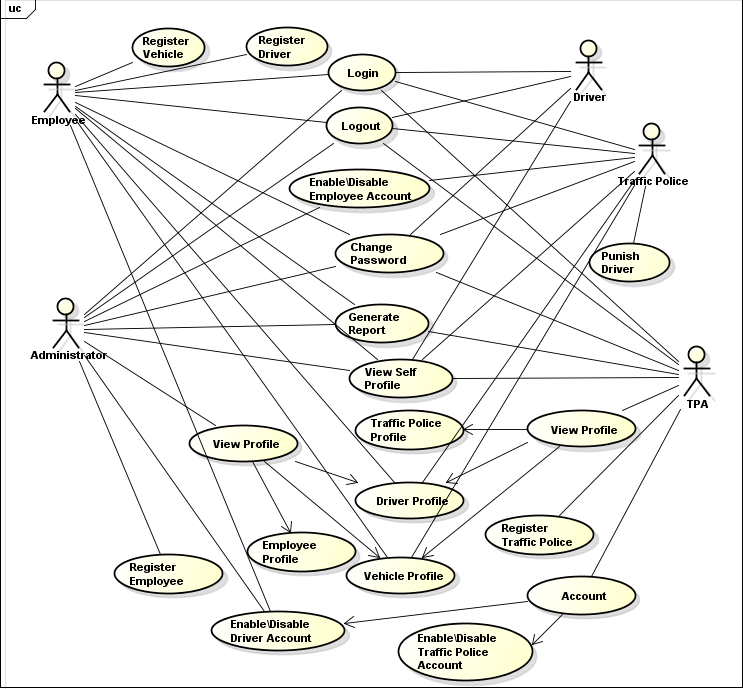
**Traffic Management**

**(Ch3-4)**

#### System Use Case

A system use case model is composed of a use case diagram and the accompanying documentation describing the use cases, actors, and associations. System use cases reflect analysis decisions and, arguably, even design decisions. A use case describes a sequence of actions that provide a measurable value to an actor and is drawn as a horizontal ellipse. An actor is a person, organization, or external system that plays a role in one or more interactions with your system. Actors are drawn as stick figures. Associations between actors and classes are indicated in use case diagrams, a relationship exists whenever an actor is involved with an interaction described by a use case. Associations are modeled as lines connecting use case and actors to one another.

**Use case Diagram**



**Use Case Description**

#### Login

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-01 | |
| Use-Case Name | Log in | |
| Priority | High | |
| Actor | Administrator, Employee, TPA, Traffic police, Driver | |
| Description | This use case describes how each stakeholder login into the System. | |
| Precondition | None | |
| Post-condition | If the use case was successful, the actor is now logged into the system. If not, the system state is unchanged. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. The Users are try to login to the system. 2. The User enter user name and password and click login button. | 3.The system verifies the password and username.  4. if the username and password are valid the system redirects to the main page else 4.1  5 use case exit. |
| Alternate course of Action | * 1. The system displays error message and redirect to the login page. | |

#### Generate Report

|  |  |  |
| --- | --- | --- |
| Use-Case Number | UC-02 | |
| Use-Case Name | Generate Report | |
| Priority | High | |
| Actor | Administrator, TPA, Employee | |
| Description | These use case allow the Administrator, TPA and Employee to generate report to the necessary activities | |
| Precondition | Administrator, TPA and Employee should have LAN connection, and they should login to the system. | |
| Post Condition | If this use case ends successfully, the system generates monthly or weekly Report Information | |
| Basic Course of Action | **User Action** | **System Response** |
| 1. The users(Actor) log in to the system  2. User clicks the generate report menu item.  3. The user clicks on report type menu item  5. The user fills the form  6. The user click on generate report button  9. End use case | 4. The system display report form that contain the following: -   * Date of report * Type of report * For whom the report is prepared   7. The system will check or validate the filled form elements  8. If the form elements are filled correctly, the system generate the report to the selected user else got to#8.1. |
| Alternate course of action | 8.1 If the filled data are incorrect the system displays error message and point were the error is occurred. | |

#### Enable Account

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-03 | |
| Use-Case Name | Enable Account | |
| Priority | High | |
| Actor | Administrator and TPA | |
| Description | This use case describes how Administrator enable employee account and TPA enable traffic police’s account. When Employee/Traffic police Resign job, their account should be disabled and when they return to their job their account will be Enabled by Administrator/TPA. | |
| Precondition | Employee/traffic police return to their job | |
| Post-condition | If the use case was successful, traffic police/Employee can access to their account | |
| Basic course of Action | **User Action** | **System Response** |
| 1. Admin/TPA log in to the system click ‘search ‘menu item under Manage Account menu  3. Admin/ TPA fills Employee id/Traffic police id.  5. Admin/TPA click ‘Enable user’ button. | 2. The system displays search Employee/Traffic police form field.  4. The system displays Employee/Traffic police profile if found else go to #4.1.  6. The system Deactivates user’s account and display ‘successful’ message |
| Alternate course of Action | 4.1 The system Displays ‘no such Employee/Traffic police found’ message. | |

#### Disable Account

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-04 | |
| Use-Case Name | Disable Account | |
| Priority | High | |
| Actor | Administrator and TPA | |
| Description | This use case describes how Administrator enable employee account and TPA enable traffic police’s account. When Employee/Traffic police Resign job, their account should be disabled. | |
| Precondition | Employee and traffic police is not working currently | |
| Post-condition | If the use case was successful, traffic police/Employee can’t access to their account | |
| Basic course of Action | **User Action** | **System Response** |
| 1. Admin/TPA log in to the system and click ‘search ‘menu item under ‘Manage Account’ menu  3. Admin/ TPA fills Employee id/Traffic police id.  5. Admin/TPA click ‘Disable user’ button. | 2. The system displays search Employee/Traffic police form field.  4. The system displays Employee/Traffic police profile if found else go to #4.1.  6. The system Deactivates user’s account and display ‘successful’ message |
| Alternate course of Action | 4.1 The system Displays ‘no such Employee/Traffic police found’ message. | |

#### View profile(self)

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-05 | |
| Use-Case Name | View profile(self-profile) | |
| Priority | High | |
| Actor | Admin, employee, traffic police, driver and TPA | |
| Description | This use case describes how users view their profile | |
| Precondition | User logged to the system | |
| Post-condition | If the use case was successful, the user can view their own profile. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. The user log in to the system  2.The user click ‘profile’ menu item  4. Users click ‘close’ button to return to homepage  6.use case end | 3. The system displays their own profile  5. The system displays homepage |
| Alternate course of Action |  | |

#### Change Password

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-06 | |
| Use-Case Name | Change Password | |
| Priority | High | |
| Actor | Administrator, Employee, Traffic Police, Driver and TPA | |
| Description | This use case describes how each User change their password | |
| Precondition | Each User logged to the system | |
| Post-condition | If the use case was successful, the User will have new password | |
| Basic course of Action | **User Action** | **System Response** |
| 1. Users try to log to the system with valid user name and password.  3.User click ‘change password’ menu item under Manage Account menu  5. User fills the form components and Click ‘Apply’ button  8. End of use case | 2. The system Displays Homepage.  4. The system Displays change password form that contain the following: -   * old password * New password * Confirm password * hint   6. System checks old password and password policy  7. If old password is correct and new password fulfill password policy, then replace old password with new password in the database  and Displays ‘Successful’ message and go to Homepage  Else go to 7.1 |
| Alternate course of Action | 7.1. If the new password doesn’t fulfil the password policy or the old password is incorrect then the system displays Error message and go to 4 | |

#### Register Traffic Police

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-07 | |
| Use-Case Name | Register Traffic police | |
| Priority | High | |
| Actor | TPA | |
| Description | This use case describes how TPA register traffic police | |
| Precondition | Traffic police wants to registered | |
| Post-condition | If the use case was successful, Traffic police gets user name and unique id | |
| Basic course of Action | **User Action** | **System Response** |
| 1.TPA log in to the system and click ‘Register Traffic police’ menu item under Register Menu  3.TPA fills the form and click Register button  7. use case end | 2. The system displays Register Traffic police form that contain the following: -   * Full name * Title * Address * Age * Sex * Educational status * User name * User id   4. The system checks or validate the form fields.  5. if the form fields are correctly filled the system register Traffic police and save data to the data base else go to use case 5.1  6. The system displays ‘successfully register Traffic police’ message. |
| Alternate course of Action | 5.1 if the form fields are not correctly filled, the system display error message and TPA fills the form again. | |

#### Register Driver

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-08 | |
| Use-Case Name | Register Driver | |
| Priority | High | |
| Actor | Employee | |
| Description | This use case describes how Employee Register Driver | |
| Precondition | Driver must pass both field and paper and computer exam. In addition, he/she must able to bring his/her grade 10 certificate. | |
| Post-condition | If the use case was successful, Driver gets his/her driver license and new user id and password in order to use his new mobile app. | |
| Basic course of Action | **User Action** | **System Response** |
| 1.Employee log in to the system and click ‘Register Driver’ menu item  3.Employee fills the form and click Register button  7. use case end | 2. The system displays Register Driver form that contain the following: -   * Full name * sex * birth region * birth date * Driver license number * Level * Home Town and city * Wereda * Kebele * House number * User name * User ID   4. The system checks or validate the form fields.  5. if the form fields are correctly filled then the system register Driver and save the data to the data base else go to use case 5.1  6. The system displays ‘successful register Driver’ message. |
| Alternate course of Action | 5.1 if the form fields are not correctly filled, The system display error message and go to #3. | |

#### Register Vehicle

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-9 | |
| Use-Case Name | Register Vehicle | |
| Priority | High | |
| Actor | Employee | |
| Description | This use case describes how Employee Register Vehicle | |
| Precondition | Employee should login to the system | |
| Post-condition | If the use case was successful, the Vehicle gets plate number | |
| Basic course of Action | **User Action** | **System Response** |
| 1.Employee log in to the system and click ‘Register Vehicle’ menu item  3.Employee fills the form and click Register button  7. use case end | 2. The system displays Register Vehicle form that contain tow components   1. Vehicle description  * Vehicle type * Made in * Model * Chassis number * Motor number * Fuel type * Weight * Plate Number  1. Owner description  * Name * Sex * Country * Region * Wereda * Phone   4. The system checks or validate the form fields.  5. if the form fields are correctly filled then the system register Vehicle and save the data to the data base else go to use case 5.1  6. The system displays ‘successful register Vehicle message. |
| Alternate course of Action | 5.1 if the form fields are not correctly filled, the system display error message and go to #3. | |

#### Register Employee

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-10 | |
| Use-Case Name | Register Employee | |
| Priority | High | |
| Actor | Administrator | |
| Description | This use case describes how Administrator Register Employee | |
| Precondition | Employee must pass the exam provided by the organization | |
| Post-condition | If the use case was successful, Employee registered and gets his/her new user id and password | |
| Basic course of Action | **User Action** | **System Response** |
| 1.Administrator log in to the system and click ‘Register Employee ‘menu item  3.Administrator fills the form and click Register Employee button  7. use case end | 2. The system displays Register Driver form that contain the following: -   * Full name * Role * sex * birth region * birth date * experience year in number * Educational status * Home Town and city * Wereda * Kebele * House number * User name * User ID   4. The system checks or validate the form fields.  5. if the form fields are correctly filled then the system register Employee and save the data to the Employee data base else go to use case 5.1  6. The system displays ‘successful register Employee message. |
| Alternate course of Action | 5.1 if the form fields are not correctly filled, the system display error message and go to #3. | |

#### View Employee profile

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-11 | |
| Use-Case Name | View Employee profile | |
| Priority | Medium | |
| Actor | Administrator | |
| Description | This use case describes how Administrator View Employee profile | |
| Precondition | Administrator logged to the system | |
| Post-condition | If the use case was successful, the Administrator can view his/her Employee profile. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. The Administrator log in to the system  2.The Administrator click ‘Employee profile’ menu item  4. Administrator select Employee and click ‘View profile’ button  6. The Administrator click ‘close’ button to return to the home page.  8.use case end | 3. The system displays list of Employee  5. The system displays Employee profile  7. the system redirects to the home page. |
| Alternate course of Action |  | |

#### View Driver Profile

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-12 | |
| Use-Case Name | View Driver profile | |
| Priority | High | |
| Actor | Administrator, Employee, TPA, Traffic police | |
| Description | This use case describes how the Authorized View Driver profile | |
| Precondition | Authorized user logged to the system | |
| Post-condition | If the use case was successful, the Authorized user can view driver profile. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. The user log in to the system  2.The user click ‘Driver profile’ menu item  4. user(Actor) select Driver and click ‘View profile’ button  6. The user click ‘close’ button to return to the home page.  8.use case end | 3. The system displays list of Driver’s  5. The system displays Driver profile  7. the system redirects to the home page. |
| Alternate course of Action |  | |

#### View Traffic Police Profile

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-13 | |
| Use-Case Name | View Traffic police profile | |
| Priority | Medium | |
| Actor | TPA | |
| Description | This use case describes how TPA view traffic police profile | |
| Precondition | TPA logged to the system | |
| Post-condition | If the use case was successful, TPA can view driver profile. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. TPA log in to the system  2.TPA click ‘Traffic police profile’ menu item  4. TPA select Traffic police row and click ‘View profile’ button  6. The user click ‘close’ button to return to the home page.  8.use case end | 3. The system displays list of Traffic police  5. The system displays Traffic police profile  7. the system redirects to the home page. |
| Alternate course of Action |  | |

#### View Vehicle Profile

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-14 | |
| Use-Case Name | View vehicle profile | |
| Priority | High | |
| Actor | TPA, Administrator, Employee | |
| Description | This use case describes how Authorized user view Vehicle profile | |
| Precondition | user logged to the system | |
| Post-condition | If the use case was successful, user can view vehicle profile. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. authorized user log in to the system  2.Authorized user click ‘Vehicle profile ‘menu item  4. authorized user select Vehicle row and click ‘View profile’ button  6. The Authorized user click ‘close’ button to return to the home page.  8.use case end | 3. The system displays list of vehicle’  5. The system displays Vehicle profile  7. the system redirects to the home page. |
| Alternate course of Action |  | |

#### Punish Driver

|  |  |  |
| --- | --- | --- |
| Use-case Number | UC-15 | |
| Use-Case Name | Punish Driver | |
| Priority | High | |
| Actor | Traffic Police | |
| Description | This use case describes how Traffic Police Punish Driver | |
| Precondition | Driver violate the rule and Traffic Police must be logged in to the system and have internet connection | |
| Post-condition | If the use case was successful, Each Driver who violate the rule punished by the Traffic police. | |
| Basic course of Action | **User Action** | **System Response** |
| 1. Traffic Police log in to the system  3.Traffic police click on Punish Driver Tab (this is mobile app)  5. Traffic Police fill form element and click on Punish Driver Button  8.use case end | 2. The system Display Home page.  4. The system Display Punish Driver form that contain the following: -   * Vehicle plate number * Driver name * Vehicle owner name * From------To------ * Type * Accident type * Date * Time * Place * Payment amount   6. The system Inspect form element  7.If Form element are correct, the system saves the data to the database and display successful message else go to #7.1 |
| Alternate course of Action | 7.1 The system displays error message and go back to #5 | |

#### Logout

|  |  |  |
| --- | --- | --- |
| Use-Case Number | UC-16 | |
| Use-Case Name | Log out | |
| Priority | High | |
| Actor | Administrator, staff, TPA, traffic police and driver | |
| Description | These use case allow Administrator, staff, TPA, traffic police and driver log out from the system at a time of accomplishing their work. | |
| Precondition | UC-1 | |
| Post Condition | The System save the data into the session or the database then logout from the system. | |
| Basic Course of Action | **User Action** | **System Response** |
| 1. The users(Actor) try to log out from the system. 2. The users(Actor) clicks the log out button | 1. The system saves the data and responds to the requested action. 2. The system displays a message that the Administrator, staff, TPA, traffic police and driver logged out from the system and redirects to the login page. |

**Sequence Diagram**

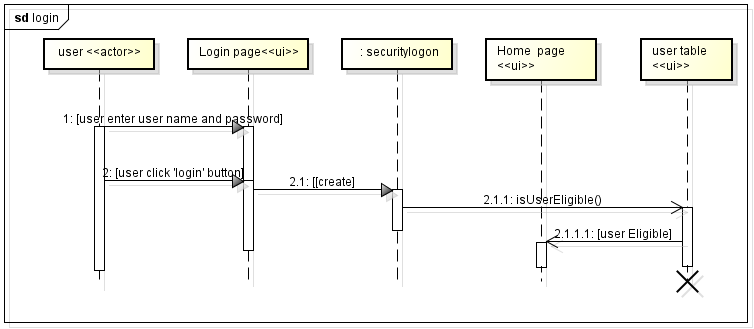
Sequence diagrams are used to model the logic of usage scenarios. A usage scenario is exactly what its name indicates- the description of a potential way your system is used. A usage scenario is exactly what its name indicates- the description of a potential way your system is used. UML sequence diagrams model the flow of logic within your system in a visual manner, enabling you both to document and validate your logic, and are commonly used for both analysis and design purposes. Sequence diagrams are the most popular UML artifact for dynamic modeling, which focuses on identifying the behavior within your system. Objects, classes, and actors are depicted in sequence diagram. Sequence diagrams are typically used to model:

1. **Usage scenarios**. A usage scenario is a description of a potential way your system is used. The logic of a usage scenario may be part of a use case, perhaps an alternate course. It may also be one entire pass through a use case, such as the logic described by the basic course of action or a portion of the basic course of action, plus one or more alternate scenarios. The logic of a usage scenario may also be a pass through the logic contained in several use cases. For example, a student enrolls in the university, and then immediately enrolls in three seminars.

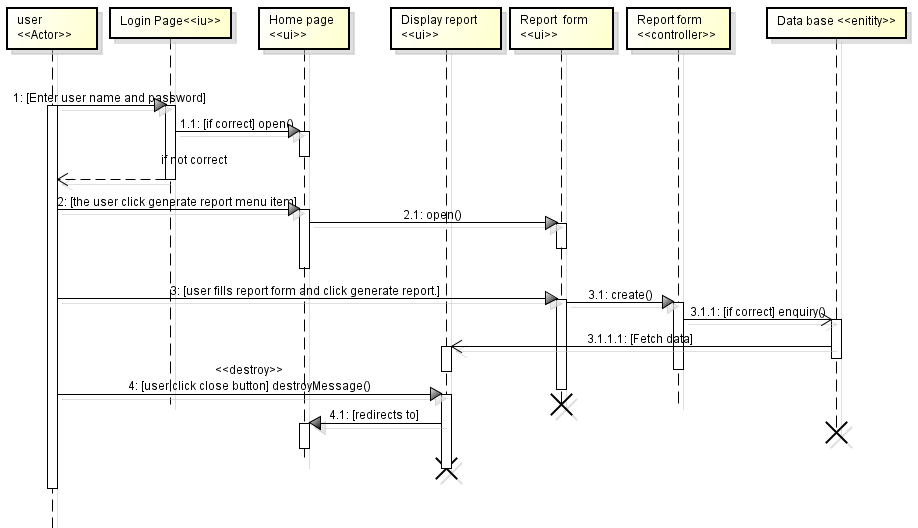
2. **The logic of methods**. Sequence diagrams can be used to explore the logic of a complex operation, function, or procedure. One way to think of sequence diagrams, particularly highly detailed diagrams, is as visual object code.

3. **The logic of services**. A service is effectively a high-level method, often one that can be invoked by a wide variety of clients.

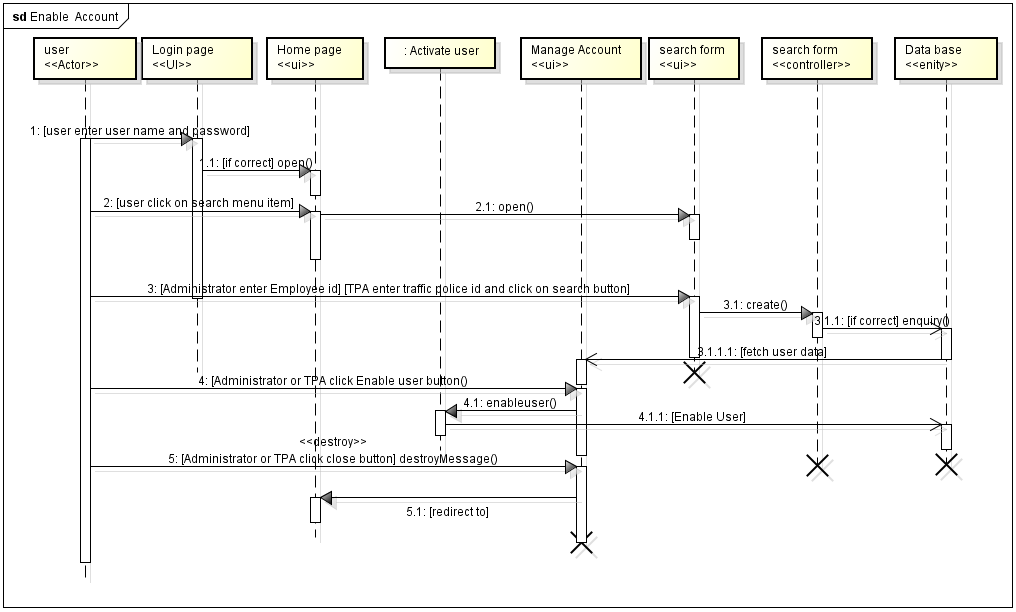
**LogIn**

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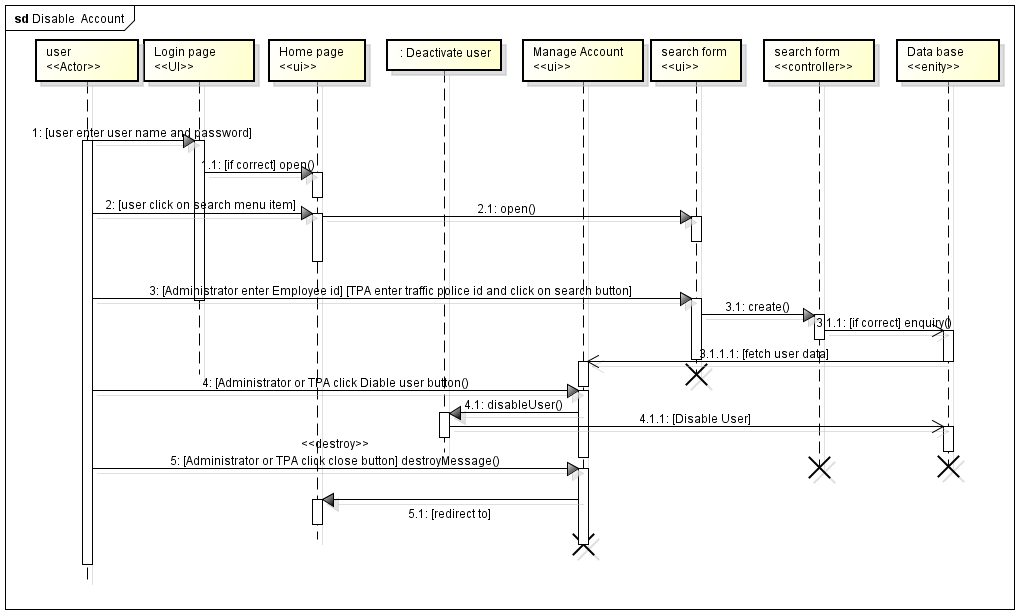
**Generate Report**

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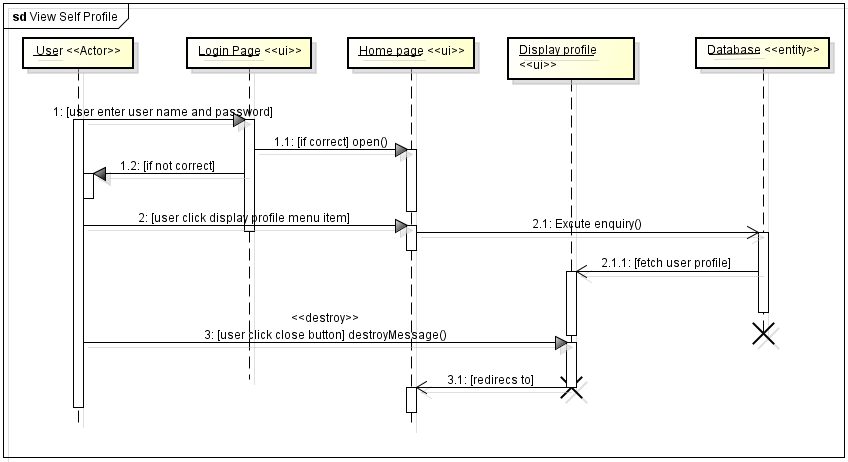
**Enable Account**



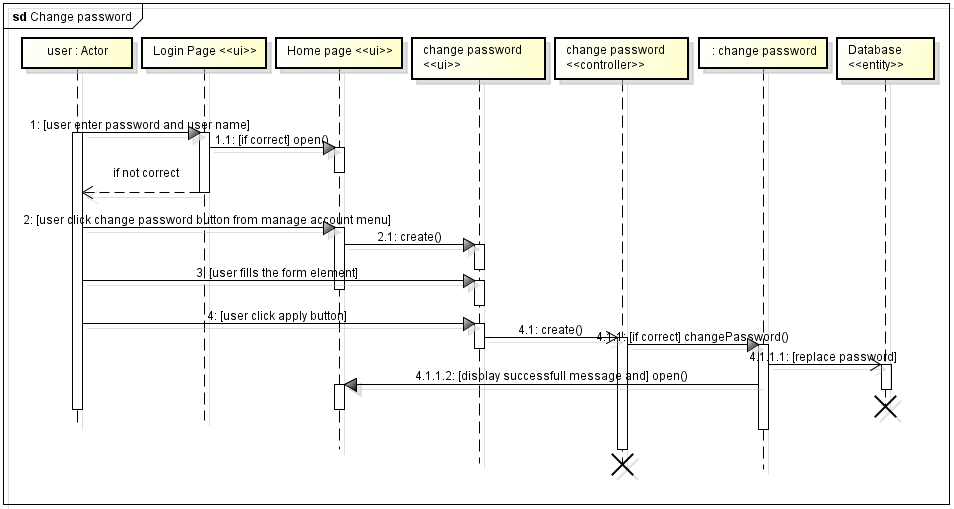
**Disable Account**



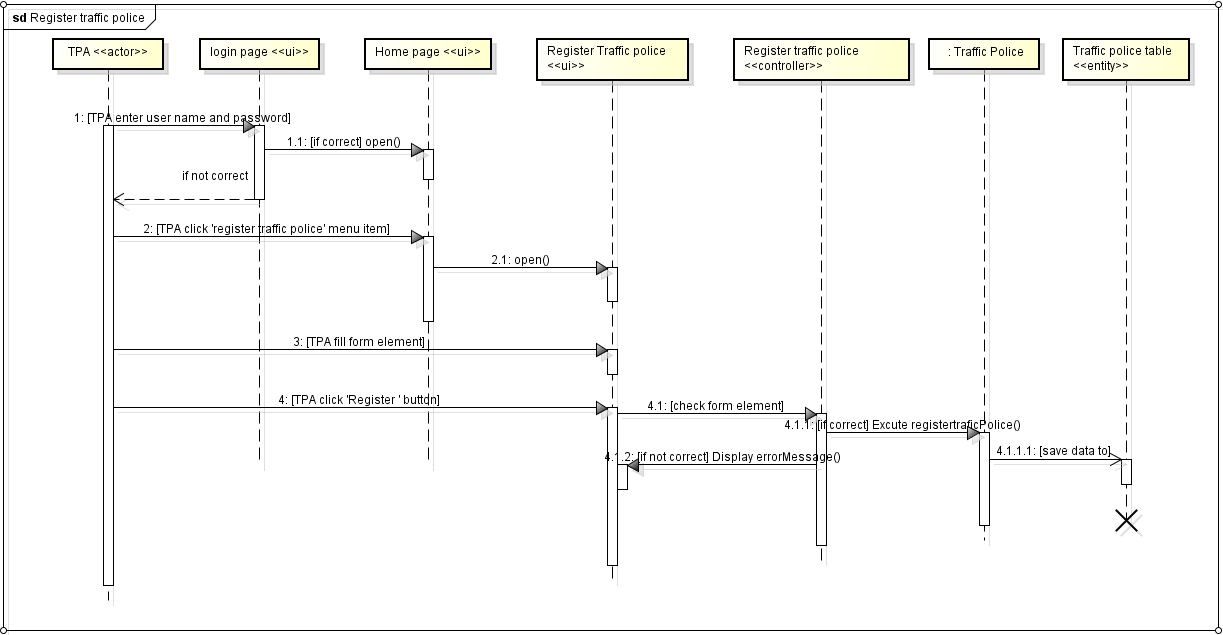
**View Self Profile**



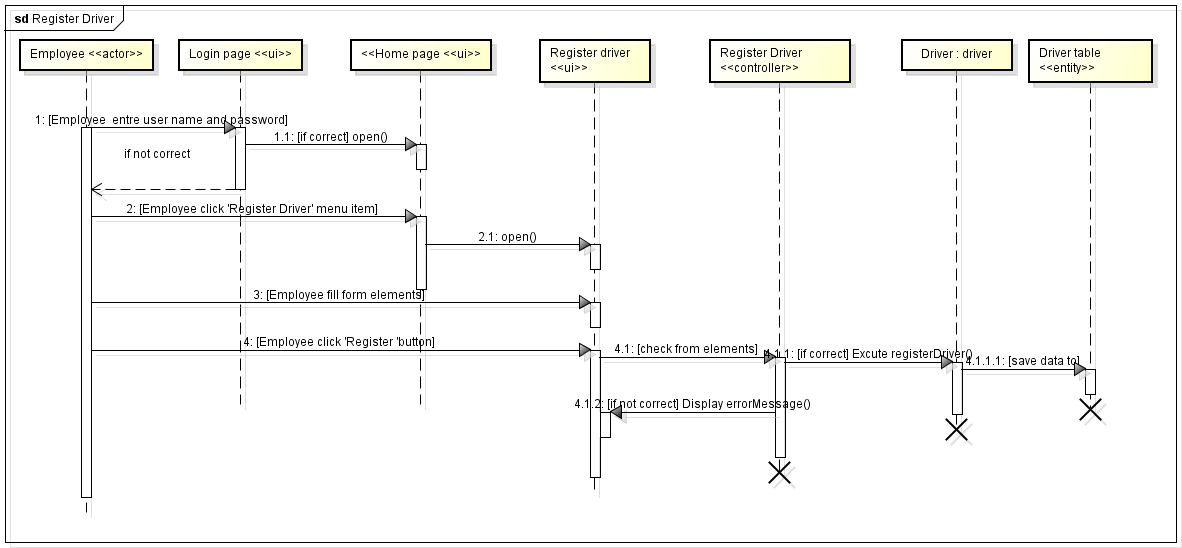
**Change Password**



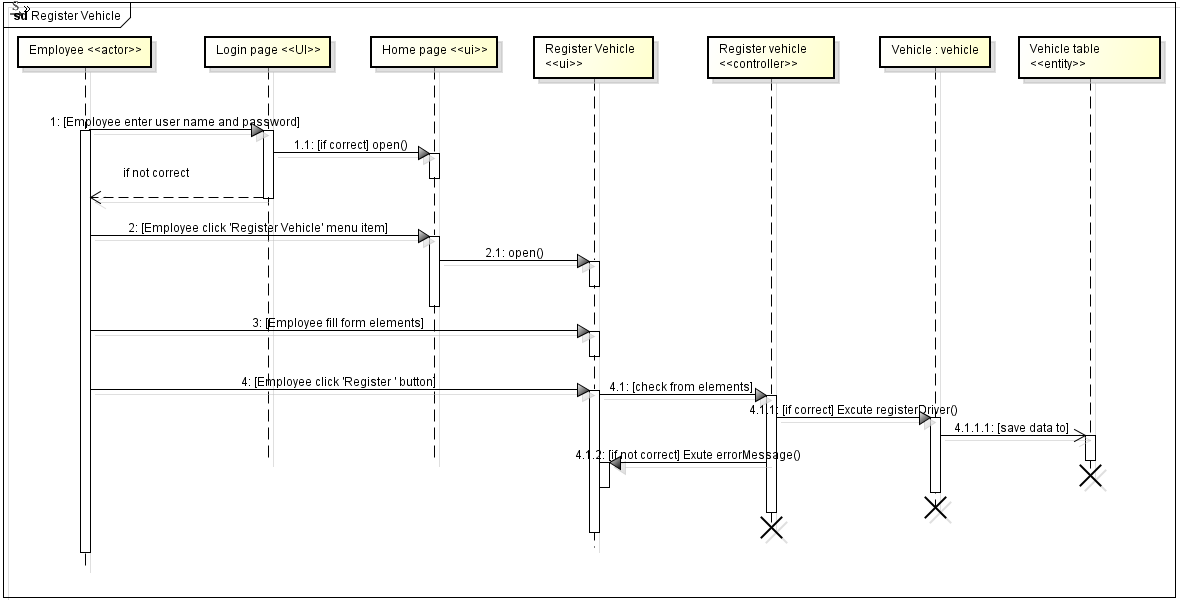
**Register Traffic Police**



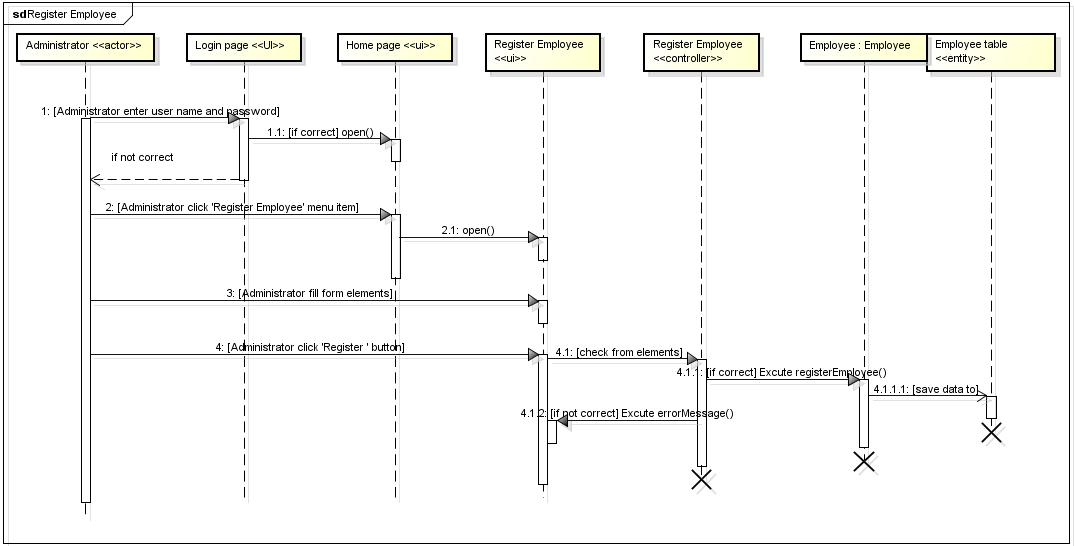
**Register Driver**



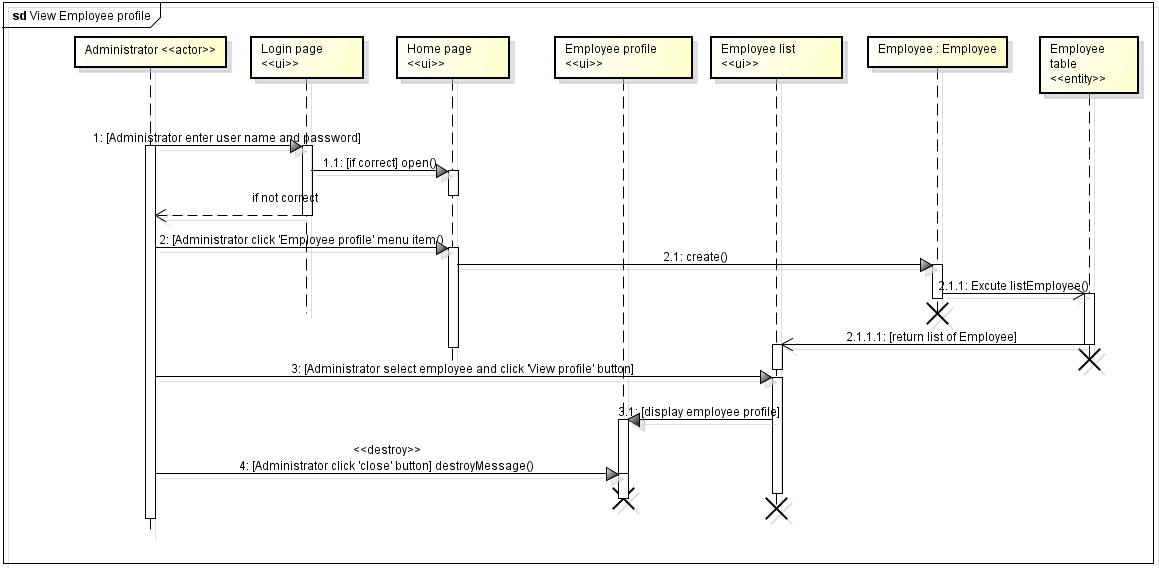
**Register Vehicle**

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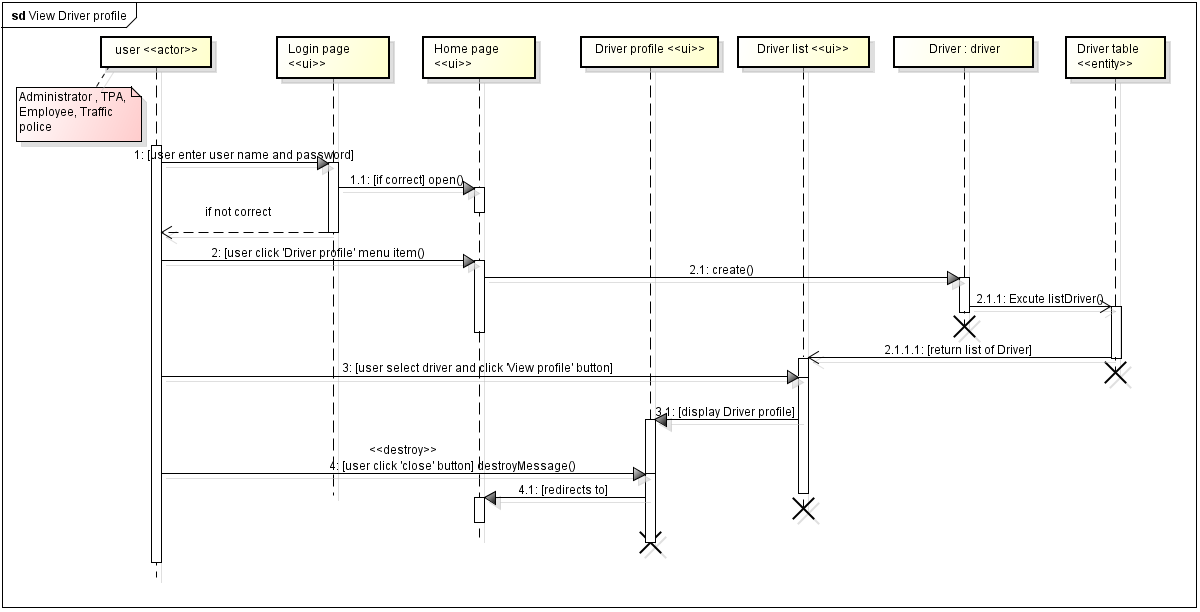
**Register Employee**

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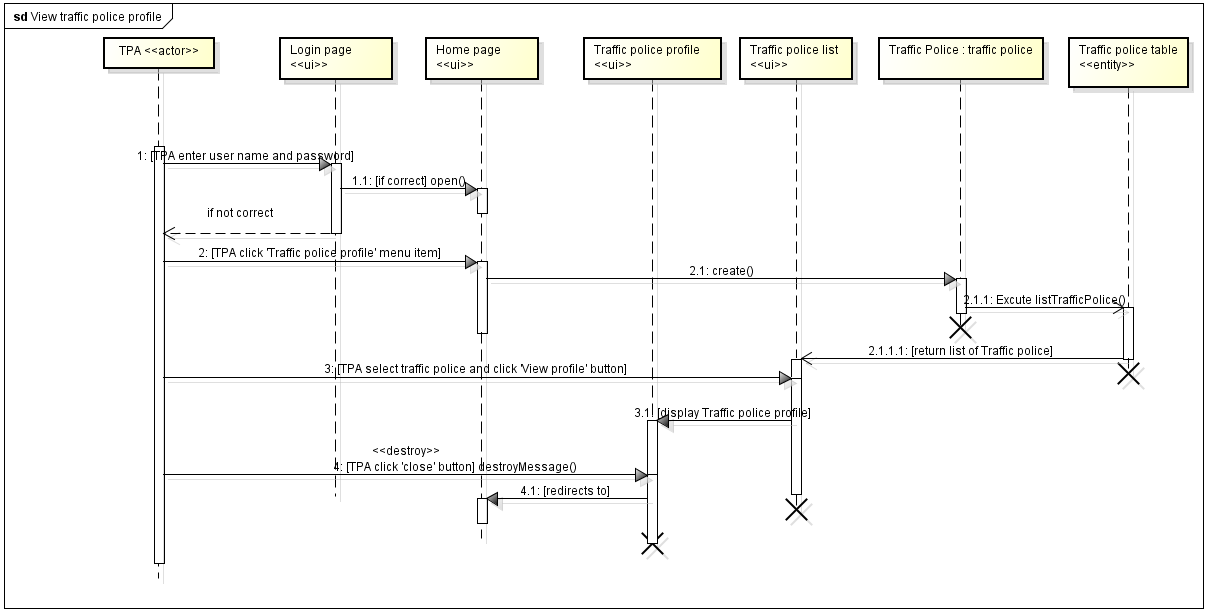
**View Employee Profile**

****

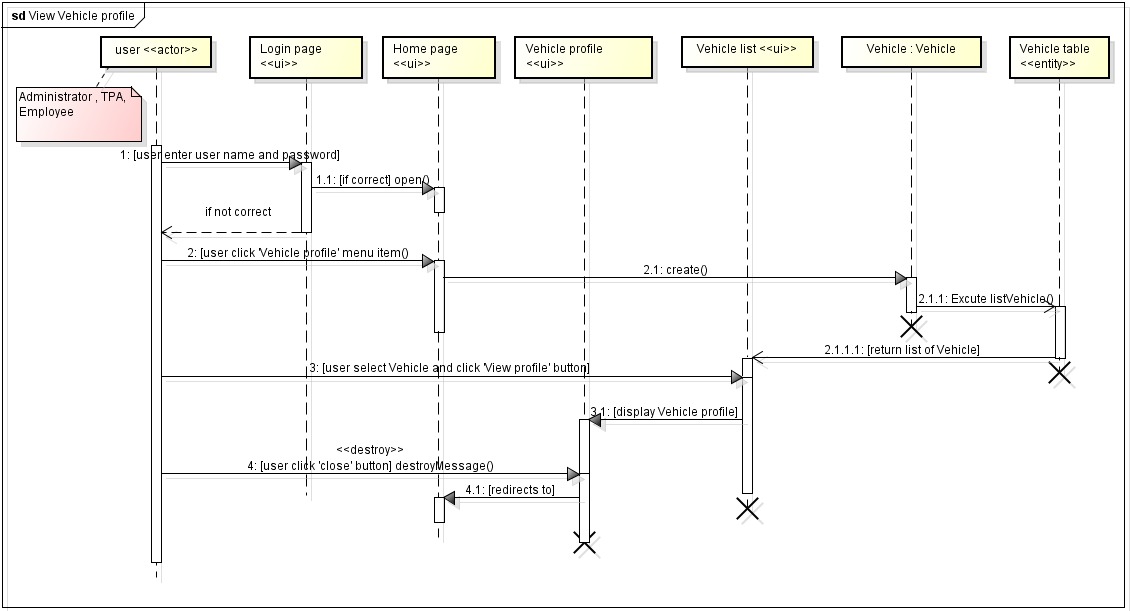
**View Driver Profile**

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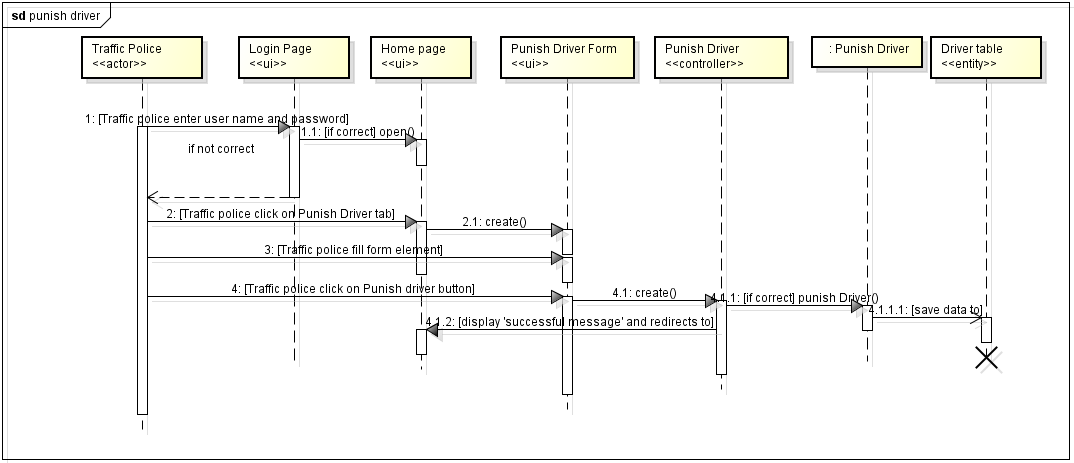
**View Traffic Police Profile**

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**View Vehicle Profile**

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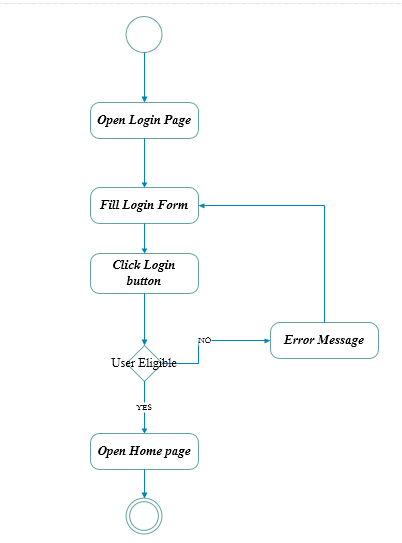
**Punish Driver**

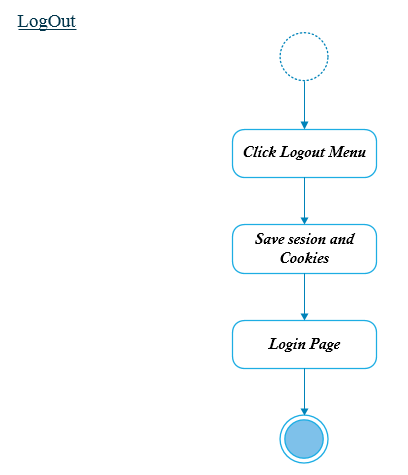
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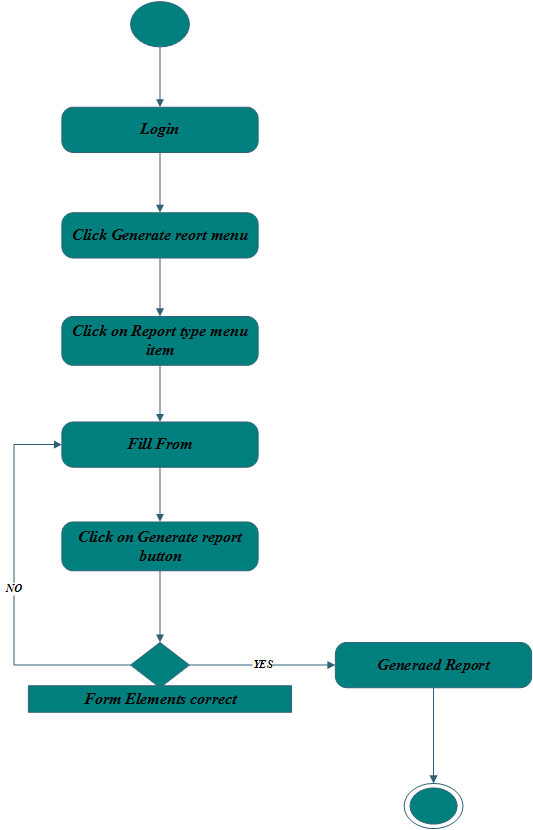
**Activity Diagrams**

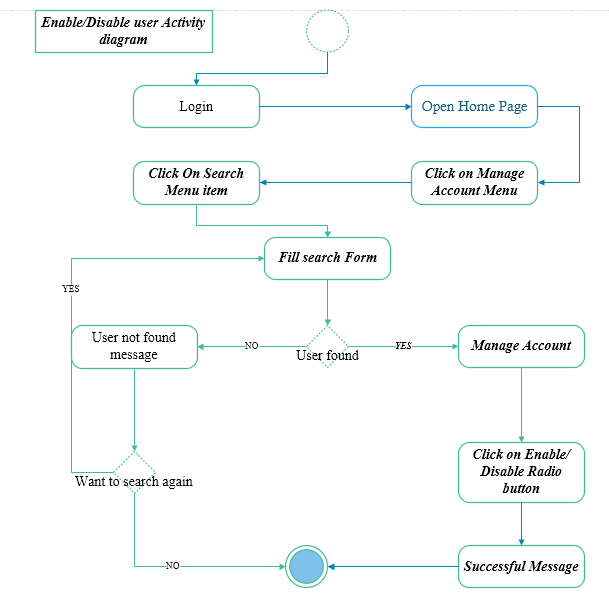
Activity diagrams are used to model the logic of a business process, use case, or method. They are typically used for business process modeling, for modeling the logic captured by a single use case or usage scenario, or for modeling the detailed logic of a business rule. In many ways UML activity diagrams are the object-oriented equivalent of flow charts and data flow diagrams (DFDs) from structured development.

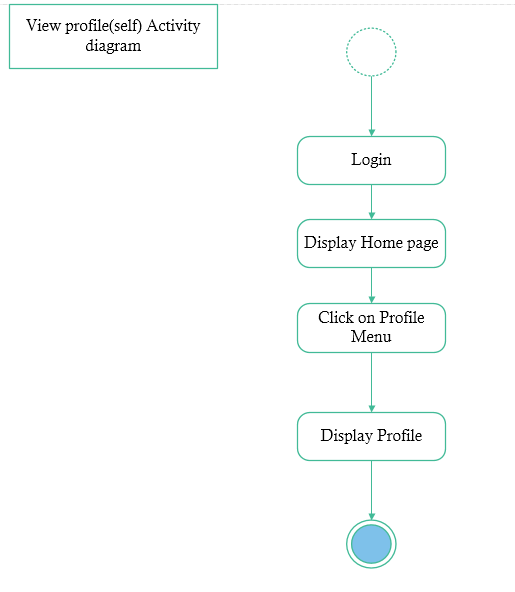
**Login**

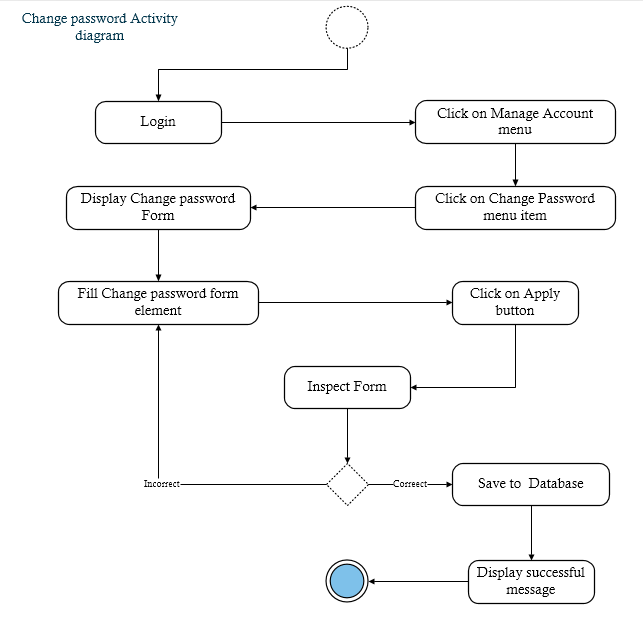
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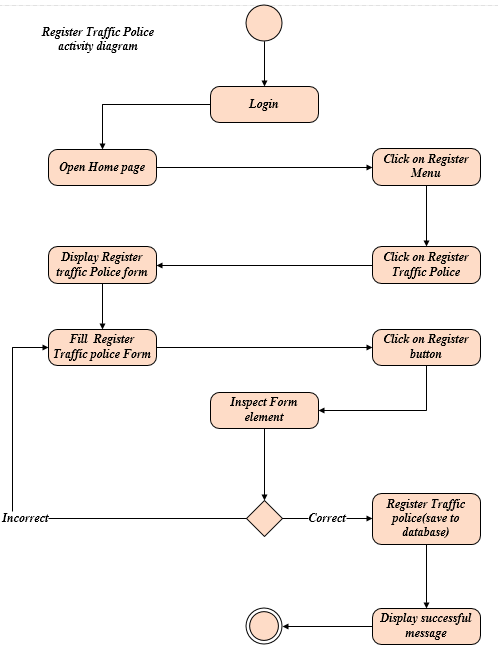
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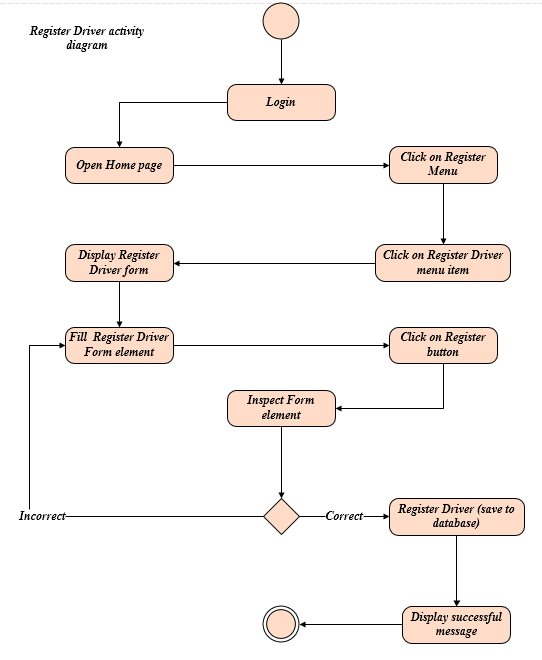
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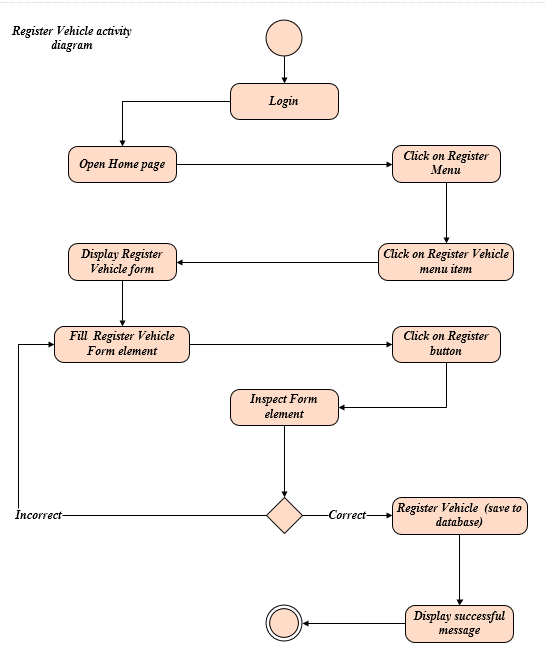
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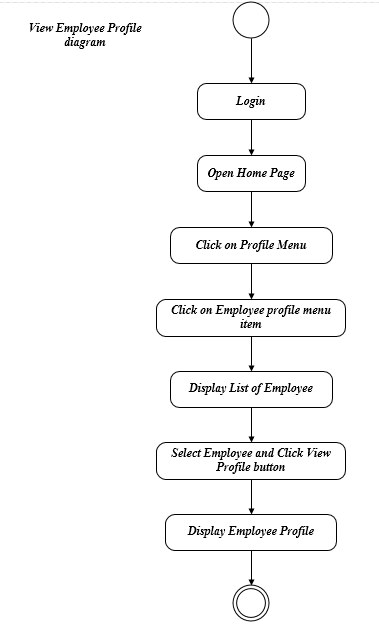
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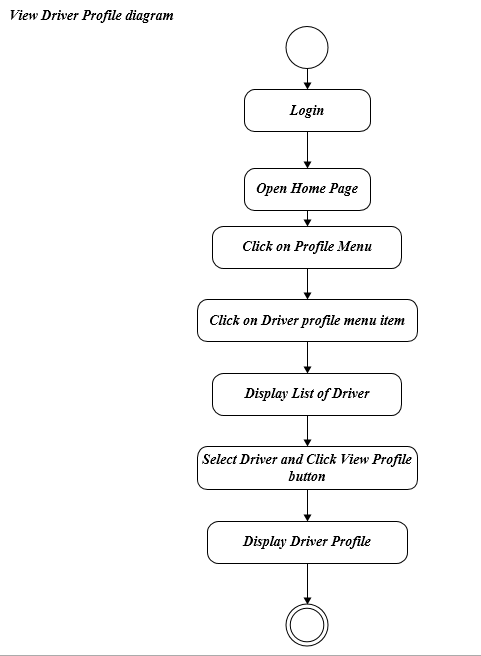
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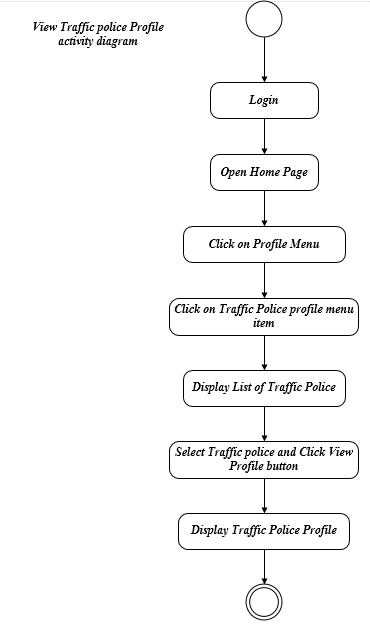
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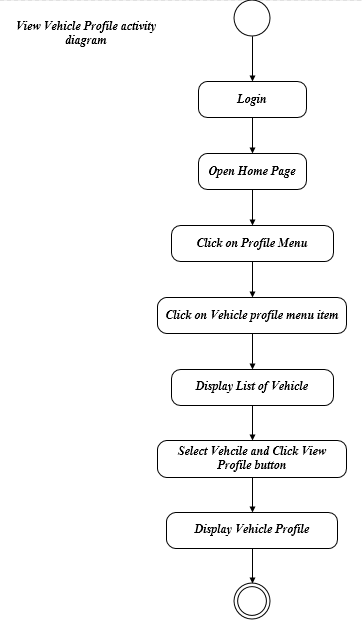
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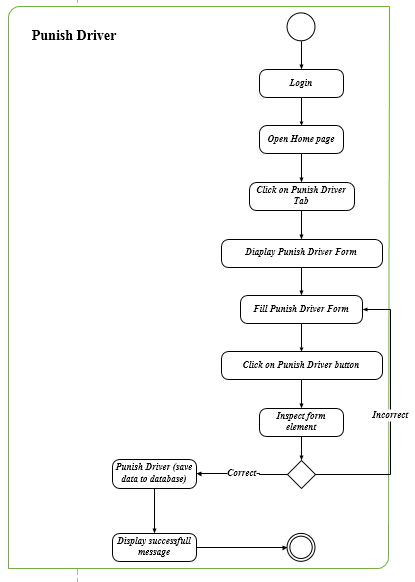
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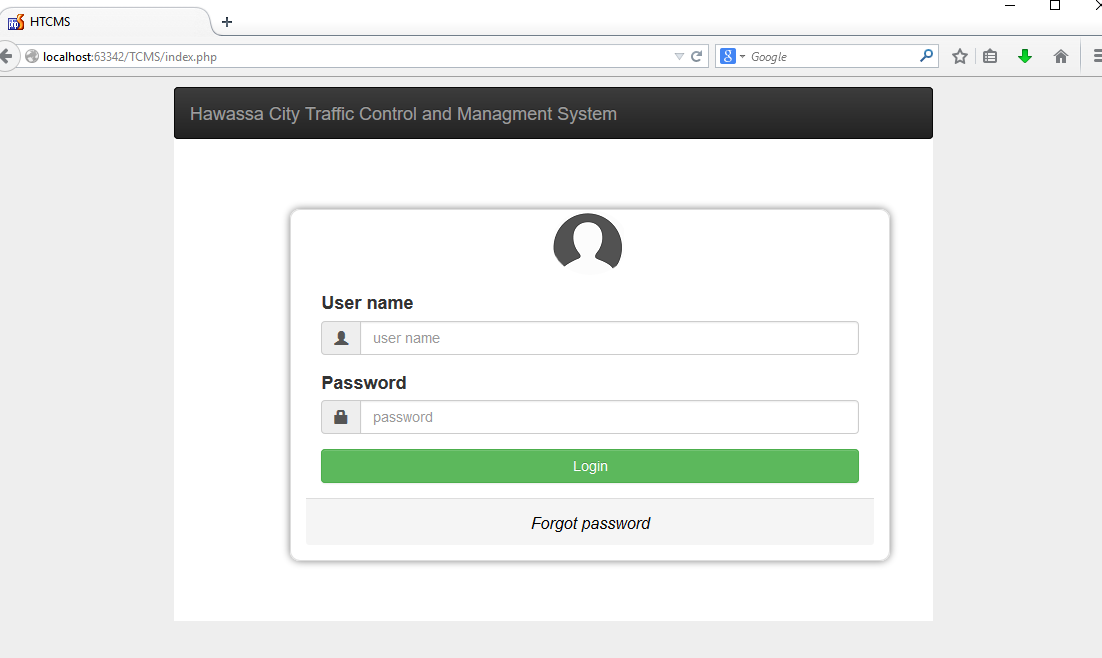
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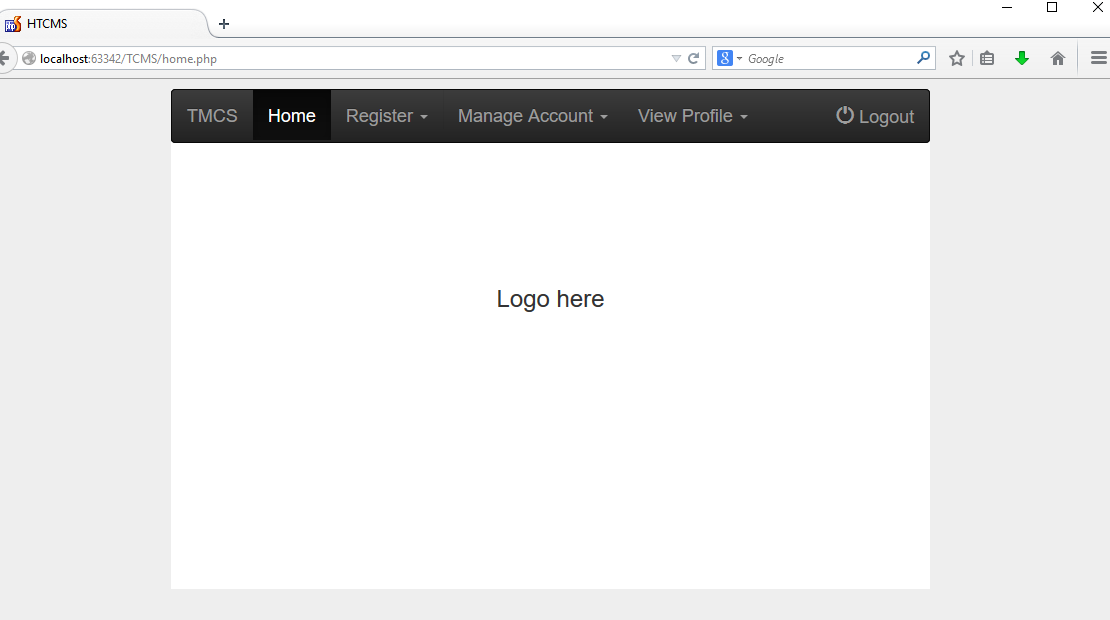
## **User Interface (UI) Design**

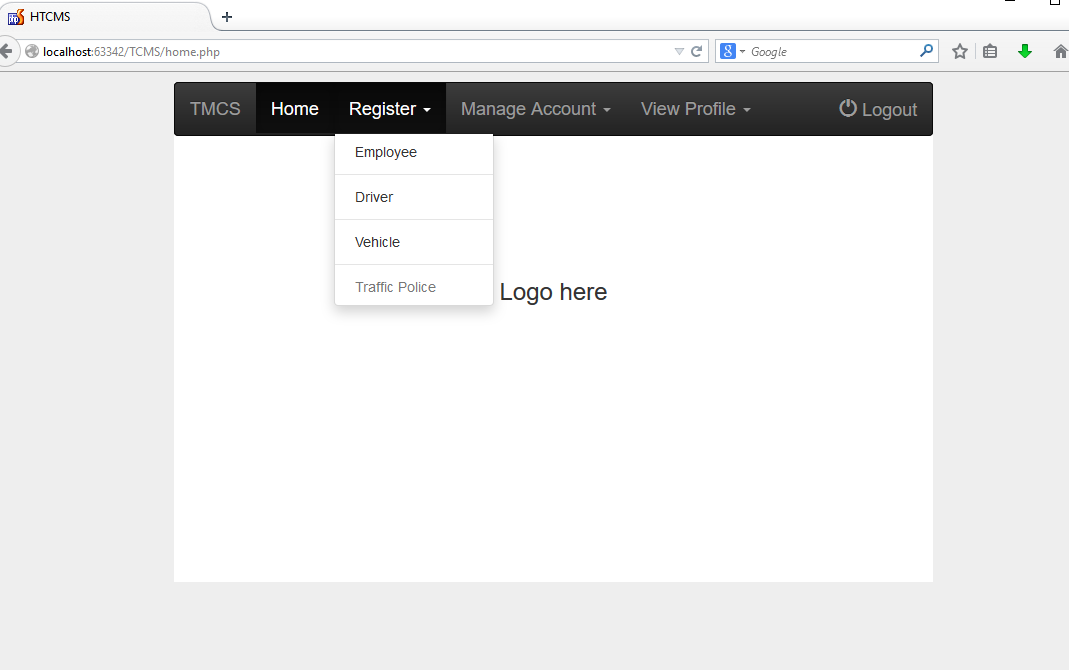
User interface is the external part of the system which is used to access and interact with the system easily.

**LogIn**

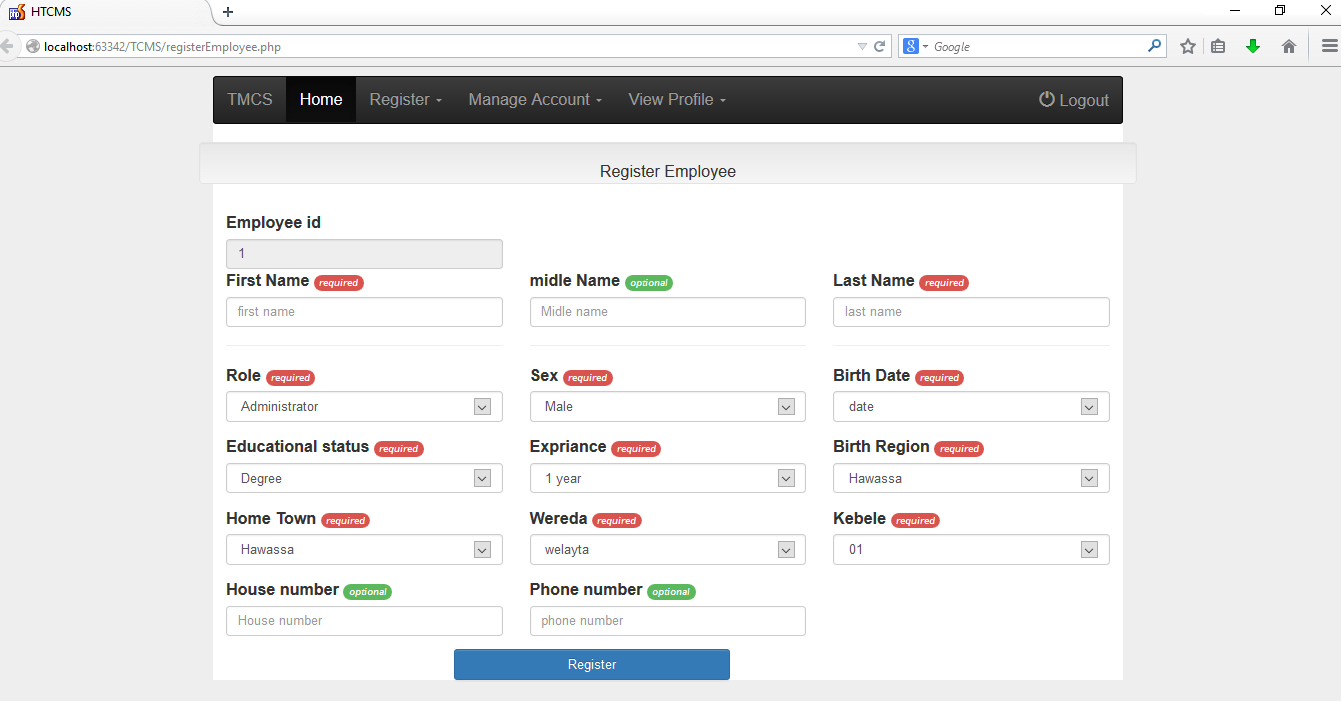


**Home Page**

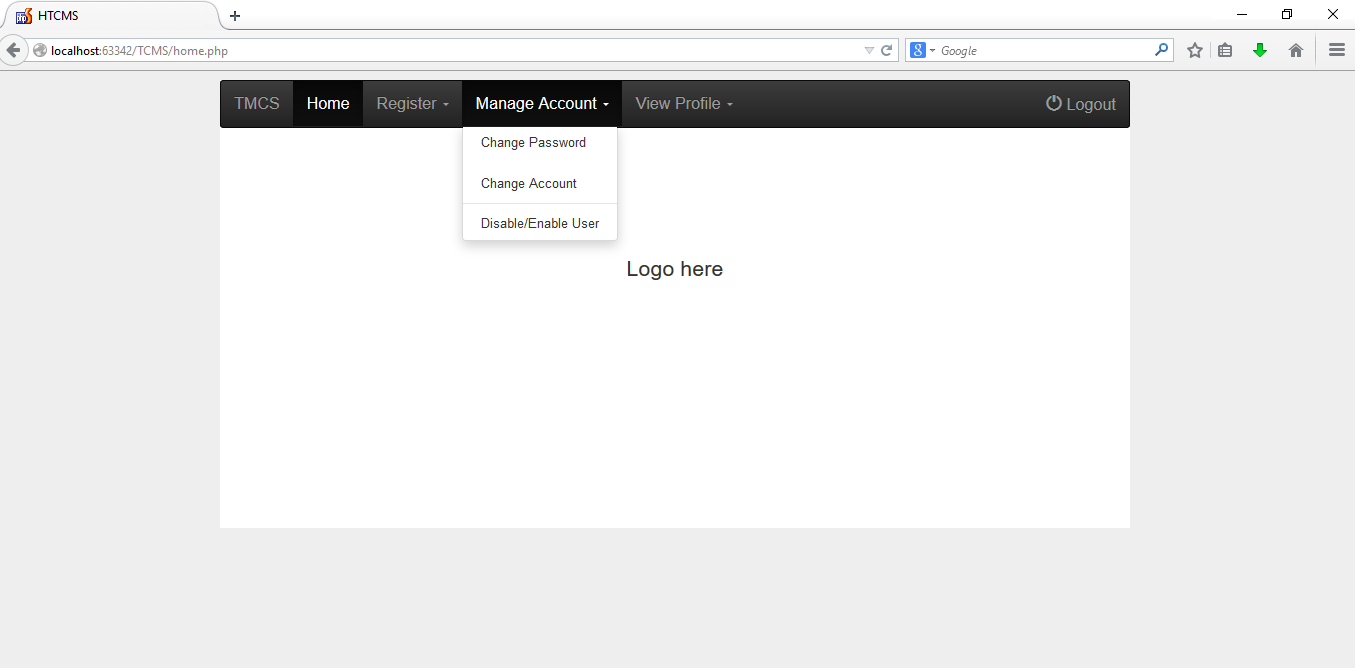
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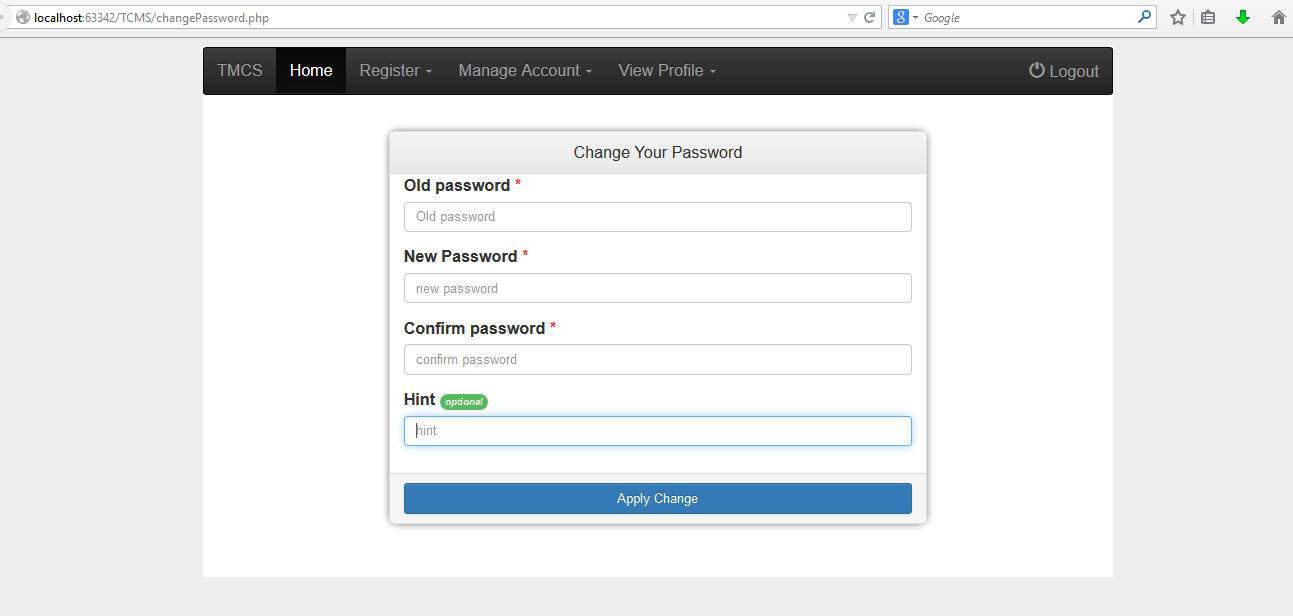
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**Register Employee**

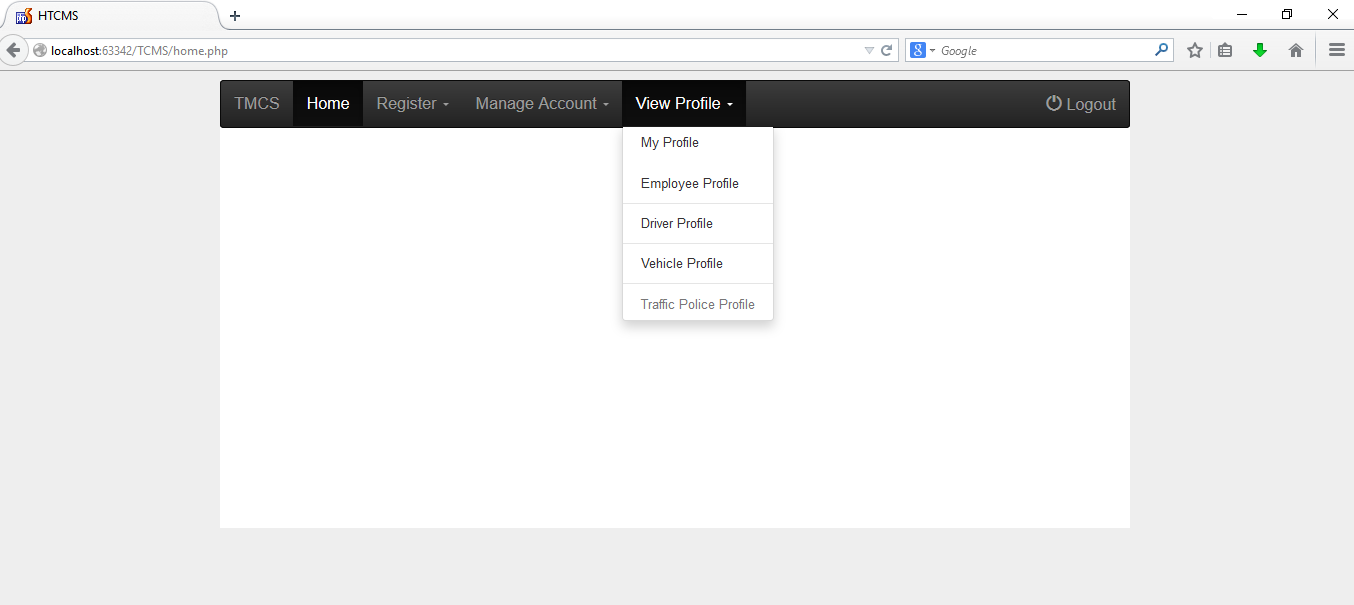
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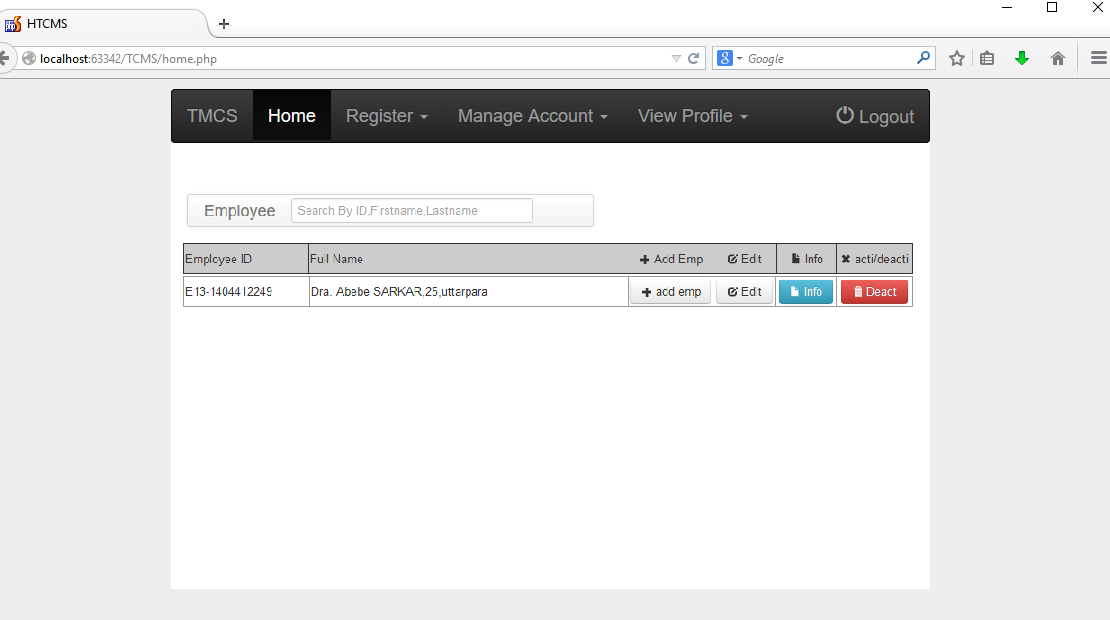
**Change Password**

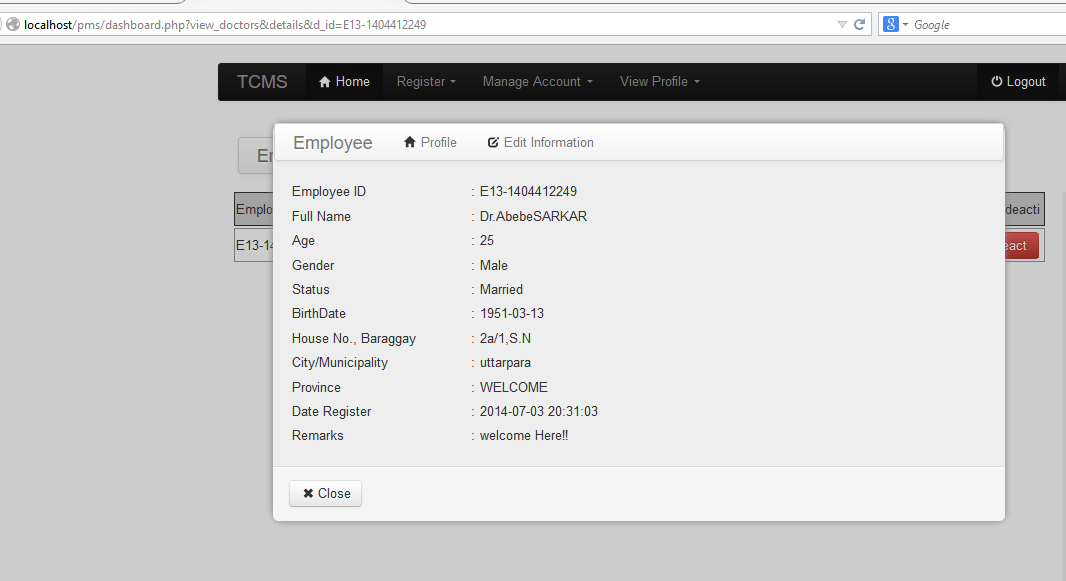
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**View Employee Profile**

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**TO be ctd…**