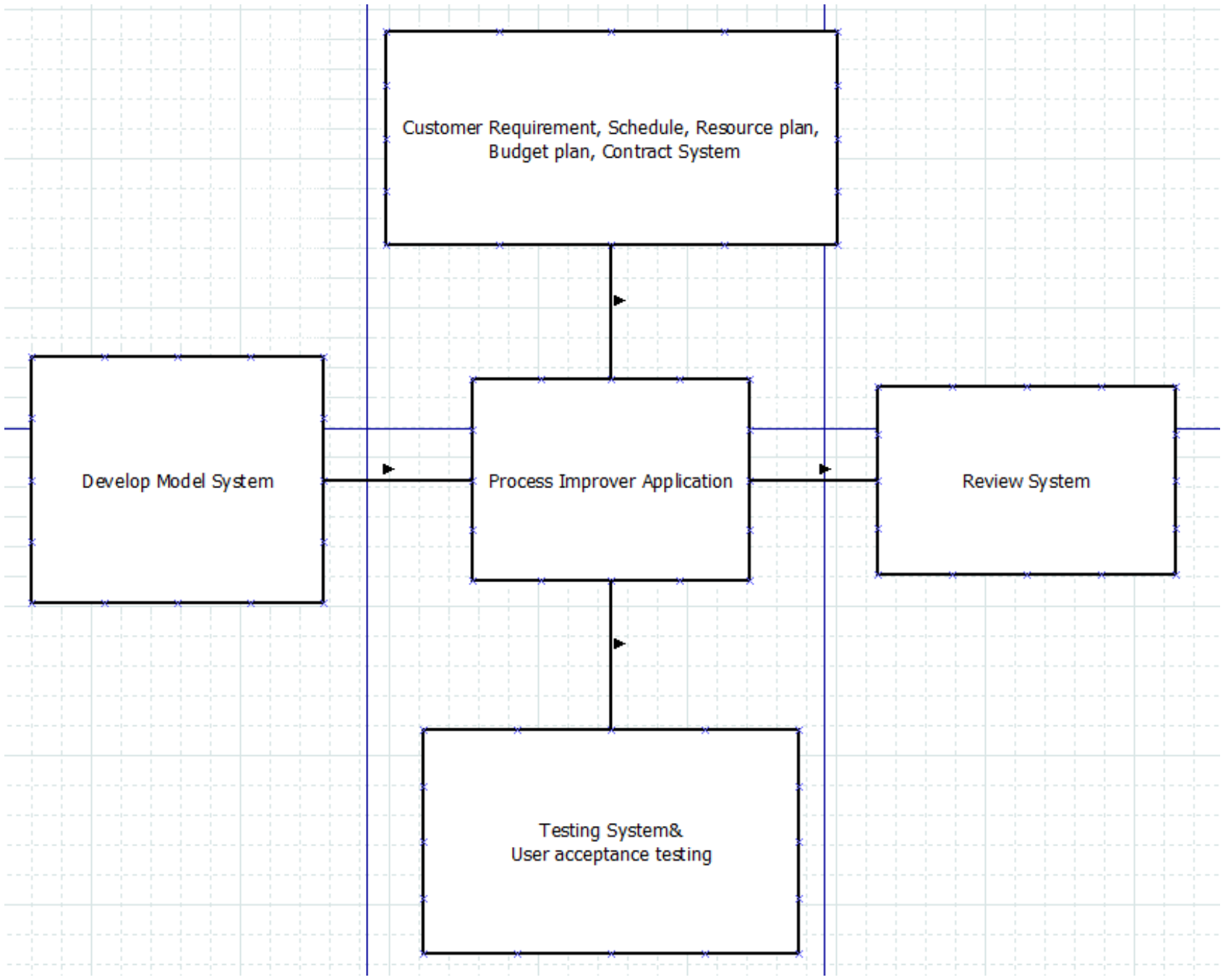
The whole system includes Contract Schedule Resource Budget system, Develop Models system, Reviews system, Software Test system.

Contract Schedule Resource Budget system can show the contract and user requirement information to project members, which helps prevent the deviations. The system also can be used to create project schedule, resource assignment plan and budget plan, which facilitates the project management to efficiently control the progress and resources of the project.

Develop Models system can be used to create SDLC, prototype, Spiral and Object Oriented models. Based on these models, the software can be defined with clear structure, the process of the software development can also be precisely planned.

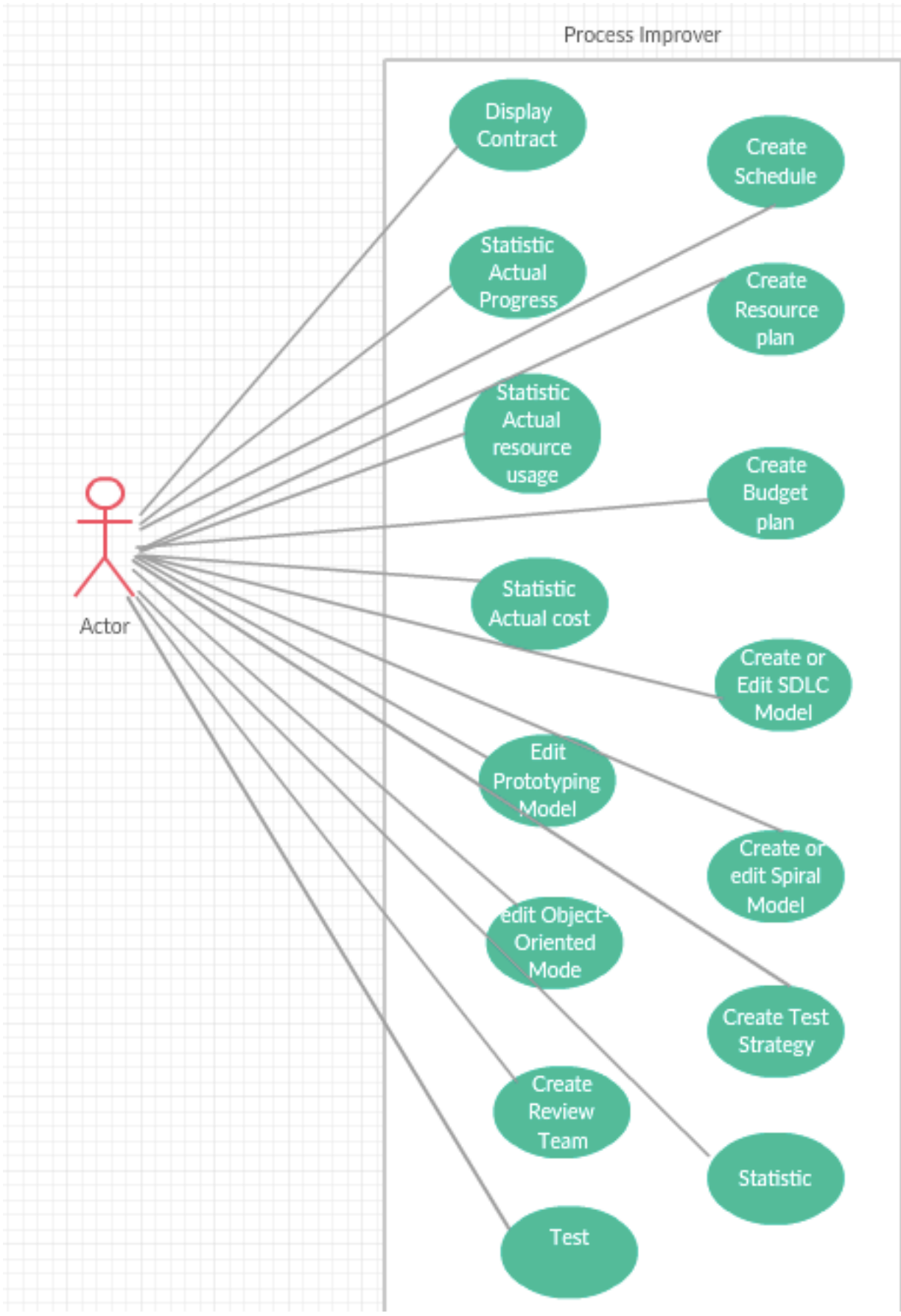
Reviews system can be used to assign review members, create review invents during the develop process, and handover the review report. These reviews can detect defects efficiently and early, helps improve the quality of the software and accelerate the process.

Software Test and User acceptance testing system allows users to create test strategies, create test cases, and also apply these cases to the software. Also the system can statistic the result data, chart these data, help the user to clearly see how many bugs are detected, and where these bugs come from, which can facilitate the root cause analysis and improve the quality of the software.

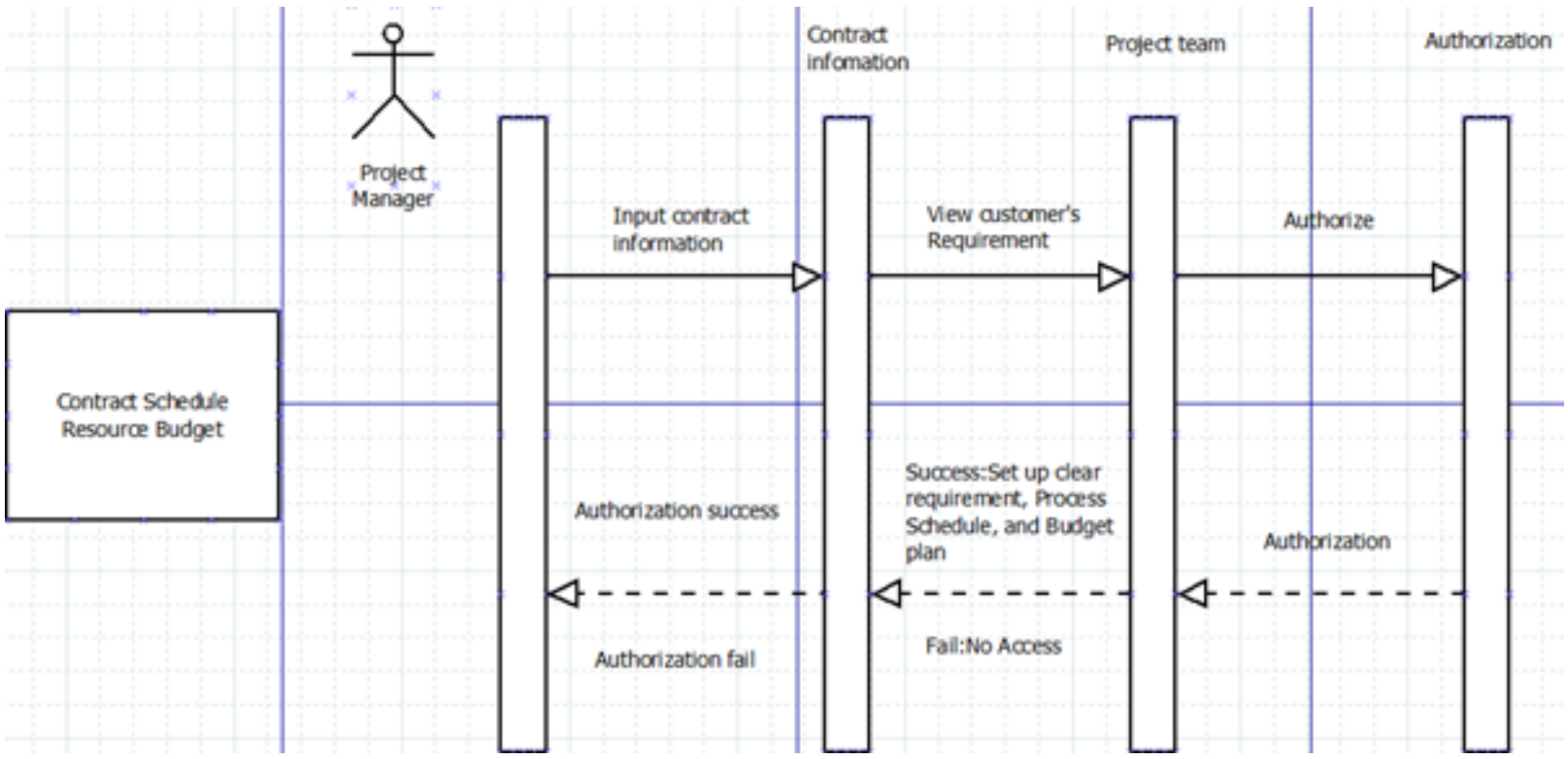

Customer Requirement, Schedule, Resource plan,
Budget plan, Contract System
Develop Model System
Process Improver Application
Review System
Testing System&
User acceptance testing

1.2 Data models

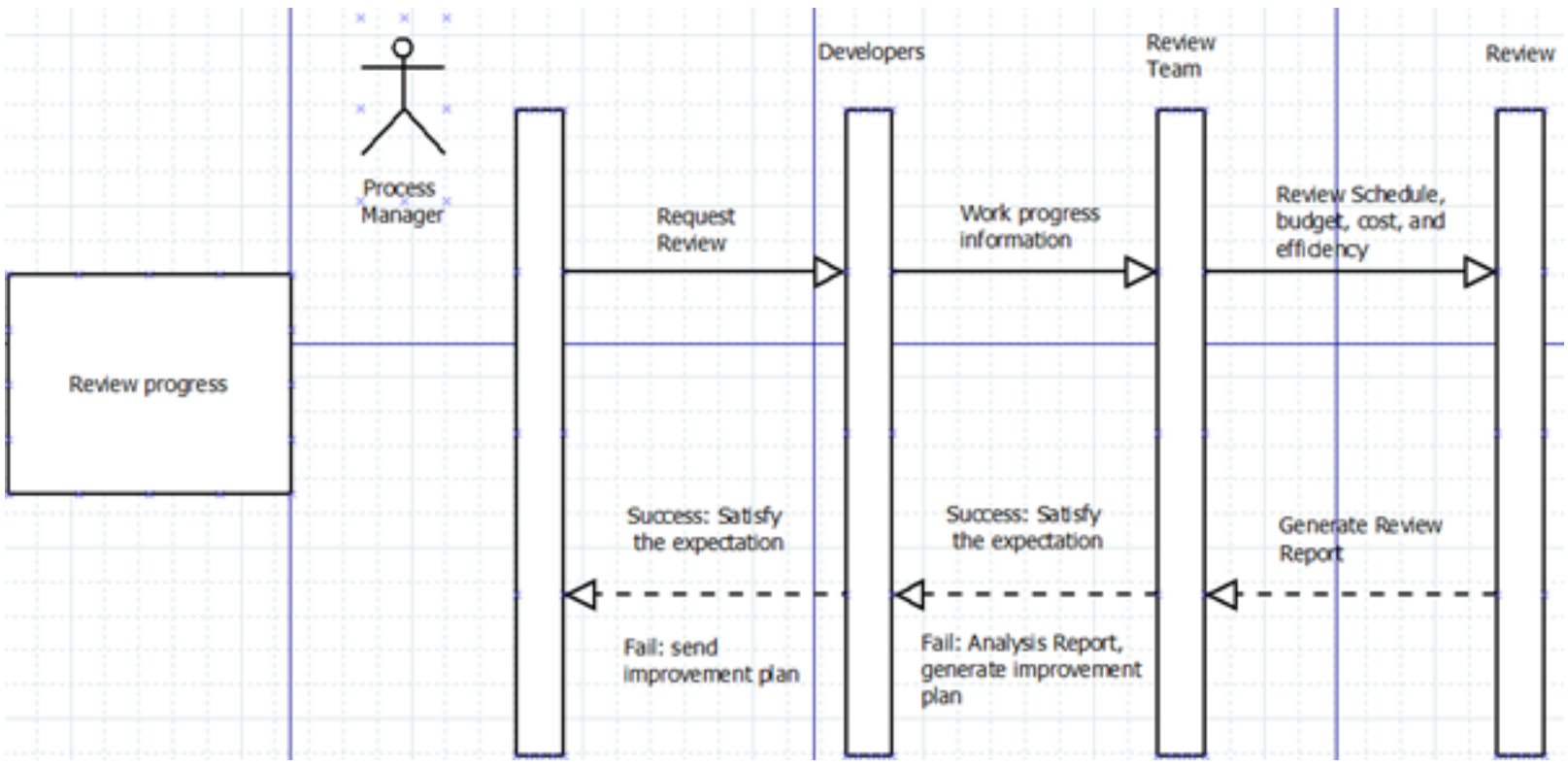
1.2.1 Use Case Diagram



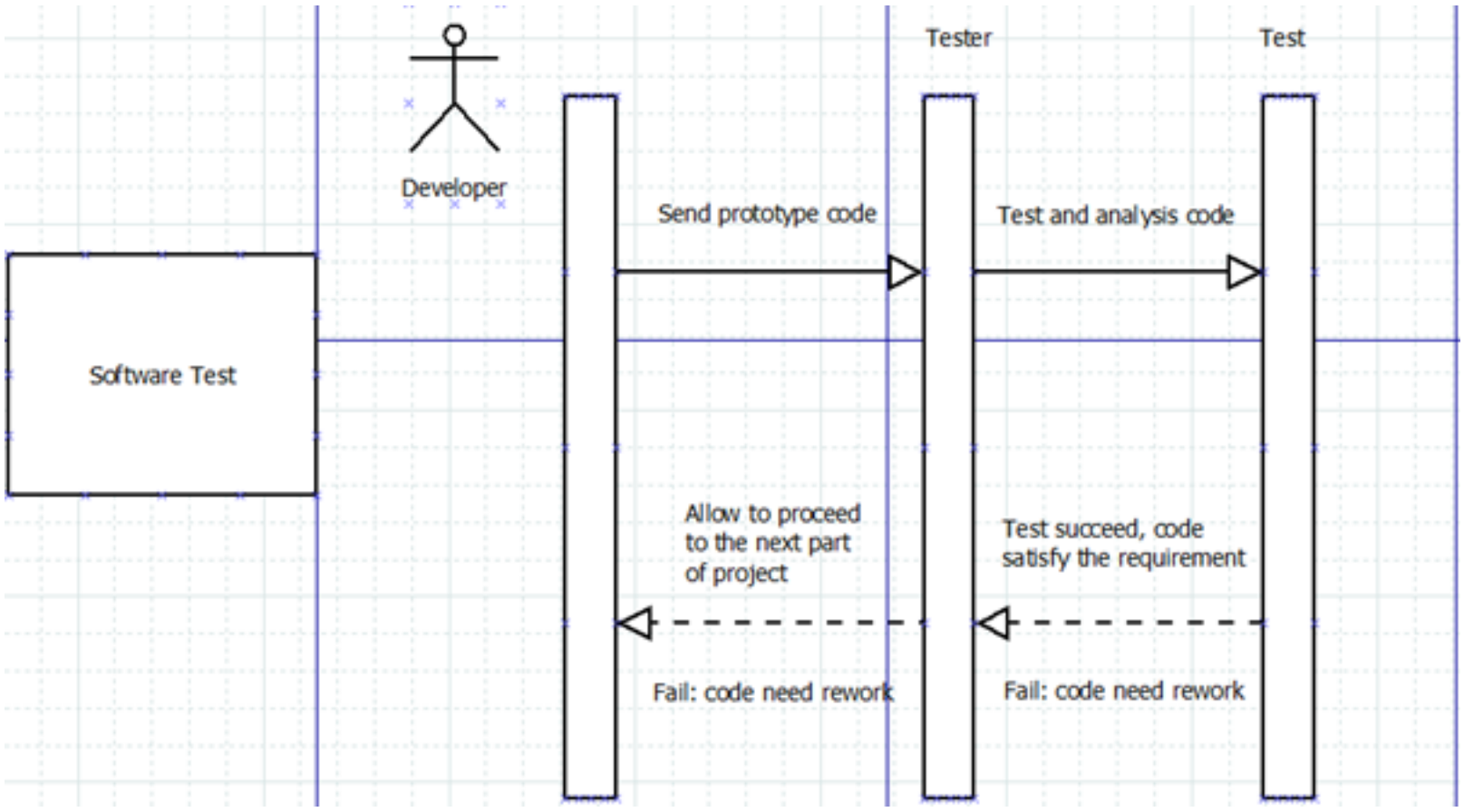
1.2.2 Sequence Diagram



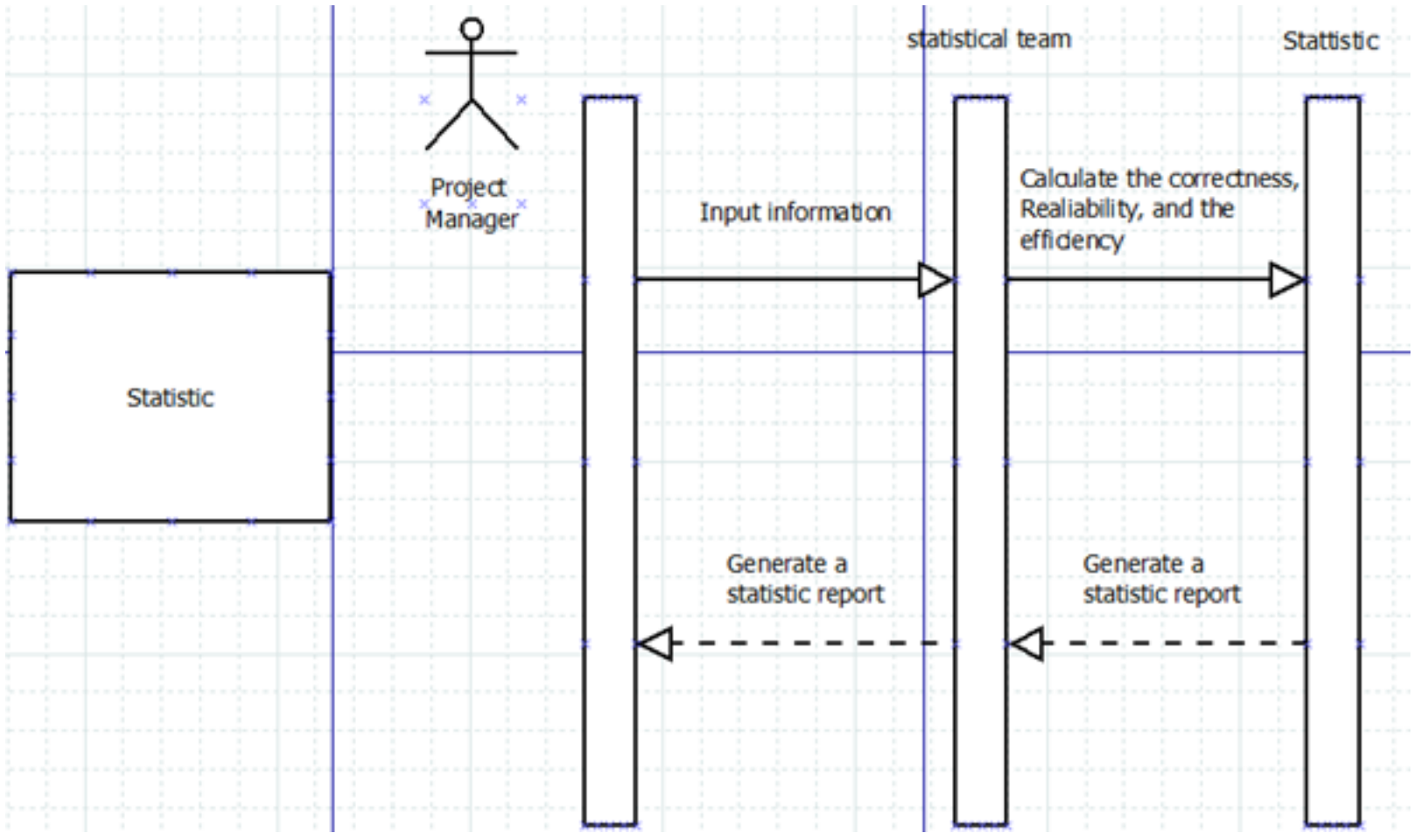
In the Contract Schedule Resource Budget System (CSRB system), the project manager will input the contract information to the system and it will generate a customer requirement. CSRB will send a draft version of requirement report to project developers. After reviewing by software engineers, this contract will ask for authorization. When finishing authorization, the project team will create a budget plan and a schedule.



The review system will help the process manager to supervise the progress of the work. It will allow the manager to check the schedule, budget plan, actual cost, and work efficiency. It will guarantee the software quality and make the project satisfy the expectation. However, if one part of the project fails to meet the requirement, this system will generate an improvement plan for process manager.

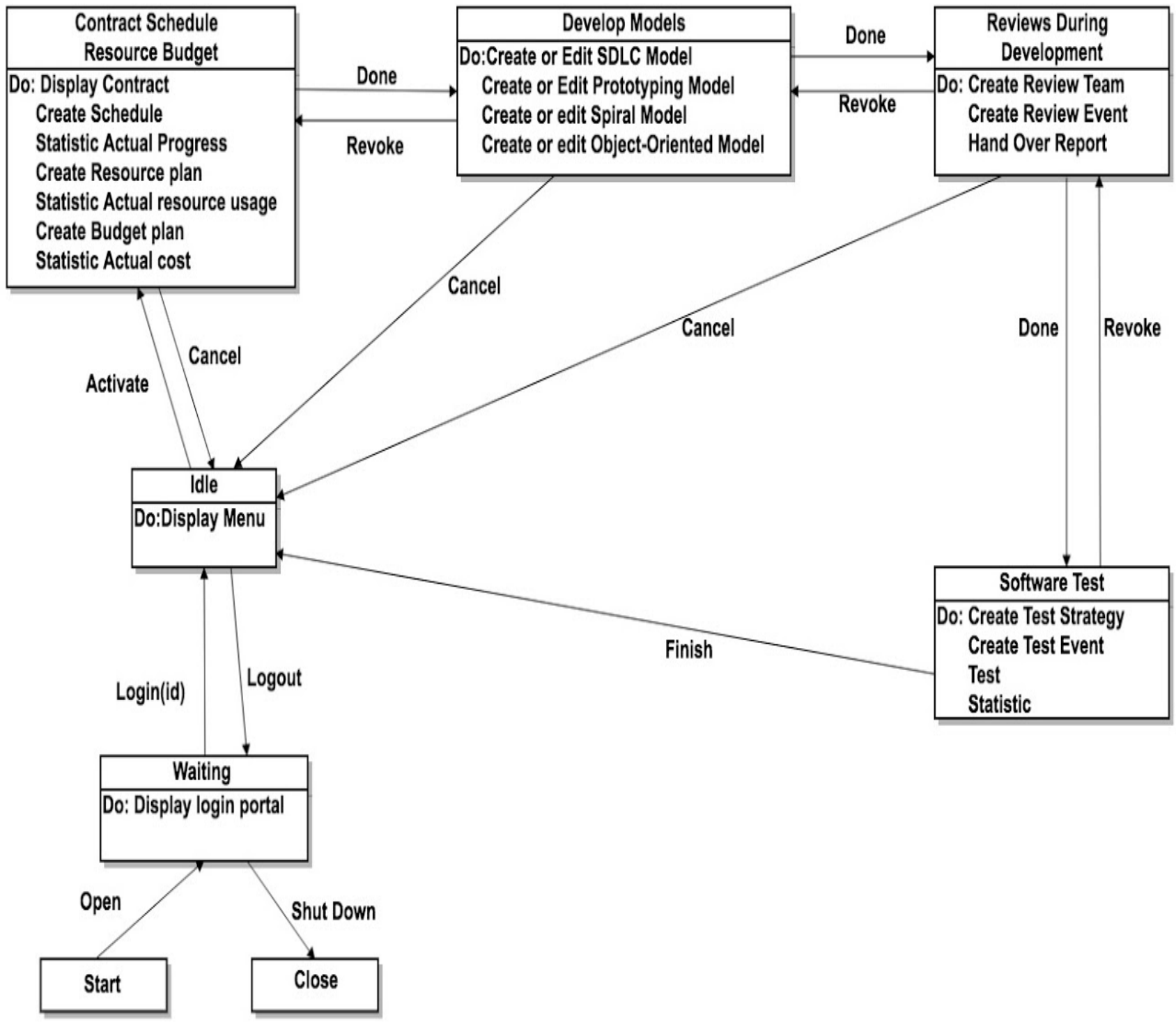


The testing system can guarantee every part of the software meet the expectation, and offer a permit to programmers to proceed to the next stage. Programmers need to rework the current work If it can't pass the test.



Statistic System helps the project manager to check the performance of every team member. It includes correctness, reliability, and efficiency. After statistic, it will generate a report to reveal those data for the manager.

2. State-Transition-Diagram



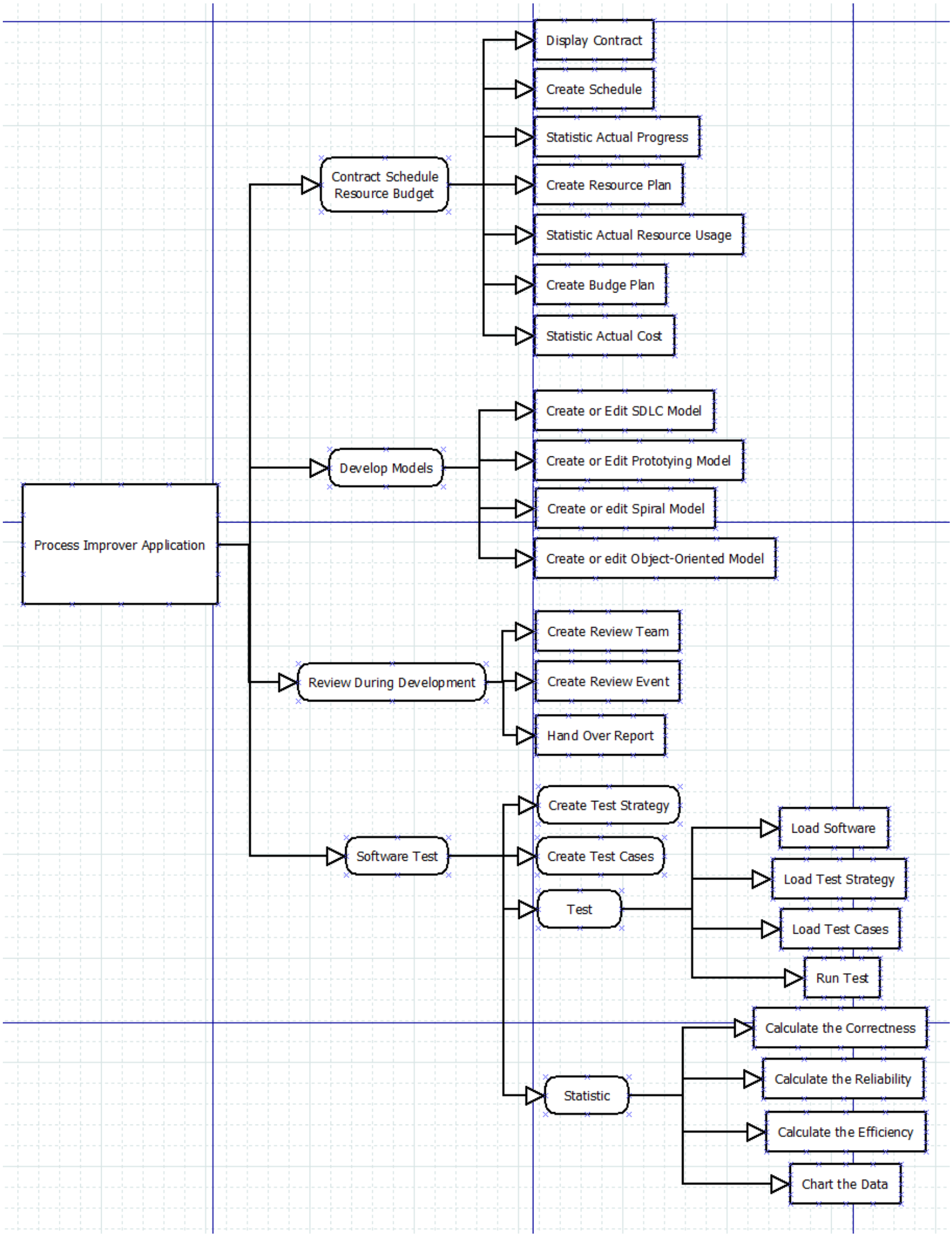
Per the state transition diagram, this machine has 8 states: Start, Waiting, Idle, Contract Schedule Resource Budget, Develop Models, Reviews During Development, Software Test and Close.
The initial state is Start. In the initial Start state, when a user opens the machine, this machine converts the Start state to the Waiting state. In the Waiting state, the user can log in by id, followed by the state converted from the Waiting to the Idle state. In the Idle state, the user can see the menu in this app. When the user activates the machine in the Idle state, the machine can converts the Idle state to the Contract Schedule Resource state. In Contract Schedule Resource Budget, Develop Models, Reviews During

Development and Software Test states, they can convert the current state to the next state when the machine finishes all actions in current state. If the user finds something wrong, the machine can revoke the current state to the previous state. Besides, the user can take “cancel” action so that the machine can return to the Idle state.
In the Software Test state, when the user finishes all actions in this state, the machine converts the Software Test state to the Idle state where when the machine can enter the Waiting state if the user logs out. Lastly, when the user shuts down the machine, the machine enters the close state.

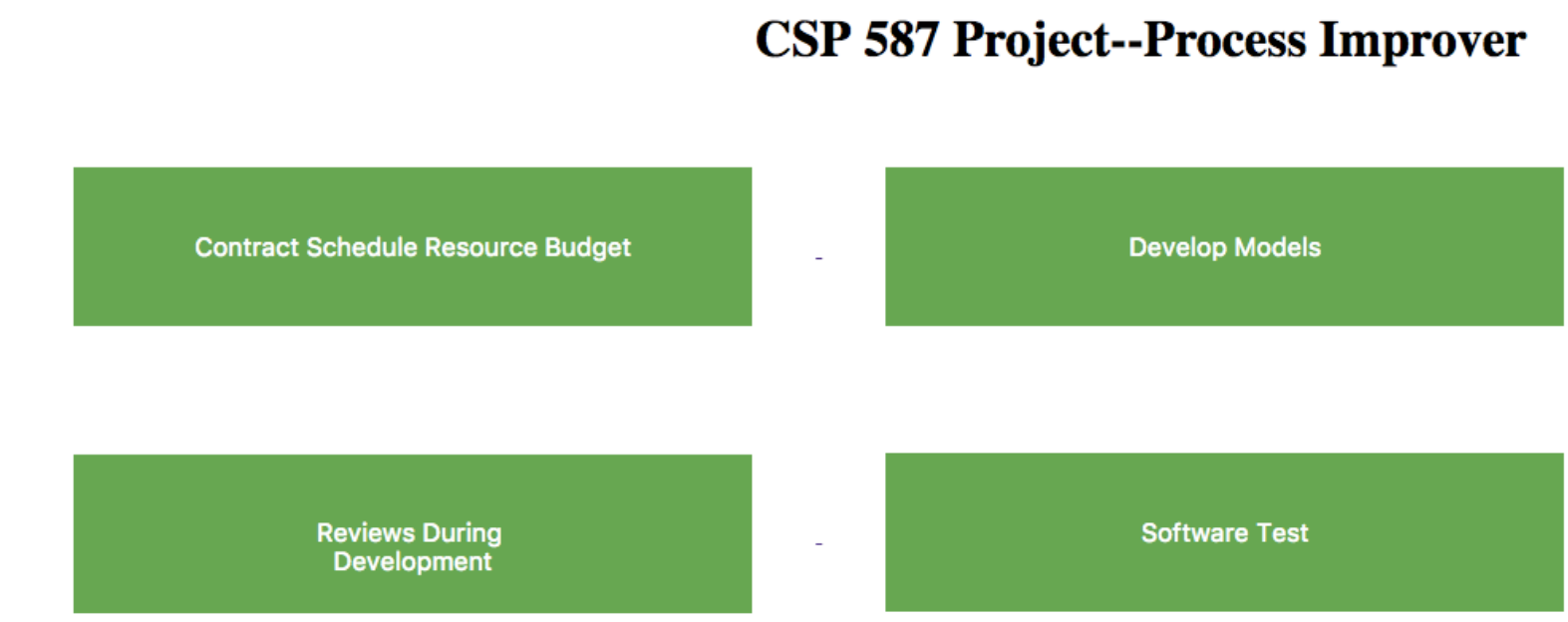
3. UI prototypes

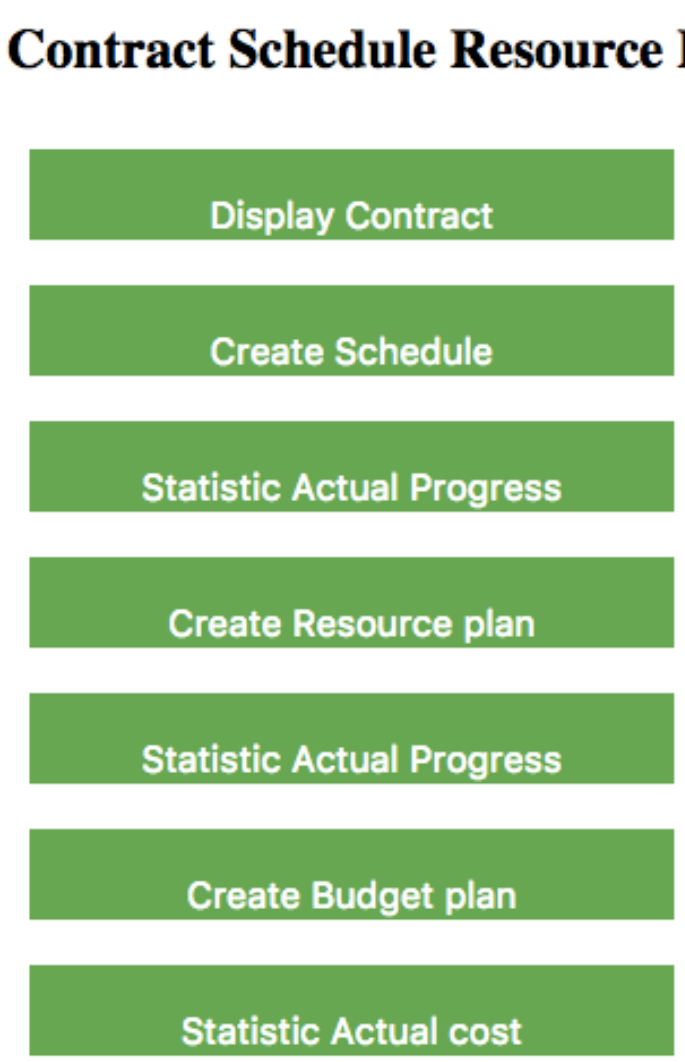
Our UI will be implemented in HTML, the business logics will be implemented in Javascript, and we will implement actual functions of the statistic function and chart function in the Software Test System.
The UI has three layers. The first layer is the main UI, which shows the four systems of the application. The second layer is the sub UI of each of the four systems, shows the functions in each sub UI. The third layer is the detailed UI, provide the user input form, show the data, results of the executing functions.

3.1 UI Classes Design Diagram



3.2 Screenshot of our UI prototype





Develop Models

Create or Edit SDLC Model

Create or Edit Prototyping

Create or edit Spiral Model

Create or edit Object-

Software Test

Create Test Strategy

Create Test Cases

Test

Statistic

Reviews During Development

Create Review Team

Create Review Event

Hand Over Report