



# **Daffodil** *International* **University**

## **Assignment**

Course Code: SWE323

**Course Title: System Analysis and Design**

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# 1 Introduction

The aim of this document is to gather and analyze and give an in-depth insight of the complete **SmartCity** by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the **SmartCity** are provided in this document.

## 1.1 Purpose

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system. The main aim of this project services provided to the users who have registered in the site. The services regarding to city political, historical, conventional places, bus routes, business companies profile and jobs details. **Smart city** is a web-based product used to store the details of particular city and helps all the users who just visits our website. This site also provides all the services like Hotel booking for tourists, Ticket booking, Transport facility providing, business related information, marketing details, city news, shopping detail. The website contains the complete information about particular city like places to be visited, site maps route maps, Business environment, Job portal, information about organization that provide transport, Hospitality and total history of the city. This website can be used by any person who is having general knowledge about internet. All the users will be first considered as anonymous user later if he needs any service then he will be treated as registered user. This document describes the system and its associate's members and its user interface, hardware and software requirements. it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

## 1.2 Project Scope

Primarily, SmartCity is website used to provide information regarding the particular city that includes city-map, history-social, political, business news and other services for registered users. It can be accessed by unlimited number of users. Each user will be assigned a different set of permissions for each module of the system. The user can have access to all the information in the site with limited services and provide extra services to registered users. Confirmation of end user identity and will verify which users are authorized to receive Support. Maintain history of each customer

and their related Maintain history of each customer and their related information. All the job seekers must have their Resume document to submit to Officers of maintains. Only registered members will be provided with communication between user, experts and general public through mails, Phone no. Officers of maintains is created in the system already. The Officers of maintains has to generate daily/weekly/Monthly reports, of the business and political news of the city. This site is best designed to be useful through internet to people of different places.

### 1.3 Glossary

This subsection contains definitions of all the terms, acronyms, and abbreviations used in the document. Terms and concepts from the application domain are defined.

- SRS – System Requirement Specification
- SDLC – Software Development Life Cycle
- UI – User Interface

### 1.4 References

### 1.5 Overview

It facilitate communication between users, experts and general public through mail, phone number. This will definitely help the users for the purpose of saving their valuable time which can't be got back which is also economically viable. This system provides a registration form for all who wants to get the services. This can be categorized based on the type of users. It provides different registration forms for different categories. Section 2 of the SRS presents the general factors that affect the Alumni system user role such as user class and characteristics and section 3 of this SRS presents the overall design and implementation techniques of this system.

## 2 User Classes and Characteristics

There are four user in our project .They are listed below with their description.

1. Officers of maintains
2. Tourist
3. Student
4. Businessman

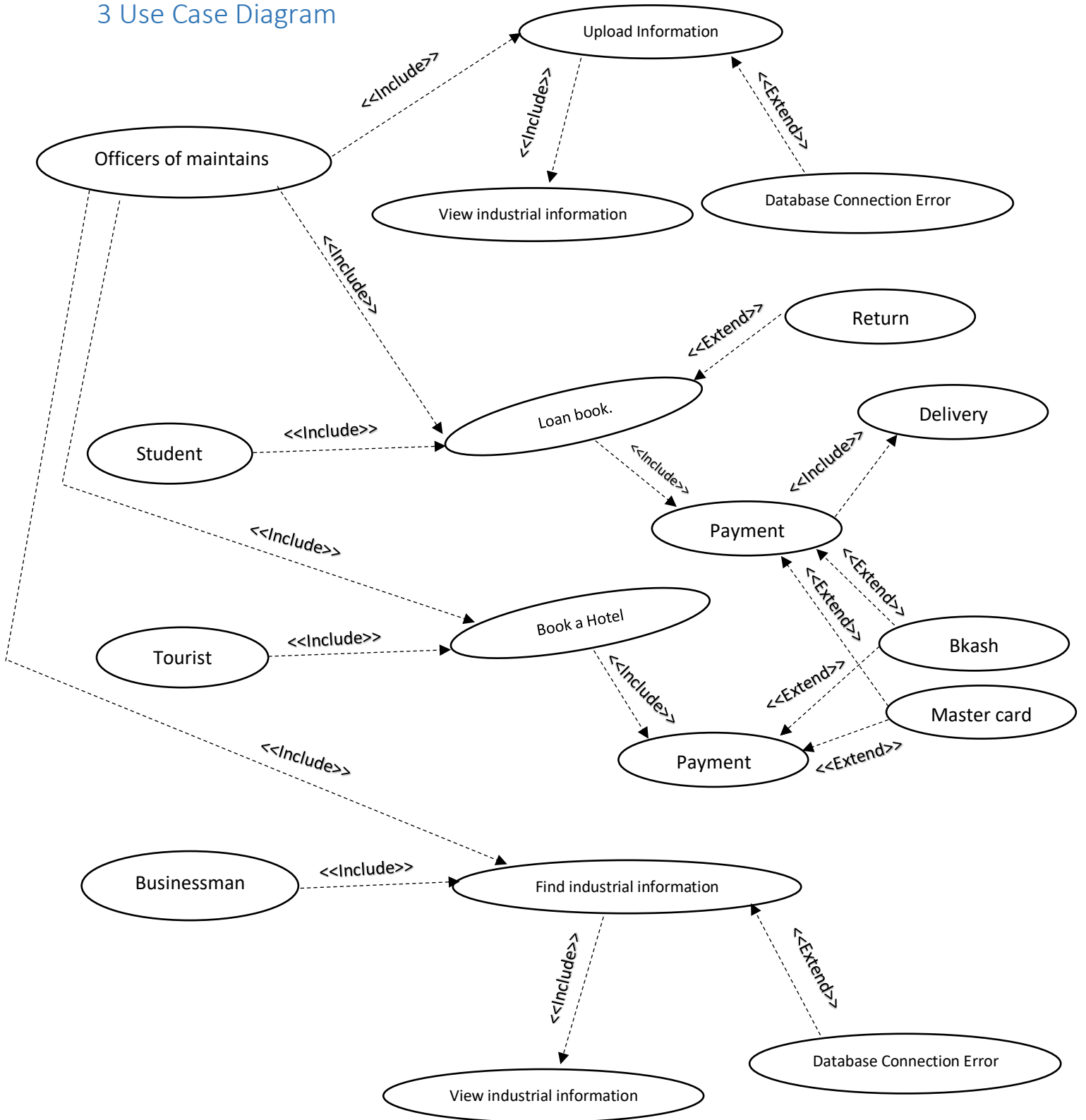
**Officers of maintains:** The Officers of maintains module is the major module as it is responsible for carrying out the major operations regarding site updates, business updates, job alerts etc., it maintains information regarding other four modules. The various software components in Officers of maintains module update alerts, update industries, update hotels, view resumes, update, and site information. The details regarding complete history such as political and social is entered by Officers of maintains and he want he can edit the details once entered. The details regarding business details such as top companies in the city and its information are entered and he want he can edit the details once entered. The details regarding job details such as job title, vacancies and companies profile is entered by Officers of maintains and he can edit the details once entered.

**Tourist Module:** Tourist module is maintaining the information regarding the city tourist spot, hotels in the city entertainment in this city etc., the user after registration as a tourist is considered as authorized user. The various software components in the tourist module are view theaters, view hotels, view city map, view ATM locations, view hospitals, view city history, view travel agency, and view bus routes.

**Student Module:** The student module maintains the various information regarding various institutes in the city. The various components in software are view library, view books, view institutes, view engineering colleges, view coaching centers, view journals, view city map.

**Businessman Module:** businessman module consists of information regarding various business in the city, industries in the city, with social and political influence of the city. The various software components in the businessman module are view city history, view markets, view industries, view hotels, view ATM locations, view jobs, view bus routes, view city map.

### 3 Use Case Diagram



## 4 Use Case Description

|  |   |   |
|--|---|---|
| Use Case   | Upload Information  |   |
| <b>Goal</b><br><a longer statement of the goal in context if needed>   | Officers of maintains can upload all the information required for Student, Tourist and Businessman. Also, Officers of maintains can upload information about city or other details. |   |
| <b>Preconditions</b><br><what we expect is already the state of the world>   | -User need the information.<br>-Information filed need to be blank.<br>-Detail information source must need.  |   |
| <b>Success End Condition</b><br><the state of the world upon successful completion>  | Officers of maintains upload information about city.<br>Other user can be beneficial by the information.  |   |
| <b>Failed End Condition</b><br><the state of the world if goal abandoned>  | Information source not founded.<br>Confusion between information.   |   |
| <b>Primary Actors:</b>   | officers of maintains   |   |
| <b>Secondary Actors:</b>   | None  |   |
| <b>Trigger</b><br><the action upon the system that starts use case>  | Officers of maintains upload information about city.  |   |
| <b>Description / Main Success Scenario</b><br><the steps of the scenario from trigger to goal delivery and any clean up after> | <b>Step</b>   | <b>Action</b>   |
|  | 1   | Officers of maintains have to upload information.                         |
|  | 1.1   | Officers of maintains get information from history.                       |
|  | 1.2   | Officers of maintains get information by survey.                          |
|  | 1.3   | Officers of maintains get information from internet!                      |
|  | 2   | Officers of maintains found City's name, history, map, geography etc.     |
|  | 3   | Officers of maintains decide what attribute about the city he need`       |
|  | 4   | Officers of maintains assign a new city                                   |
|  | 5   | Officers of maintains collect the information and upload the information. |
| <b>Alternative Flows</b><br><a: condition causing branching><br><a1: action or name of sub use case>                           | 6   | Officers of maintains store information on system.                        |
|  | 7   | Officers of maintains upload City information in system.                  |
|  | <b>Step</b>   | <b>Branching Action</b>   |
|  | 3a  | All the city information doesn't find.                                    |
|  | 3a1   | Fill with more other information.   |
|  | 4a  | Officers of maintains found the detail.                                   |
|  | 4a1   | Use Case 'Store information to the system'                                |
|  | 7a  | Officers of maintains doesn't found detail on web.                        |
| <b>Quality Requirements</b>  | 7a1   | Run a survey.   |
|  | <b>Step</b>   | <b>Requirement</b>  |
|  | 4   | The officers of maintains should upload the information within one day.   |
|  | 7   | One officers of maintains can work on only one city at a time!            |

### Scenario:

- Scenario is one instance of a use case / describes a use case in which an alternative course is worked through in detail.
- Scenario consists of a goal and a sequence of actions that lead to it (actions should be simple and concrete, avoid vagueness).
- Scenario is a useful way to identify what the users want the system to do for them.

|  |   |  |
|--|---|--|
| Use Case   | Tourist book a Hotel  |  |
| <b>Goal</b><br><a longer statement of the goal in context if needed>   | Tourist want a good hotel for his accommodation in a good price with all facilities he wants! |  |
| <b>Preconditions</b><br><what we expect is already the state of the world>   | Tourist need to stay.   |  |
| <b>Success End Condition</b><br><the state of the world upon successful completion>  | Tourist get room.<br>Hotel issue tourist a room.  |  |
| <b>Failed End Condition</b><br><the state of the world if goal abandoned>  | Tourist doesn't have enough money.<br>Room is not available                                   |  |
| <b>Primary Actors:</b>   | Tourist   |  |
| <b>Secondary Actors:</b>   | Hotel management, Payment service, Transport service, Officers of maintains                   |  |
| <b>Trigger</b><br><the action upon the system that starts use case>  | Tourist booked a room.  |  |
| <b>Description / Main Success Scenario</b><br><the steps of the scenario from trigger to goal delivery and any clean up after> | <b>Step</b>   | <b>Action</b>  |
|  | 1   | Tourist contact for a room   |
|  | 1.1   | Tourist call for the room.   |
|  | 1.2   | Tourist contacted via social media.                                      |
|  | 1.3   | Tourist contacted in website or system                                   |
|  | 2   | Hotel takes Tourist name, address, number, room, price etc               |
|  | 3   | Hotel gives details about room, price, facilities etc                    |
|  | 4   | Tourist confirms with his signature.                                     |
|  | 5   | Hotel provide a room for the tourist.                                    |
|  | 6   | Hotel take bill in advance.  |
|  | 7   | Tourist get bill.  |
|  | 7.1   | Tourist pays by cash   |
|  | 7.2   | Tourist pays by Bkash, UCash, Rocket etc.                                |
|  | 7.3   | Tourist pays by Card   |
| <b>Alternative Flows</b><br><a: condition causing branching><br><a1: action or name of sub use case>                           | Step  | Branching Action   |
|  | 3a  | Hotel doesn't have room the tourist wanted.                              |
|  | 3a1   | Hotel offer similar room at same rate                                    |
|  | 4a  | Tourist pays directly with credit card.                                  |
|  | 4a1   | Use Case 'Take payment by credit card'                                   |
|  | 7a  | Tourist leave the Hotel  |
|  | 7a1   | Use Case 'Hotel Leave'   |
| <b>Quality Requirements</b>  | <b>Step</b>   | <b>Requirement</b>   |
|  | 4   | Tourist should pay in advance.   |
|  | 7   | If tourist stay after 12 p.m., he have to pay full bill for the next day |

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|  |  |   |
|--|--|---|
| Use Case   | Student loan book.   |   |
| <b>Goal</b><br><a longer statement of the goal in context if needed>   | Student ask for a book on City Library, and want the Book for loan.  |   |
| <b>Preconditions</b><br><what we expect is already the state of the world>   | Student must have library card.  |   |
| <b>Success End Condition</b><br><the state of the world upon successful completion>  | Student loan a book<br>Library take the charge and get return the book after loan end.                           |   |
| <b>Failed End Condition</b><br><the state of the world if goal abandoned>  | Library doesn't have the book.<br>Student don't have the Library card.<br>Student doesn't pay for loan the book. |   |
| <b>Primary Actors:</b><br><b>Secondary Actors:</b>   | Student<br>Library, Officers of maintains  |   |
| <b>Trigger</b><br><the action upon the system that starts use case>  | Loan request for a book.   |   |
| <b>Description / Main Success Scenario</b><br><the steps of the scenario from trigger to goal delivery and any clean up after> | <b>Step</b>  | <b>Action</b>   |
|  | 1  | Student submit a loan request for a book.                           |
|  | 1.1  | Student submit a request on online.                                 |
|  | 1.2  | Student came own self for loan.                                     |
|  | 1.3  | Student comes in library.   |
|  | 2  | Library checks Student's membership                                 |
|  | 3  | Library give availability, loan details to student                  |
|  | 4  | Student confirms for loan.  |
|  | 5  | Library check book and loan schedule                                |
|  | 6  | Student pay money for loan the book`                                |
|  | 6.1  | Student pay cash  |
|  | 6.2  | Student pay by Bkash  |
|  | 6.3  | Student pay by Smart Card   |
| <b>Alternative Flows</b><br><a: condition causing branching><br><a1: action or name of sub use case>                           | Step   | Branching Action  |
|  | 3a   | If book not available for loan.                                     |
|  | 3a1  | Check similar other books   |
|  | 4a   | Student return the book   |
|  | 4a1  | Use Case 'Return book'  |
|  |  |   |
| <b>Quality Requirements</b>  | <b>Step</b>  | <b>Requirement</b>  |
|  | 2  | Student need access from the system for lent the book               |
|  | 4  | Student need to confirm the loan in 1 min after confirming request. |

#### Scenario:

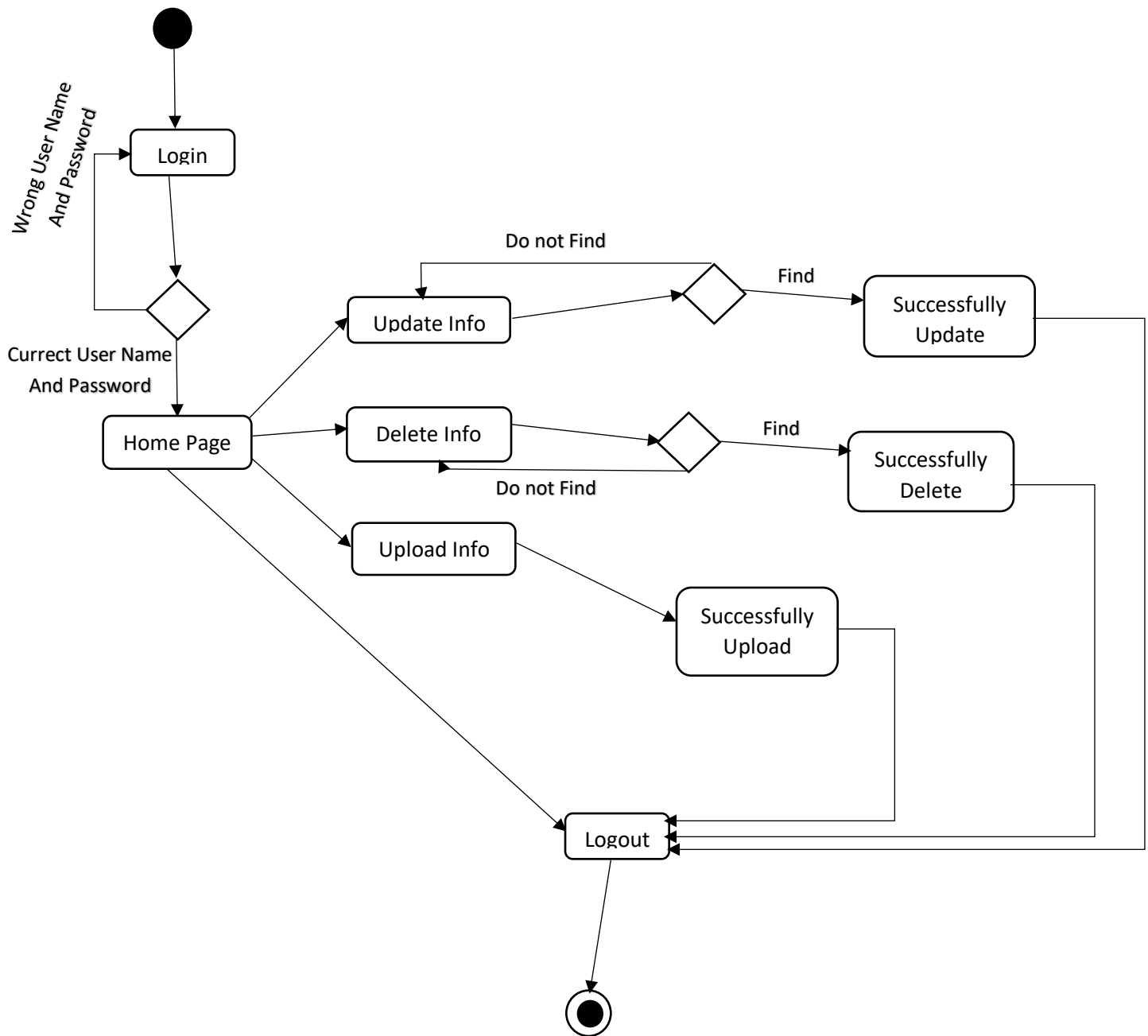
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|  |  |  |
|--|--|--|
| Use Case   | Businessman views industries.                                  |  |
| <b>Goal</b><br><a longer statement of the goal in context if needed>   | Businessman can see detail about industry of any city he want. |  |
| <b>Preconditions</b><br><what we expect is already the state of the world>   | City must be commercial area.                                  |  |
| <b>Success End Condition</b><br><the state of the world upon successful completion>  | Businessman get the information he needs.                      |  |
| <b>Failed End Condition</b><br><the state of the world if goal abandoned>  | Industries doesn't find what the businessman was looking for.  |  |
| <b>Primary Actors:</b>   | Businessman  |  |
| <b>Secondary Actors:</b>   | Industries, Officers of maintains                              |  |
| <b>Trigger</b><br><the action upon the system that starts use case>  | Businessman get all the information he wanted                  |  |
| <b>Description / Main Success Scenario</b><br><the steps of the scenario from trigger to goal delivery and any clean up after> | <b>Step</b>  | <b>Action</b>  |
|  | 1  | Businessman search for an industry in that City  |
|  | 1.1  | Businessman can search from mobile.  |
|  | 1.2  | Businessman can search from computer   |
|  | 1.3  | Businessman can call to the industry for more information  |
|  | 2  | System show industry information only to registered Businessman  |
| <b>Alternative Flows</b><br><a: condition causing branching><br><a1: action or name of sub use case>                           | 3  | System shows information about the industry, statistics, location, profit etc. of that industry        |
|  | Step   | Branching Action   |
|  | 3a   | Wanted industry not founded  |
| <b>Quality Requirements</b>  | 3a1  | System will show other related industry  |
|  | <b>Step</b>  | <b>Requirement</b>   |
|  | 1  | Businessman need paid version for seeing more statistical and financial information about the industry |
|  | 2  | Industry will also get notified about the businessman who search for them                              |

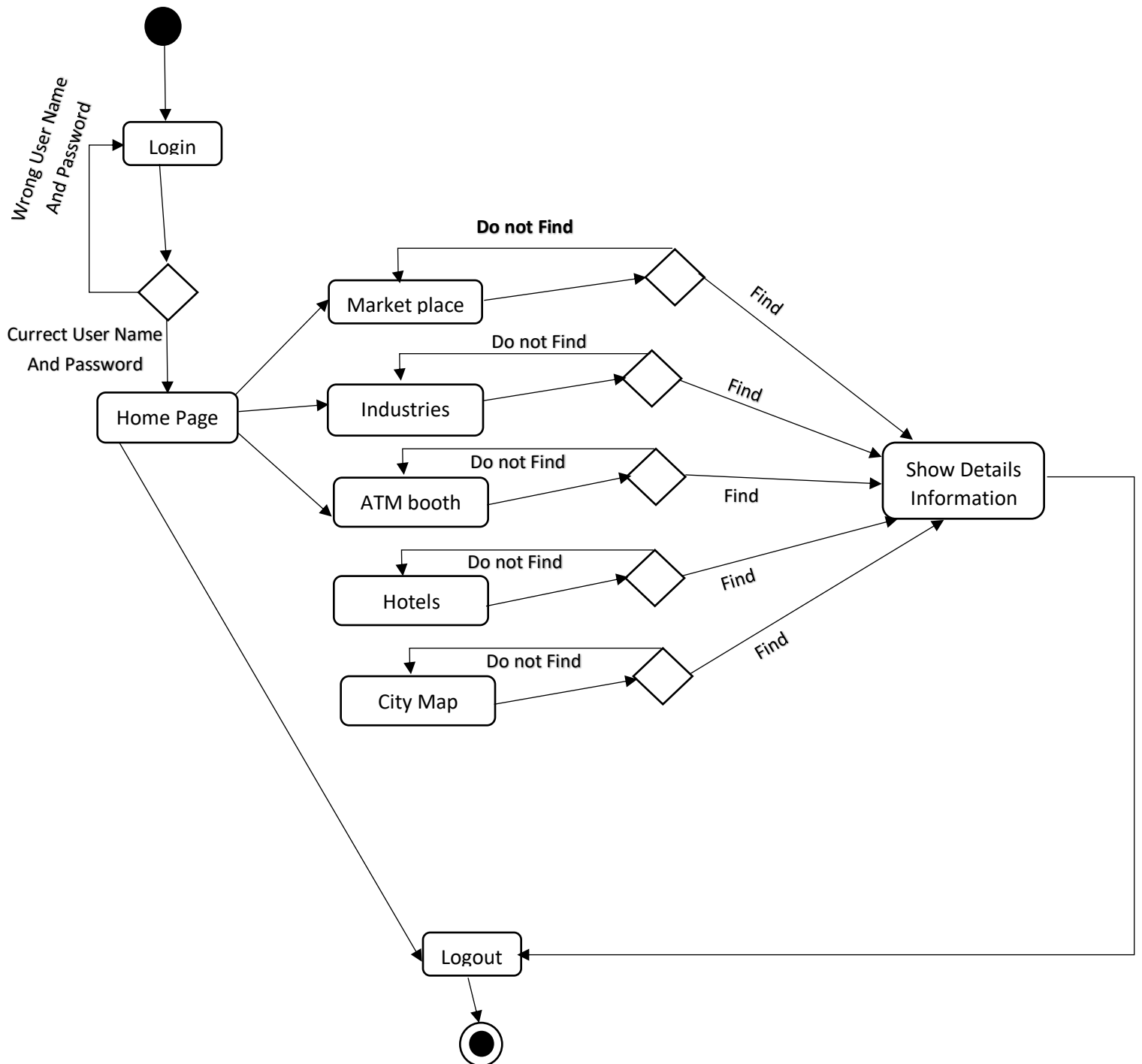
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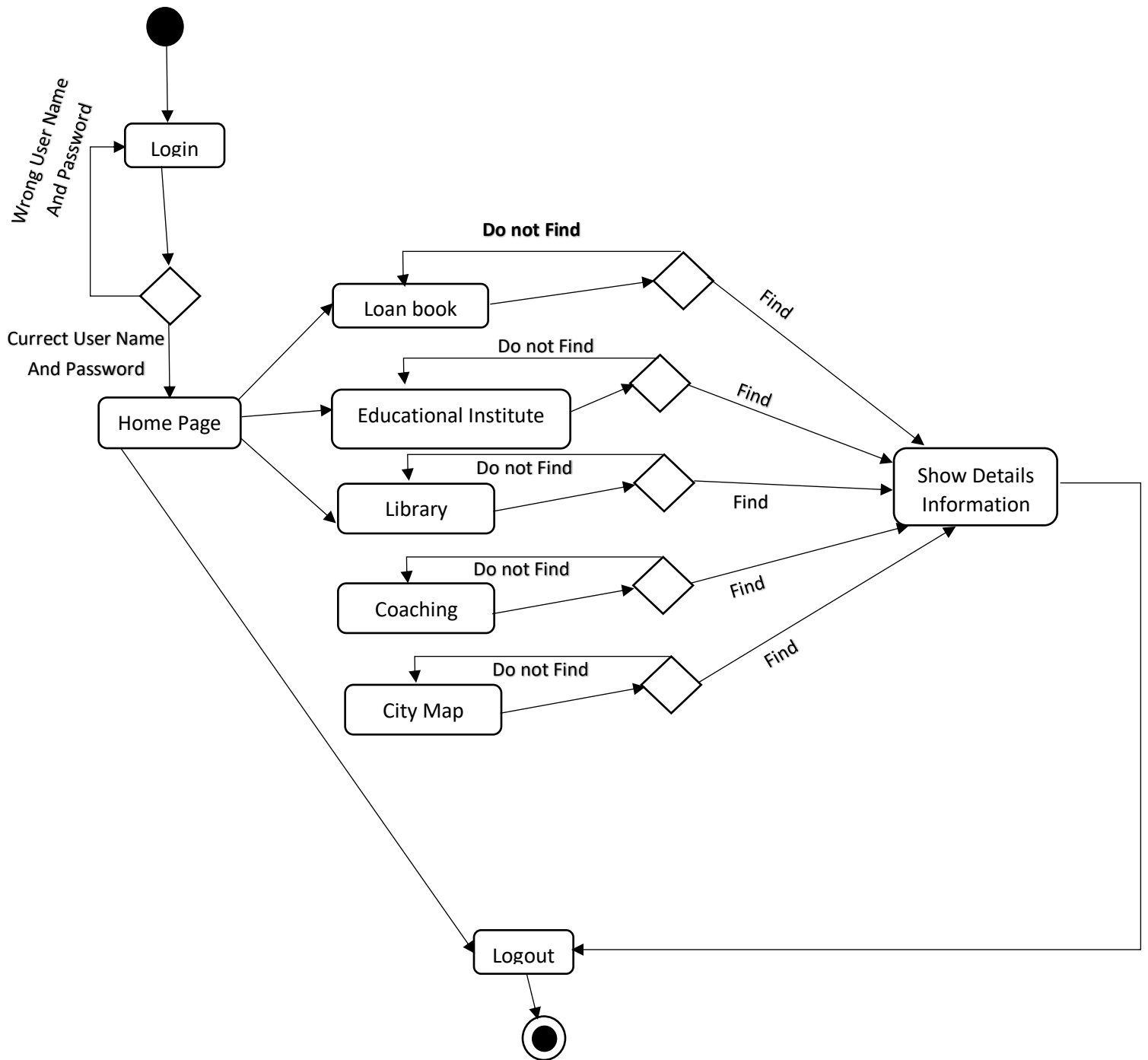
## 5 Activity Diagram



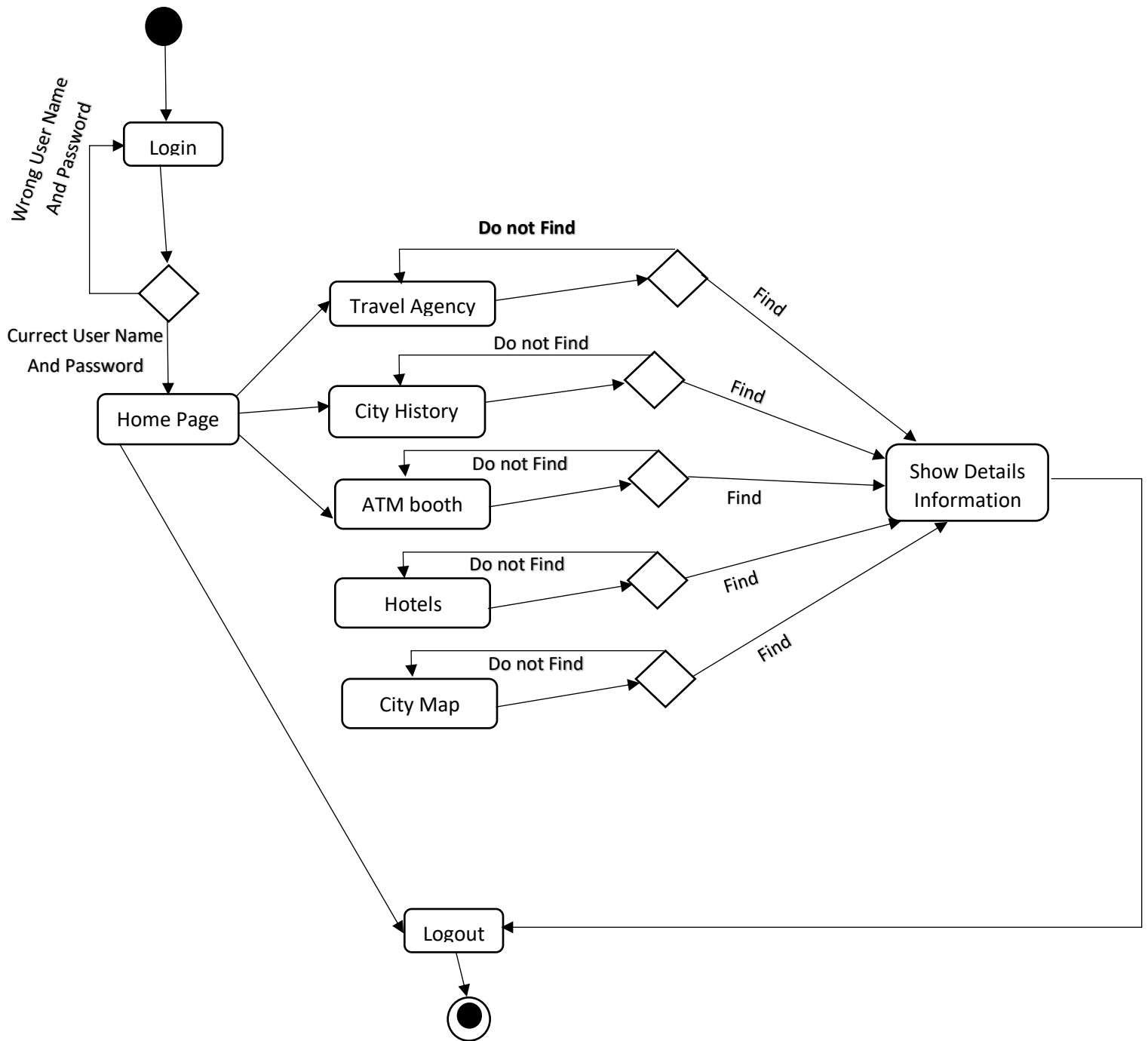
**Activity Diagram of Officers of maintains**



**Activity Diagram of Businessman Module**

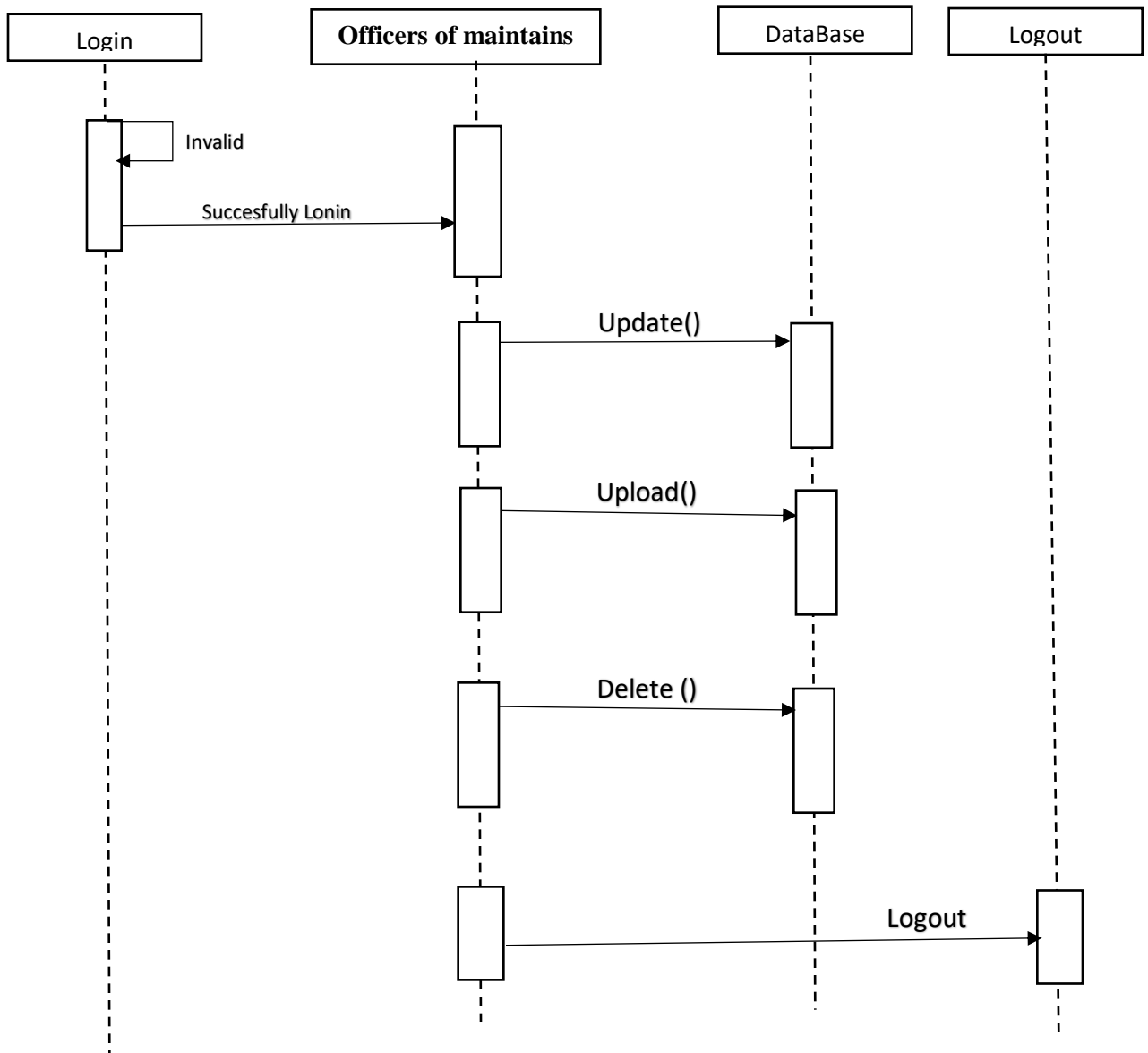


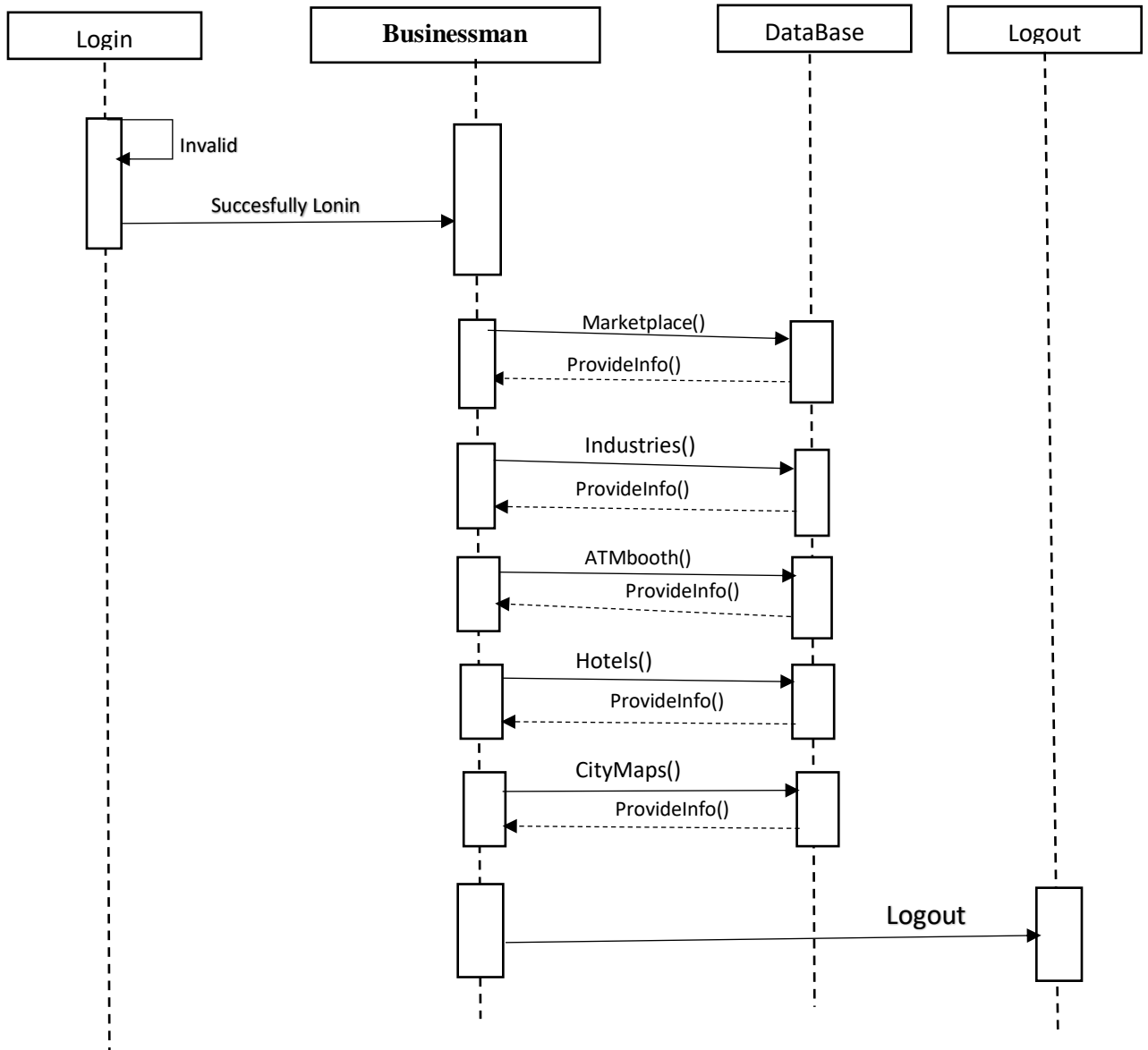
**Activity Diagram of Students Module**



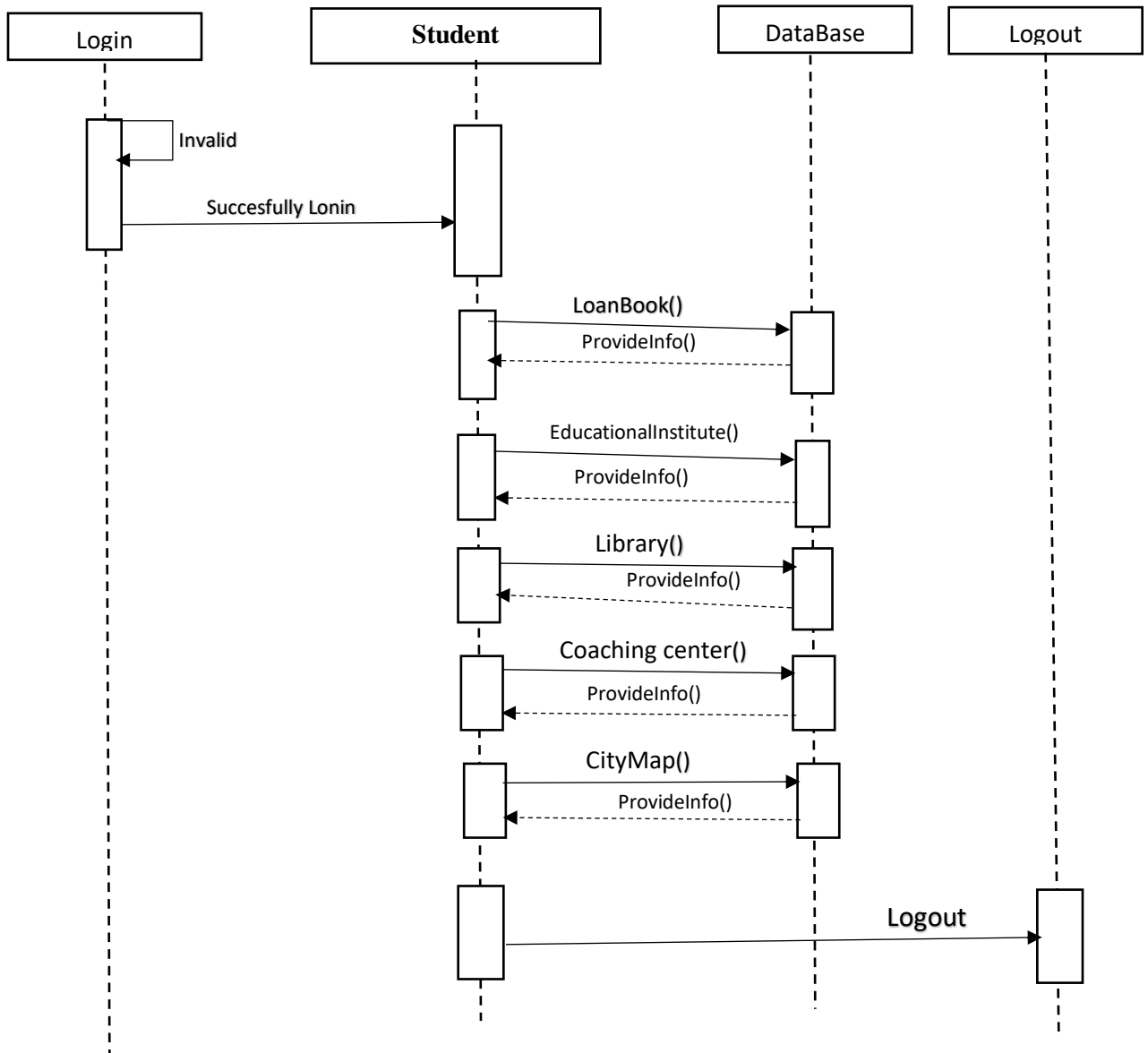
**Activity Diagram of Tourist Module**

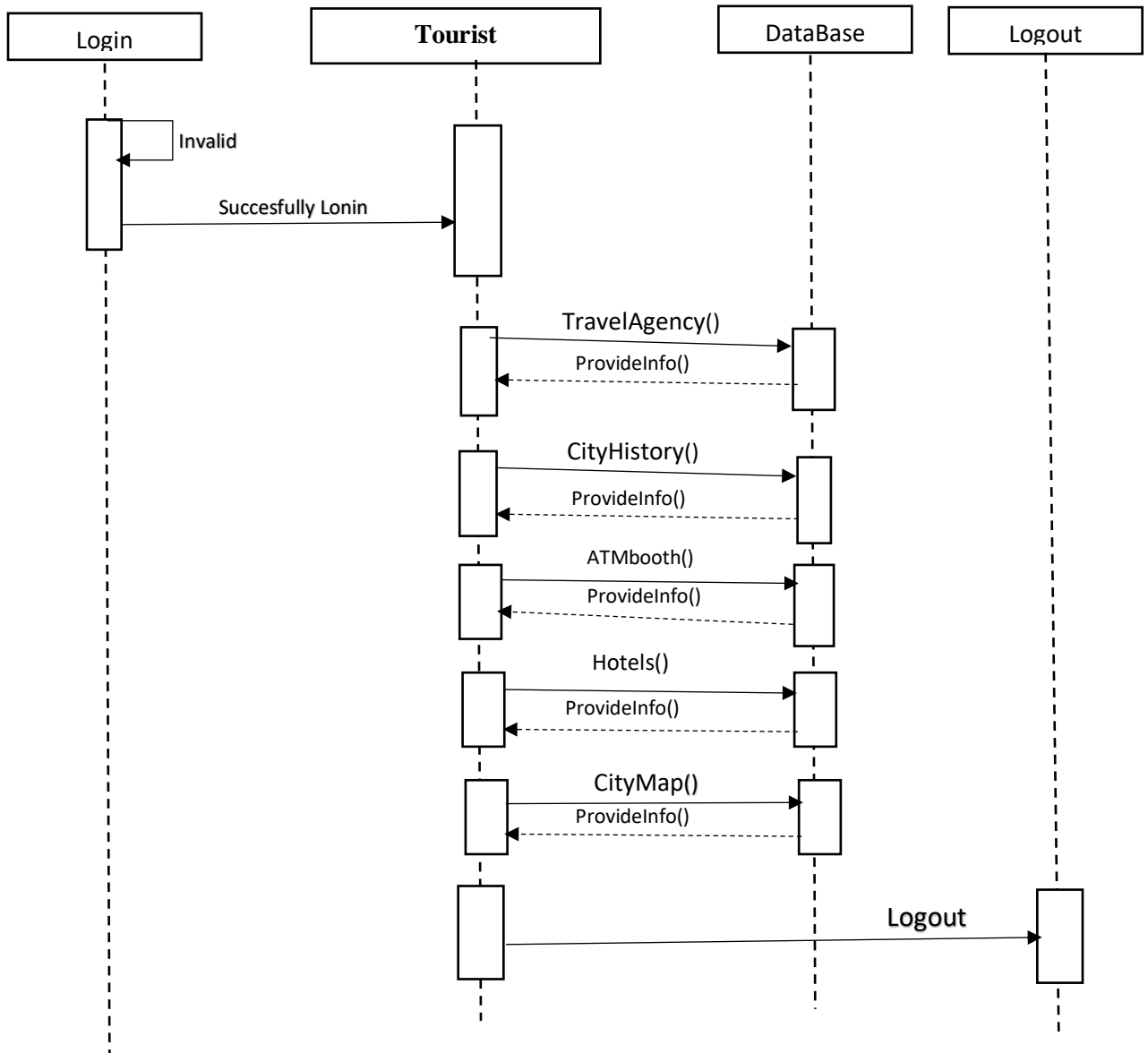
## 6 Sequence diagram





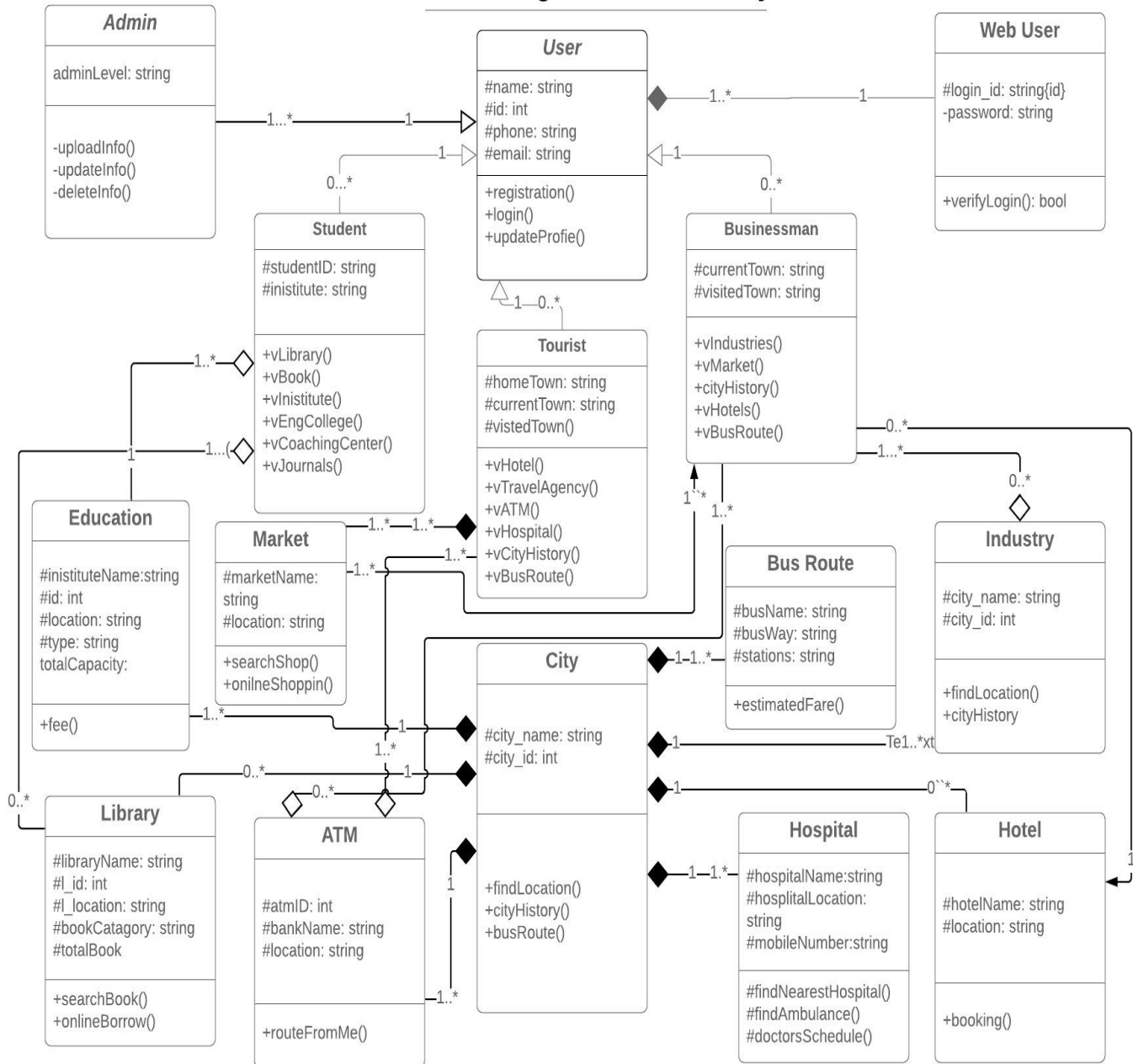




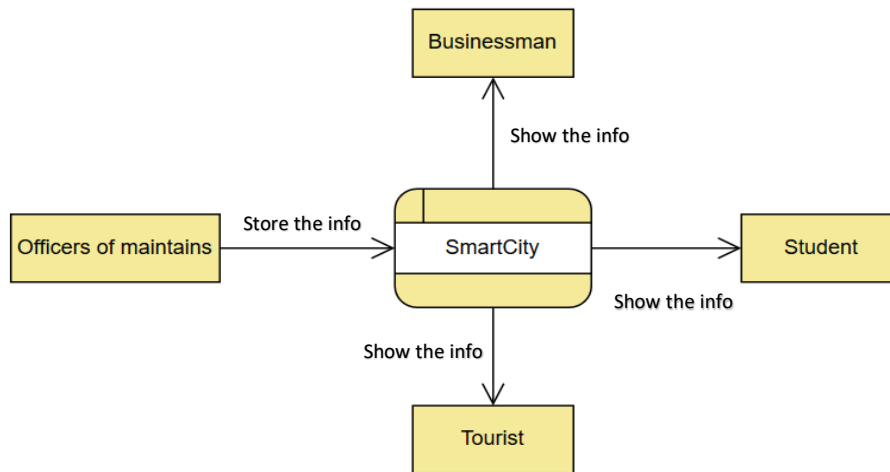


## 7 Class Diagram

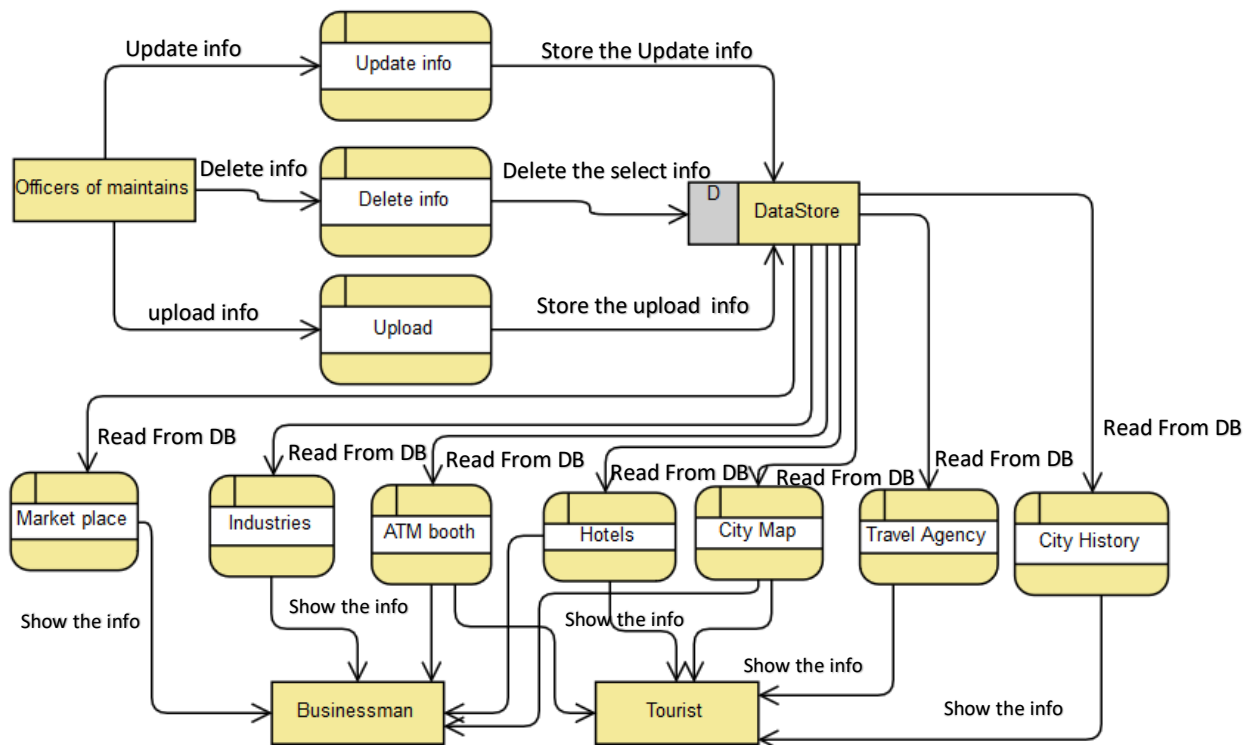
**Class Diagram for SmartCity**



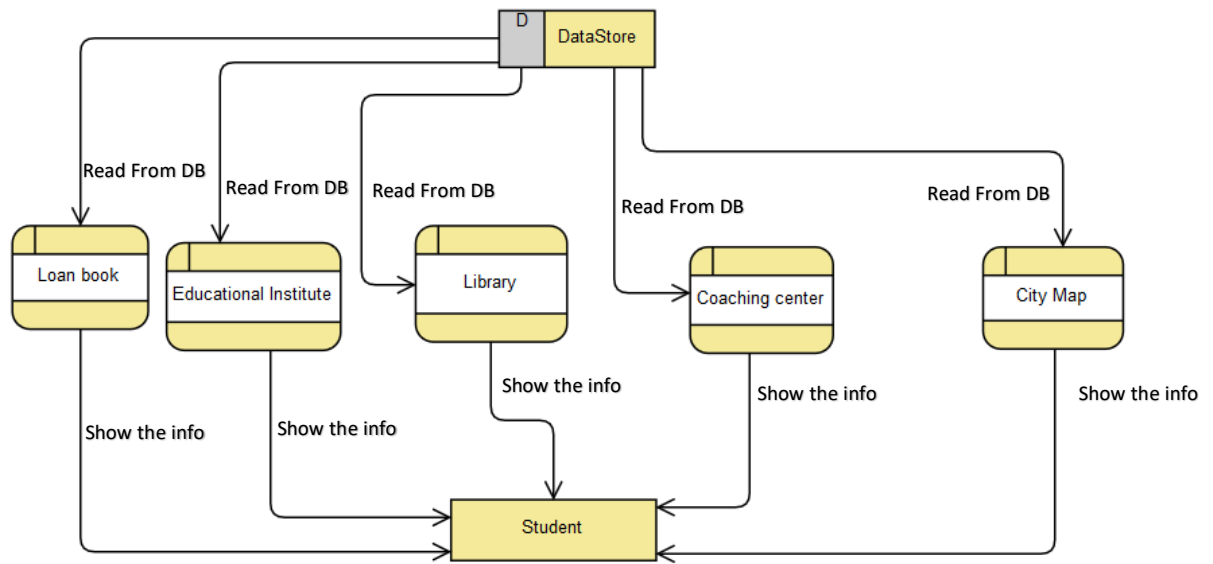
## 8 Data Flow Diagram



Context Diagram

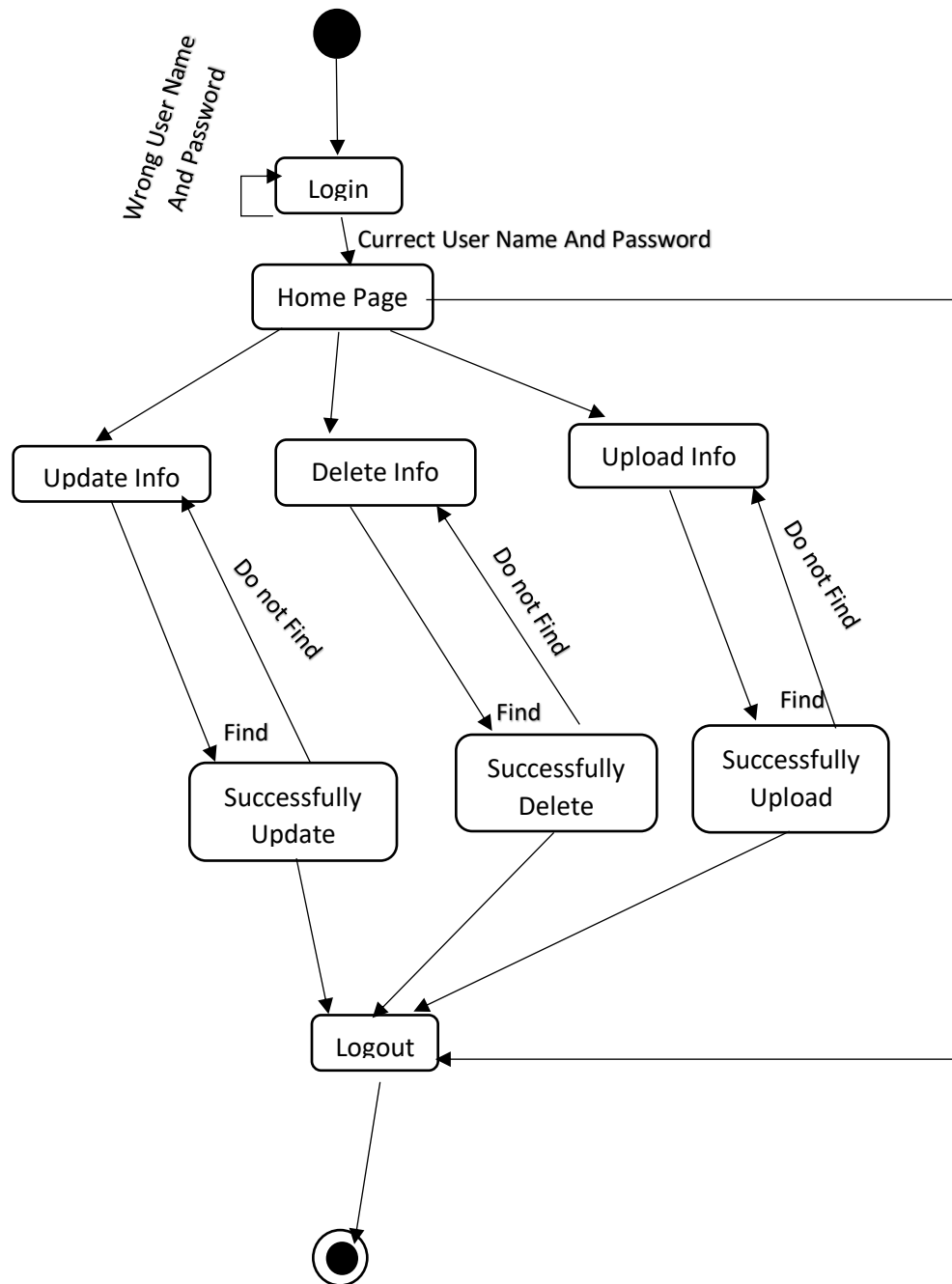


Level 0 Diagram

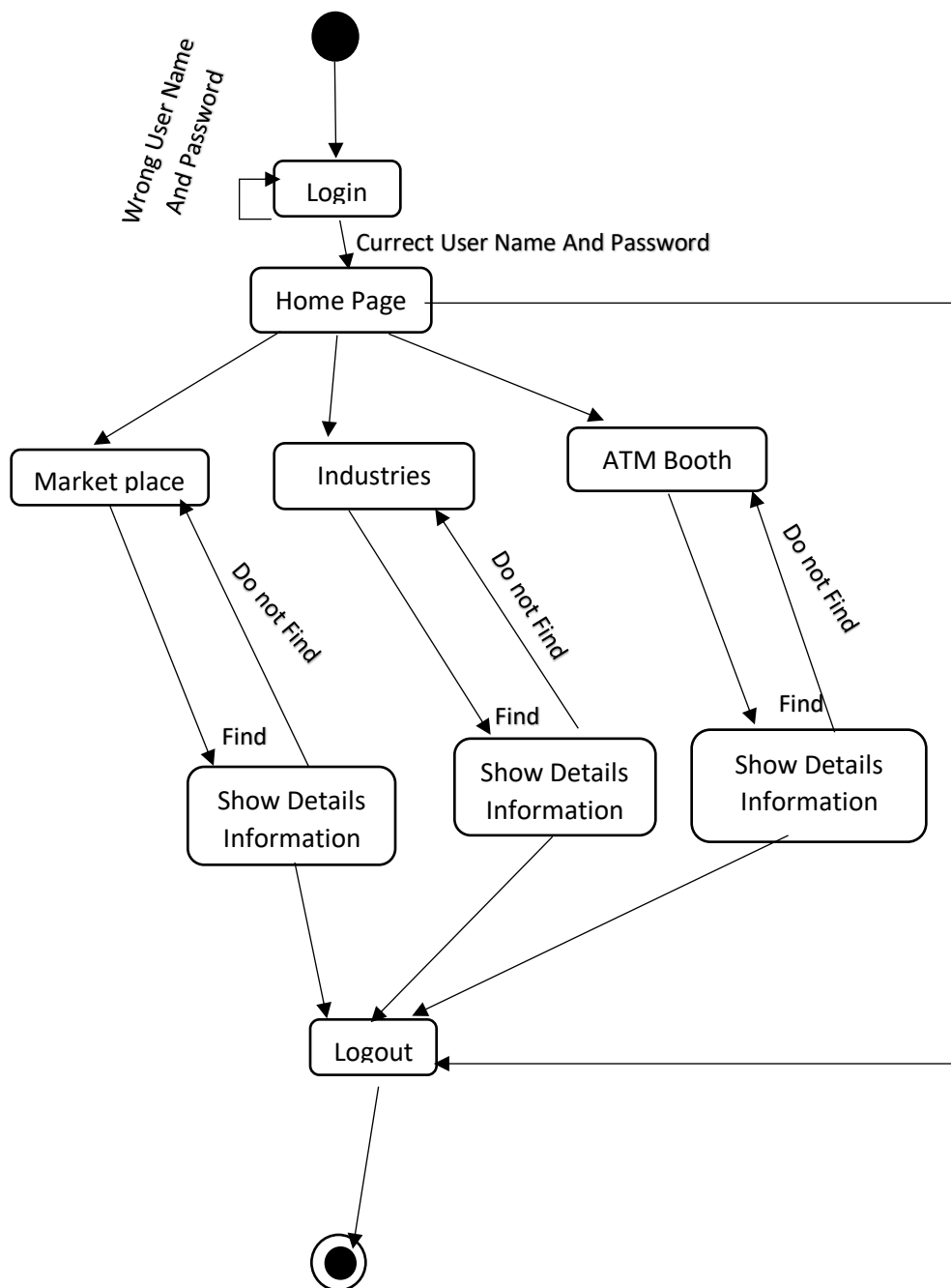


Level 0 Diagram

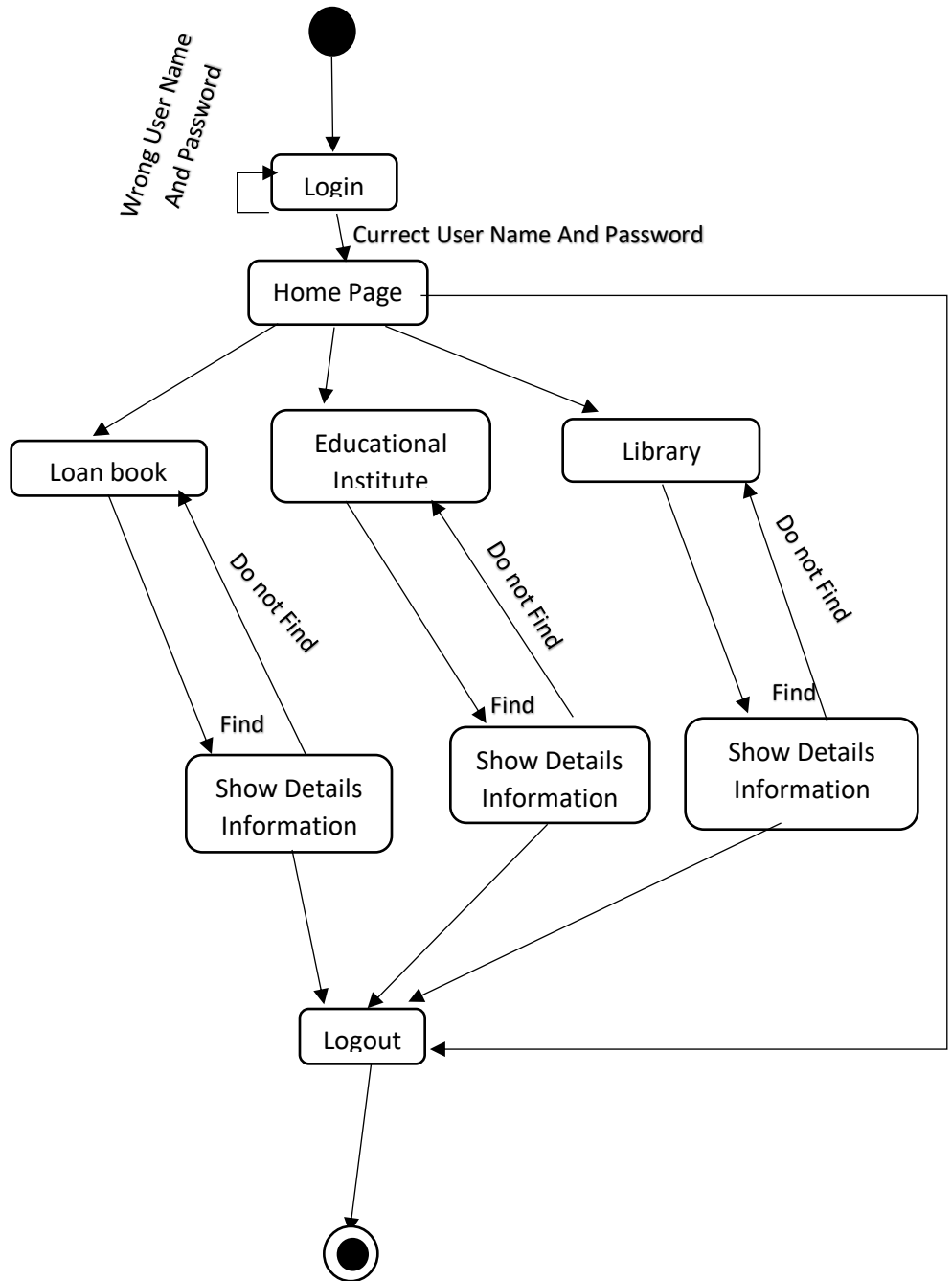
## 9 State Machine Diagram



State Machine Diagram  
of Officers of maintains

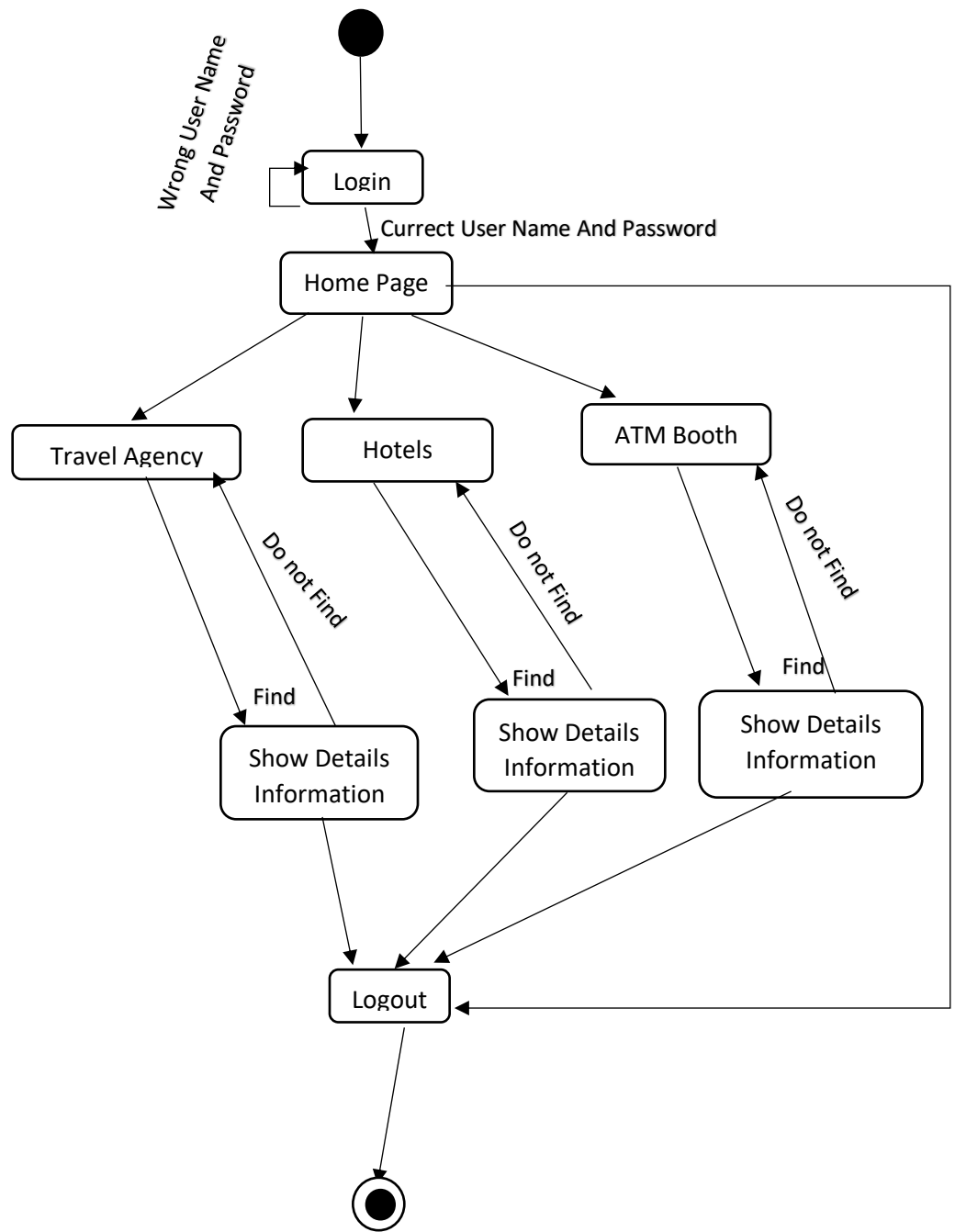


State Machine Diagram of Businessman



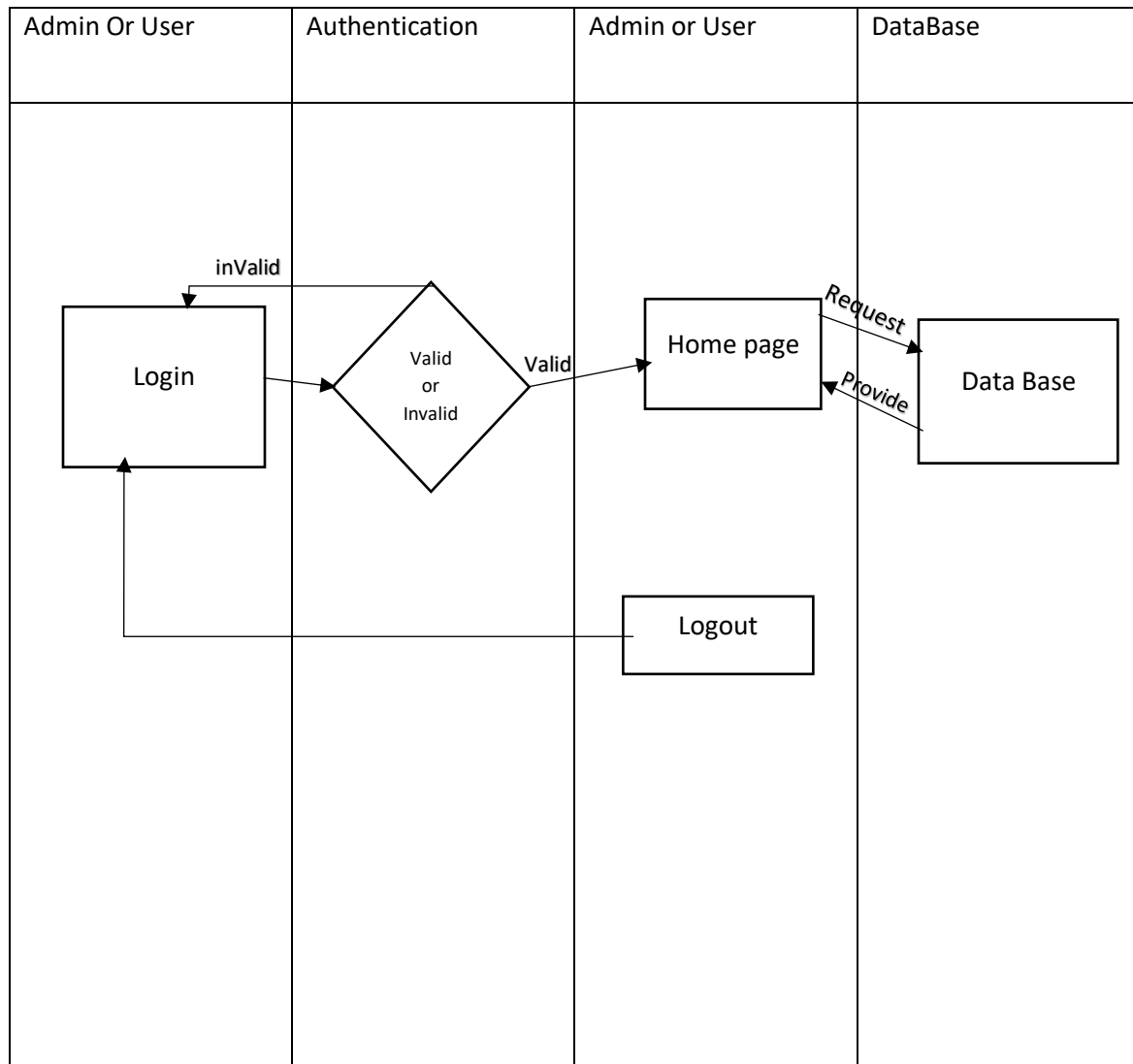
State Machine Diagram of Students





State Machine Diagram of Tourist

## 10 Swim Lane Diagram



## 11 Feasibility analysis

### **Project Description:**

The aim of this document is to gather and analyze and give an in-depth insight of the complete **SmartCity** by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the **SmartCity** are provided in this document.

### **Goals:**

SmartCity is website used to provide information regarding the particular city that includes city-map, history-social, political, business news and other services for registered users. It can be accessed by unlimited number of users. Each user will be assigned a different set of permissions for each module of the system. The user can have access to all the information in the site with limited services and provide extra services to registered users. Confirmation of end user identity and will verify

Which users are authorized to receive Support? Maintain history of each customer and their related information. All the job seekers must have their Resume document to submit to administrator. Only registered members will be provided with communication between user, experts and general public through mails, Phone no. Administrator is created in the system already. The administrator has to generate daily/weekly/Monthly reports, of the business and political news of the city. This site is best designed to be useful through internet to people of different places.

**Timeline:** Complete the project within 6 month.

**Costs and Budgeting:** Complete the project within 1.5M taka

### **Purpose:**

The purpose of the document is to collect and analyze all assorted ideas that have come up to define the system. The main aim of this project services provided to the users who have registered in the site. The services regarding to city political, historical, conventional places, bus routes, business companies profile and jobs details. Smart city is a web-based product used to store the details of particular city and helps all the users who just visits our website. This site also provides all the services like Hotel booking for tourists, Ticket booking, Transport facility providing, business related information, marketing details, city news, shopping detail. The website contains the complete information about particular city like places to be visited, site maps route maps, Business environment, Job portal, information about organization that provide transport, Hospitality and total history of the city. This website can be used by any person who is having general knowledge about internet. All the users will be first considered as anonymous user later if he needs any service then he will be treated as registered user. This document describes the system and its associate's members and its user interface, hardware and software requirements. it helps any designer and developer to assist in software delivery lifecycle (SDLC) processes.

**Market Analysis:**

If applicable, will the market or market environment

Benefit from the project. If so, list why.

**Resources:**

Computers, HR, Software Engineer, Analyst and Software architect.

**Project Process:**

To get access to this system or a specific module the system must provide a central authentication mechanism. In order to prevent anyone to exploit stolen all users password must be encrypted in hash process.

**Management and Teams:**

Supportability is the degree to which system design characteristics and planned logistics resources meet system requirements. Supportability is the capability of a total system design to support operations and readiness needs throughout the lifecycle of a system at an affordable cost. The system helps to update any information in any time Description The admin can post any information and can enable to change or update any information in any situation Stakeholders Admin. Supportability Requirements In order to understand the system's behavior on a technical support required by the system operator. The reason for reading them might be. ☐ User Friendliness is provided in the application with various controls provided by system Rich User Interface.

The system makes the overall project management much easier and flexible.

It can be accessed over the Intranet.

The city information files can be stored in centralized database which can be maintained by the system.

**Observations:**

In order to support global and smooth operations the system must be available around the clock. On the other hand most services in this system are not mission critical. Even better the game posting can handle times of downtime as the users usually interact with high availability from third party website. This system will be able to catch up with their data once it's up and running again. A requirement that specifies a performance characteristic that a system or system or system component must possess; for example, speed, accuracy, frequency. Speed and Latency Requirements the system is required a fair amount of speed especially while browsing game lists to take bet on a posted game The Landing app will response within a second

Description while the user's browsing the system the landing page will show within a second. It also depends on user's internet mobile configuration Stakeholders Admin, Student, Tourist, Businessman