# Software Requirement Specification

## User Requirement Specification

### Customer requirement

### Staff requirement

### Police requirement

## System Requirement Specification

### External Interface Requirement

### System Overview Use Case

#### Web Application

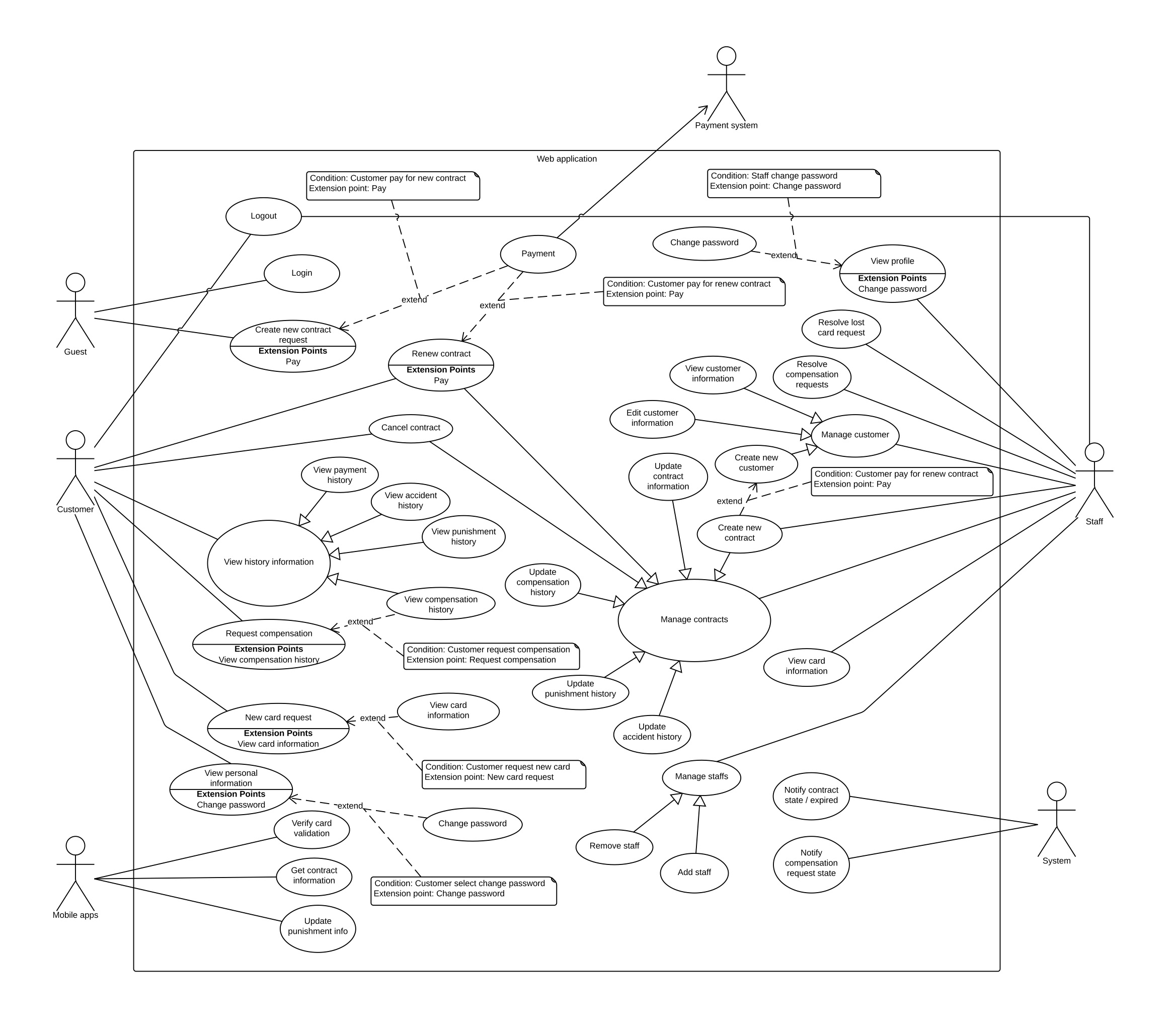


Figure Web Application Overview Use Case

#### Checker Mobile Application

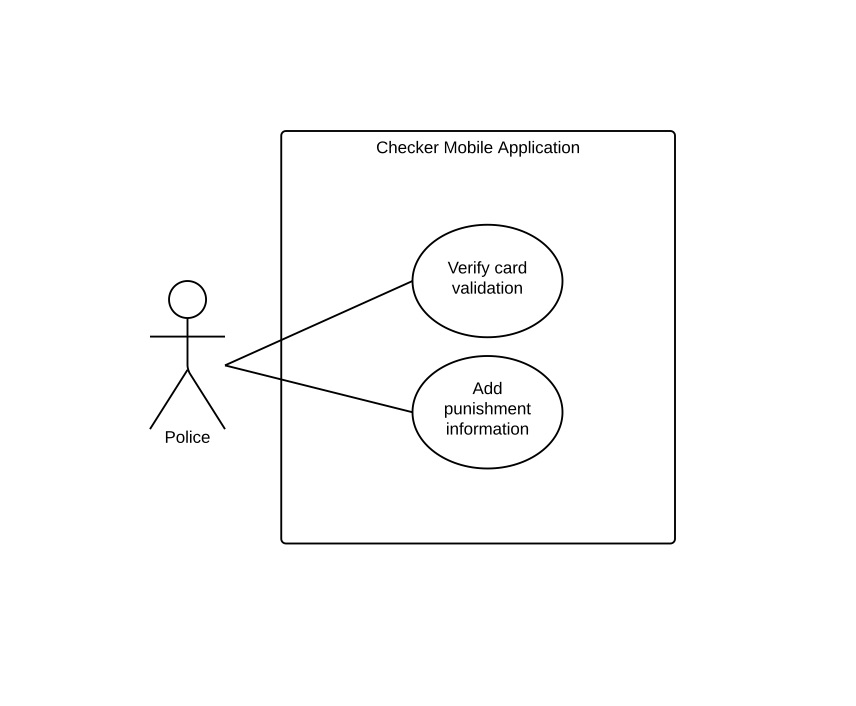


Figure Checker Mobile Application

#### Printer Mobile Application

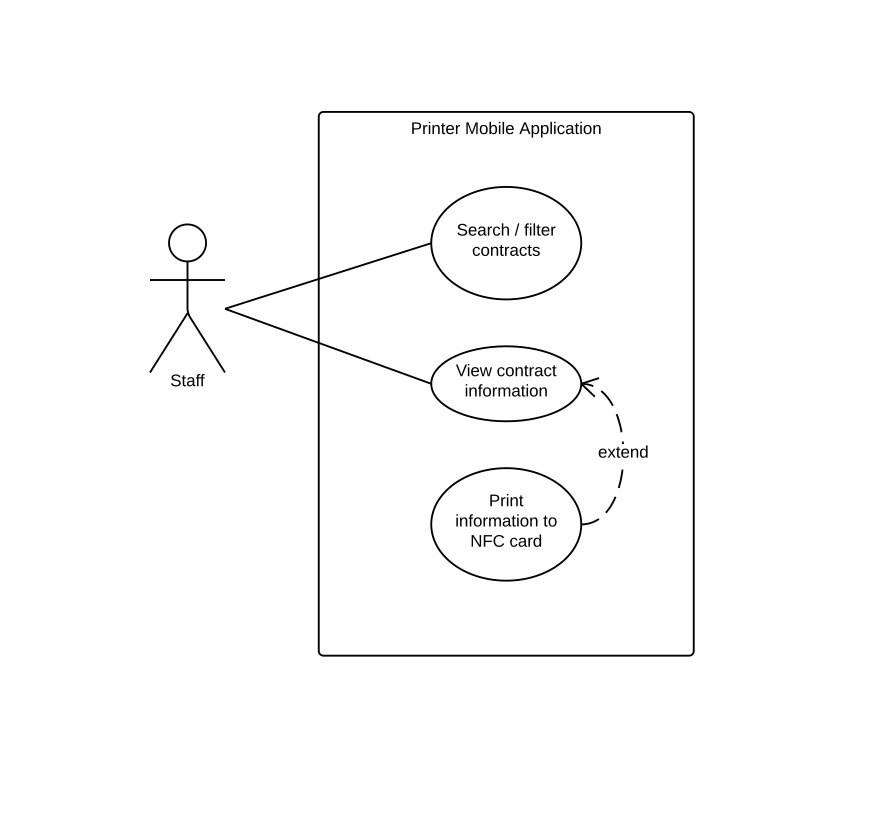


Figure Printer Mobile Application

### List of Use Case

#### Web Application

##### <Guest> Overview Use Case

###### <Guest> Login

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Login | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | Normal |
| Actor:  Guest  Summary:  This use case allow guest to login to the system.  Goal:  Guest can login to the system.  Triggers:  Guest send command to login.  Preconditions:  N/A  Post Conditions:   * Success: Guest will be logged in to the system. * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest go to login page | System requires identity information from Guest:   * Email or customer code: free text input, required, min length: 1, max length: 254. * Password: free text input, required, min length: 1, max length: 128. | | 2 | Guest input information |  | | 3 | Guest send command to login to system | Guest will login system with their specific role  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest send command to login to system | Wrong identity information, system show error message |   Relationships: N/A  Business Rules:   * After login to system, guest will be redirected to specific page based on their role on the system: staff or customer. * If role is “Customer”, the page will redirect to Customer page * If role is “Staff”, the page will redirect to Staff Dashboard page | | | |

###### <Guest> Create new contract request

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Create new contract request | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | Normal |
| Actor:  Guest  Summary:  This use case allow guest to create new contract request.  Goal:  Guest can create new contract request.  Triggers:  Guest send command to create contract request.  Preconditions:  N/A  Post Conditions:   * Success: New contract will be created for guest. * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest go to new contract page | System requires information from guest:  **Personal information**   * Name (required): free text input * Address (required): free text input * Email (required): free text input * Phone number (required): free text input * Personal ID: free text input   **Contract information** (all information below are required)   * Contract type: can be optional selected from these values:   + “Xe trên 50cc có BH cho người trên xe”   + “Xe trên 50cc không có BH cho người trên xe”   + “Xe dưới 50cc có BH cho người trên xe”   + “Xe dưới 50cc không có BH cho người trên xe”   + “Xe mô tô ba bánh, xe gắn máy và các loại xe tương tự” * Start date: date input * Expired date: date input   **Vehicle information** (all information below are required)   * Plate: free text input * Brand: free text input * Model code: free text input * Vehicle type: free text input * Color: free text input * Engine: free text input * Chassis: free text input * Capacity: free text input * Year of manufacture: number text input * Weight: free text input * Seat capacity: free text input * Certificate image: file upload input | | 2 | Guest input information |  | | 3 | Guest send command to create new contract request. | System navigates to payment page  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest send command to create new contract request | System show error message to ask user input missing required fields. |   Relationships: Payment  Business Rules:   * New contract will be created in the system with inputted information. * If user paid for the contract, status of the contract will be “Ready” * If user don’t paid for the contract yet, status of the contract will be “Pending” * An email contains customer code and password will be sent to user, user can use this information to login to the system later. * Staff will receive a notification about new contract. * Expired date and start date must not exceed 1 year. * Contract end date must not be earlier start date. * Contract price (per year) will be calculated from contract type and is set by staff. | | | |

##### <Customer> Overview Use Case

###### <Customer> Logout

###### <Customer> Renew contract

###### <Customer> Cancel contract

<Customer> View contract information

###### <Customer> View payment history

###### <Customer> View accident history

###### <Customer> View punishment history

###### <Customer> Request compensation

###### <Customer> View compensation history

###### <Customer> New card request

###### <Customer> View card information

###### <Customer> View personal information

###### <Customer> Change password

##### <Staff> Overview Use Case

###### <Staff> View profile

###### <Staff> Change password

###### <Staff> Resolve lost card request

###### <Staff> Resolve compensation

###### <Staff> View customer information

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | View customer information | | |
| Author | KhaNC | | |
| Date | 20/05/2015 | **Priority** | Medium |
| Actor:  Staff.  Summary:  This use case allow staff view customer details.  Goal:  Staff can view customer’s detail information.  Triggers:  Staff clicks customer’s code link on customer management page.  Preconditions:  User must login into the system with role Staff.  Post Conditions:  Success: Customer’s detail information is shown.  Fail: Show error message.  Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff clicks customer’s code link on customer management page. | Customer details page will be shown with following information:  Go back previous page: button  Update customer’s information: button  Customer’s code: label  Customer’s name: label  Customer’s address: label  Customer’s email: label  Customer’s phone: label  Customer’s personal ID: label  View customer card history: button  Request for new card: button  Customer’s NFC tag ID: link  Card’s activated date: label  Card’s most recent access date: label  View card’s access history: link  Create new contract for this customer: button  A list of customer’s contract as grid which show the following information:  Ordinal number: label  Customer’s contract code: link  Customer’s contract type: label  Contract’s start date: label  Contract’s expired date: label  Contract’s status: label |   Alternative Scenario: N/A  Exceptions: N/A  Relationships: Update customer information, delete customer.  Business Rules:  Customer’s detail information is always loaded from database.  Separate customer’s information into 3 parts: personal information, customer NFC tag and customer’s contract for better vision.  Staff can clicks on NFC tag ID link and contract code link to view their detail information.  Contract’s status is colored by different colors. | | | |

###### <Staff> Edit customer information

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Edit customer information | | |
| Author | KhaNC | | |
| Date | 20/05/2015 | **Priority** | Medium |
| Actor:  Staff.  Summary:  This use case allow staff update customer’s information.  Goal:  Customer’s information is updated to the system.  Triggers:  Staff clicks a button allow update customer’s information in customer details page.  Preconditions:  User must login into the system with role Staff.  Customer details page is loaded successfully.  Post Conditions:  Success: Customer’s information is updated. Log file is generated.  Fail: Show error message.  Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff clicks a button allow update customer’s information in customer details page. | Create customer page is shown with following labels and fields, staff must fill out all required field (have \* symbol):  Enter customer’s full name: textbox, max length: 100, required  Enter customer’s address: textbox, max length: 150, required  Enter customer’s email address: textbox, max length: 100, required  Enter customer’s phone number: textbox, min length: 10, max length: 11, required  Enter customer’s personal ID: textbox, length: 9  Update customer’s information: button  Abort this action: button | | 2 | Staff fill out the form. |  | | 3 | Staff click button to update customer’s information.  [Alternative 1] | Validate data  [Exception 1, 2, 3, 4, 5, 6, 7]  Update customer’s information to database.  Refresh customer details page.  Write log file. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Staff click button to abort this action. | Close modal, abort all changes, return to customer details screen. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Customer’s full name field is empty | Show message notify staff enter customer’s full name | | 2 | Customer’s address field is empty | Show message notify staff enter customer’s address | | 3 | Customer’s email address field is empty | Show message notify staff enter customer’s email address | | 4 | Customer’s email address field’s value is not a valid email | Show message notify entered email is not valid | | 5 | Customer’s phone number field is empty | Show message notify staff enter customer’s phone number | | 6 | Customer’s phone number field is not a valid phone number | Show message notify entered phone number is not valid | | 7 | Length of customer’s personal ID is different from 9 | Show message notify customer’s personal ID must contains 9 digit. |   Relationships: View customer details.  Business Rules:  In case of success scenarios, customer new information would be updated to database.  Reloaded customer details page will display customer updated information.  An email address must be validated by this regular expression: (Add later)  Exception must not violate. | | | |

###### <Staff> Create new customer

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Create new customer | | |
| Author | KhaNC | | |
| Date | 20/05/2015 | **Priority** | Medium |
| Actor:  Staff.  Summary:  This use case allow staff create new customer.  Goal:  A new customer is added to the system.  Triggers:  Staff clicks a button allow create new customer in customer management page.  Preconditions:  User must login into the system with role Staff.  Customer management page is loaded successfully.  Post Conditions:  Success: New customer is added to the system. Log file is generated.  Fail: Show error message.  Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff clicks a button allow create new customer in customer management page. | Create customer page is shown with following labels and fields, staff must fill out all required field (have \* symbol):  Go back previous page: button  Enter customer’s full name: textbox, max length: 100, required  Enter customer’s address: textbox, max length: 150, required  Enter customer’s email address: textbox, max length: 100, required  Enter customer’s phone number: textbox, min length: 10, max length: 11, required  Enter customer’s personal ID: textbox, length: 9  Create new customer: button | | 2 | Staff fill out the form. |  | | 3 | Staff click button to create new customer.  [Alternative 1] | Validate data  [Exception 1, 2, 3, 4, 5, 6 , 7]  Add new customer’s information to database.  Display create customer success page.  Write log file. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Staff click button to go back previous page. | Close page, return to customer management screen. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Customer’s full name field is empty | Show message notify staff enter customer’s full name | | 2 | Customer’s address field is empty | Show message notify staff enter customer’s address | | 3 | Customer’s email address field is empty | Show message notify staff enter customer’s email address | | 4 | Customer’s email address field’s value is not a valid email | Show message notify entered email is not valid | | 5 | Customer’s phone number field is empty | Show message notify staff enter customer’s phone number | | 6 | Customer’s phone number field is not a valid phone number | Show message notify entered phone number is not valid | | 7 | Length of customer’s personal ID is different from 9 | Show message notify customer’s personal ID must contains 9 digit. |   Relationships: View all customer, view customer details, update customer, delete customer.  Business Rules:  In case of success scenarios, a new customer would be added to database.  An email address must be validated by this regular expression: (Add later)  Exception must not violate. | | | |

###### <Staff> Create contract

###### <Staff> Renew contract

###### <Staff> Cancel contract

###### <Staff> Update contract information

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Update contract information | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to update contract information.  Goal:  Staff can update contract information.  Triggers:  Staff send command to update contract information.  Preconditions:   * User has to logged in to the system as Staff role * Contract is existed in database and not deactivated   Post Conditions:   * Success: Contract information will be updated * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to update contract information page | System list out information of contract:  **Personal information**   * Name (required): free text input * Address (required): free text input * Email (required): free text input * Phone number (required): free text input * Personal ID: free text input   **Contract information** (all information below are required)   * Contract type: can be optional selected from these values:   + “Xe trên 50cc có BH cho người trên xe”   + “Xe trên 50cc không có BH cho người trên xe”   + “Xe dưới 50cc có BH cho người trên xe”   + “Xe dưới 50cc không có BH cho người trên xe”   + “Xe mô tô ba bánh, xe gắn máy và các loại xe tương tự” * Start date: date input * Expired date: date input   **Vehicle information** (all information below are required)   * Plate: free text input * Brand: free text input * Model code: free text input * Vehicle type: free text input * Color: free text input * Engine: free text input * Chassis: free text input * Capacity: free text input * Year of manufacture: number text input * Weight: free text input * Seat capacity: free text input * Certificate image: file upload input | | 2 | Staff input information |  | | 3 | Staff send command to save new information. | System show message contract information is updated success.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to save new information. | System show error message to ask staff input missing required fields. |   Relationships: N/A  Business Rules:   * Contract end date must not be earlier start date. * Expired date and start date must not exceed 1 year. * Contract information will be updated to database. | | | |

###### <Staff> Update compensation history

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Update compensation history | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to update compensation information.  Goal:  Staff can update compensation information.  Triggers:  Staff send command to update compensation information.  Preconditions:   * User has to logged in to the system as Staff role * Compensation is existed in database   Post Conditions:   * Success: Compensation information will be updated * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to update compensation information page | System list out information of compensation:   * Driver name: free text input * License number: free text input * License type: free text input * Driver phone: free text input * Vehicle capacity: free text input * Driver address: free text input * Plate: free text input * Date: date input * Place: free text input * Control department: free text input * Description: free text input * Human damage: free text input * Asset damage: free text input * Observer: free text input * Compensation note: free text input * Attachment: file upload input * Created date: date input * Resolve date: date input * Decision: free text input * Resolve note: free text input | | 2 | Staff input information |  | | 3 | Staff send command to save new information. | System show message compensation information is updated success.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to save new information. | System show error message to ask staff input missing required fields. |   Relationships: N/A  Business Rules:   * Compensation information will be updated to database. | | | |

###### <Staff> Update punishment history

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Update punishment history | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to update punishment information.  Goal:  Staff can update punishment information.  Triggers:  Staff send command to update punishment information.  Preconditions:   * User has to logged in to the system as Staff role * Punishment is existed in database   Post Conditions:   * Success: Punishment information will be updated * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to update punishment information page | System list out information of punishment:   * Date (required): date input * Title (required): free text input * Attachment (required): file upload input | | 2 | Staff input information |  | | 3 | Staff send command to save new information. | System show message compensation information is updated success.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to save new information. | System show error message to ask staff input missing required fields. |   Relationships: N/A  Business Rules:   * Punishment information will be updated to database. * Punishment date must not exceed current date. | | | |

###### <Staff> Update accident history

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Update accident history | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to update accident information.  Goal:  Staff can update accident information.  Triggers:  Staff send command to update accident information.  Preconditions:   * User has to logged in to the system as Staff role * Contract of the accident is existed in database   Post Conditions:   * Success: Punishment information will be updated * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to accident information page | System list out information of accident:   * Date (required): date input * Title (required): free text input * Attachment (required): file upload input | | 2 | Staff input information |  | | 3 | Staff send command to save new information. | System show message compensation information is updated success.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to save new information. | System show error message to ask staff input missing required fields. |   Relationships: N/A  Business Rules:   * Accident information will be updated to database. * Accident date must not exceed current date. | | | |

###### <Staff> View cards information

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | View cards information | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to view published cards information.  Goal:  Staff can view cards information.  Triggers:  Staff navigates to cards information page.  Preconditions:   * User has to logged in to the system as Staff role * Cards information is existed in database   Post Conditions:   * Success: Cards information is shown * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to cards information page | System list out information of published cards:   * Card ID: text link to card detail page * Card owner: text * Last access time: text * Status: text   [Exception 1] | | 2 | Staff send command to view card detail information | System show card detail information:   * Card ID: text * Card owner: text * Status: text * Activated date: text * Last access time: text * History of access   [Exception 2] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to cards information page | System show no connection error message. | | 2 | Staff send command to view card detail information | System show no connection error message. |   Relationships:  Business Rules:   * Cards information will be loaded from database. * History of access will show 10 results at a time, with pagination links at the bottom. | | | |

###### <Staff> Update contract type information

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Update contract type information | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to update contract type.  Goal:  Staff can update contract type.  Triggers:  Staff send command to update contract type.  Preconditions:   * User has to logged in to the system as Staff role * Contract type is existed in database   Post Conditions:   * Success: Contract type information will be updated * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to contract type information page | System list out information of accident:   * Name (required): free text input * Description (required): free text input * Price per year (required): free number input | | 2 | Staff input information |  | | 3 | Staff send command to save new information. | System show message contract type information is updated success.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to save new information. | System show error message to ask staff input missing required fields. |   Relationships: N/A  Business Rules:   * Contract type information will be updated to database. * Contract type price per year must be greater than 0. | | | |

###### <Staff> Remove staff

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Remove staff | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to remove other staff from the system.  Goal:  Staff can remove other staff from the system.  Triggers:  Staff send command to remove other staff from the system.  Preconditions:   * User has to logged in to the system as Staff role   Post Conditions:   * Success: Staff be able to remove other staff from the system * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to manage members page | System list out information of staffs in system:   * Staff code: text * Name: text * Email: text * Phone number: text | | 2 | Staff select checkbox before the staff to delete |  | | 3 | Staff send command to delete other staff. | System show message staff has been removed successfully.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to delete other staff. | System show error message user cannot remove themselves from the system. |   Relationships: N/A  Business Rules:   * Staff can not remove himself/herself from the system. | | | |

###### <Staff> Add staff

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| --- | --- | --- | --- |
| USE CASE – MIC000 | | | |
| Use Case No. | MIC000 | **Use Case Version** | 2.0 |
| Use Case Name | Add staff | | |
| Author | TrungDQ | | |
| Date | 27/05/2015 | **Priority** | High |
| Actor:  Staff  Summary:  This use case allow staff to add other staff to the system.  Goal:  Staff can add other staff to the system.  Triggers:  Staff send command to add other staff to the system.  Preconditions:   * User has to logged in to the system as Staff role   Post Conditions:   * Success: Staff be able to add other staff to the system * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff navigates to add staff page | System require information of staff:   * Staff code (required): text * Name (required): text * Email (required): text * Phone number: text | | 2 | Staff input information |  | | 3 | Staff send command to add other staff. | System show message staff has been added successfully.  [Exception 1] |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Staff send command to add other staff. | System show error message to ask user to enter missing required field. |   Relationships: N/A  Business Rules:   * Staff code is the code used in physical system maintained by insurance company, it probably already exists for each staff when join in the company. If the company has no staff code for their staff, this field can be enter personal id of the staff. * Staff code must not be duplicated. | | | |

##### <Mobile apps> Overview Use Case

###### Verify card validation

###### Get contract information

###### Update punishment info

##### <System> Overview Use Case

###### Notify contract state / expired

###### Notify compensation request state

#### Checker Mobile Application

##### <Police> Overview Use Case

###### Verify card information

###### Add punishment information

#### Printer Mobile Application

##### <Staff> Overview Use Case

###### Search / filter contract

###### View contract information

###### Print information to NFC card

## Software System Attribute

### Usability

### Reliability

### Availability

### Security

### Maintainability

### Portability

### Performance

## Conceptual Diagram