Software Requirements Specification
Version 1.0

Car Park

Fresher Academy
2018

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1. INTRODUCTION

1.1. *Purpose*

The purpose of this document describes in detail the functions of "Car Park Management System". It shows the function and builds a complete system. It clearly explains the requirement of the system, gives an overview of screens and interacts with other systems or applications. And this document is for presentation with the customer to improve.

1.2. *In scope*

− The web-based system of car park management makes managing information fast, convenient and inexpensive, which provides top management services and solutions on the Internet. The car park management system is designed to meet the needs of employee management and operation administration at car park, as well as services for individuals business organizations in need.

− Main user:

+ Human resource management (HRM) staff.

+ Car park management staff.

The website allows to manage car park employees, operation administration, parking registration, booking office, check in/ check out of cars, car trip and parking lot.

2. OVERVIEW

2.1. *Actors*

The diagram below describes all actors participating in "Car Park Management". Each actor has a different role in the system. Currently, there are the following actors: Human Resource Management staff, Car park operation administration staff.
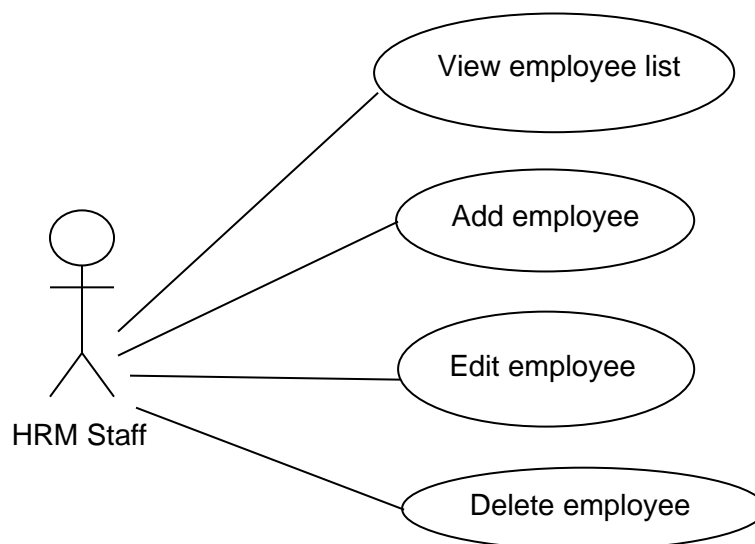
Actor	Description
Human Resource Management staff	The staff has right to search, add, delete, edit employee information, statistic report
Car park	The staff has right to:

operation administration staff	- Manage parking registration, including searching, adding, deleting, editing, and reporting statistics. - Manage booking office, including searching, adding, deleting, editing ticket information and reporting statistics. - Manage car park, including adding, deleting, editing car park information.

2.2. System Use Case Diagram

The diagram below provides an overview of the groups of functions and actors involved in building the *Da Nang car park management website*:

2.2.1. Human resource management (HRM) staff

2.2.2. *Car park operation administration staff*
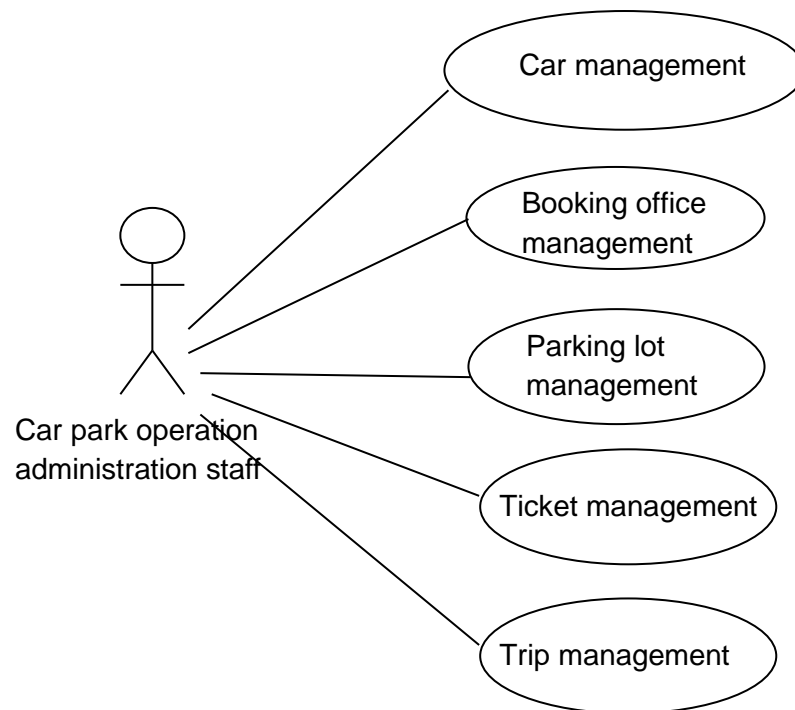
3. Functional Description

3.1 Functional Requirements

3.1.1. *Employee management*

Use Case Name	Employee management
Use Case ID	UC02.
High Level Requirement Ref	Allows to manage information of employee such as creating, viewing details, displaying employee list
Actor	Admin.
Description	All of employee information is accessed from database and displayed on screen. The user can create, view details, display employee list.
Trigger	NA.
Pre-	User clicks Employee management on Menu

condition	
Post-processing	

3.1.1.1. Add employee

Screen of adding employee

Screen	Add employee
Description	Allows users to add employee
Screen Access	Amin clicks **Employee management -> Employee List -> Add employee**
Screen Content	

Item	Type	Data	Description
Full name	Text field – String (50)		
Date of birth	Date Picker		
Sex	RadioButton		
Address	Text field – String (50)		
Phone number	Text field – String (50)		
Email	Text field – String (50)		

Account	Text field – String (50)		
Password	Password – String(100)		
Department	ComboBox		
Back	Button		The user clicks Back to return to the previous page
Reset	Button		The user clicks Reset to delete all inputted data.
Add	Button		The user clicks Add to add employee into Database

Screen Actions

Action Name	Description	Success	Failure
Back	If user clicks Back, then system forwards to the previous screen.	Display the previous screen.	When database connection has error -> Display message "Database connection error"
Reset	If user clicks Reset, then system deletes inputted information.	Delete all inputted information	When database connection has error -> Display message "Database connection error"
Add	When the user clicks Add, the system validates data. If data is valid, then save inputted data on the database, otherwise display error message.	Back to screen of Employee list and display the message "Add employee successfully".	When inputting password with wrong format -> Display the message "Password must include uppercase, lowercase and number."
Validation	The password must have at least 6 characters, including uppercase,		

	lowercase and number.		

3.1.1.2. Display employee list
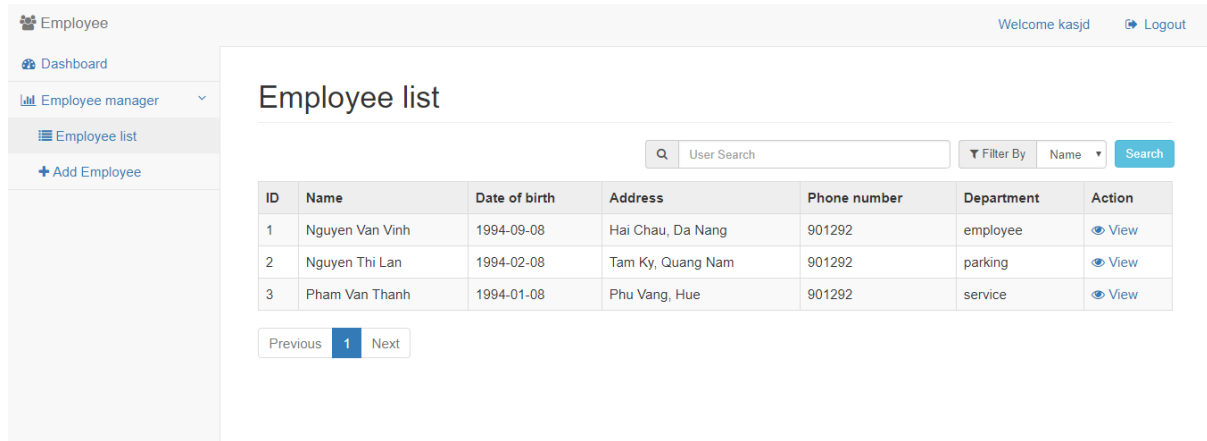
Screen of employee list

Screen	Employee list
Description	Display employee list
Screen Access	Admin clicks **Employee management -> Employee list ->List**

Screen Content

Item	**Type**	**Data**	**Description**
Search	Search Box		
Search criteria	ComboBox		
Search	Button		
ID	Label - Integer		
Name	Link - String (50)		Display name of employee. When the user clicks employee name, then forward to information page of this employee
Date of birth	Label - Date		
Address	Label - String(50)		
Phone number	Label - String(50)		

Department	Label - String(50)		
Prev	Link		When user clicks this link, then display employee list at the previous page
1	Link		When the user clicks this link, then display employee list at page 1
2	Link		When the user clicks this link, then display employee list at page 2
3	Link		When the user clicks this link, then display employee list at page 3
Next	Link		When user clicks this link, then display employee list at the next page
View	Link		When user clicks this link, then display form information employee show the current information and perform action update or delete employee

Screen Actions

Action Name	Description	Success	Failure
Search	When user clicks Search, the system will search employee according to inputted information.	If the user does not input any data to search, the system will display all employees on employee list table. Otherwise,	When database connection has error -> Display message "Database connection error" When the system does not find out

		display search result on the employee list table.	any employee, then display message "No matches".

3.1.2.   Booking office management
3.1.2.1.   Booking office list
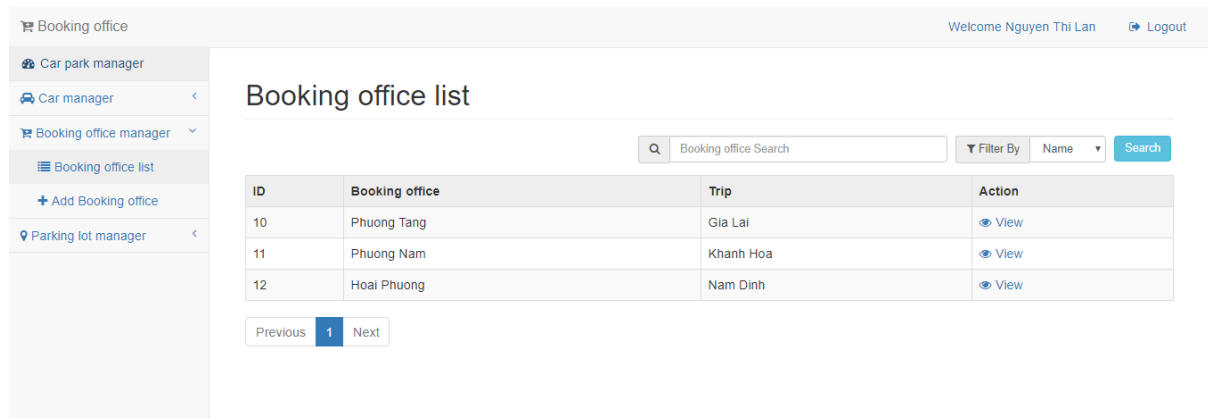
Screen of booking office list

Screen	Booking office list
Description	Display booking office list
Screen Access	Admin clicks **Booking office -> List**
Screen Content	

Item	**Type**	**Data**	**Description**
Search	Search Box		The box to input search data
Search criteria	ComboBox		The box to select search criteria
Search	Button		
Booking office	Link - String (50)		
Trip	Label - String(50)		
	Label – String(20)		

Prev	Link		When user clicks this link, then display booking office list at the previous page
1	Link		When the user clicks this link, then display booking office list at page 1
2	Link		When the user clicks this link, then display booking office list at page 2
3	Link		When the user clicks this link, then display booking office list at page 3
Next	Link		When user clicks this link, then display booking office list at the next page

Screen Actions

| Action Name	Description	Success	Failure
Search	When the user clicks **Search,** the system will search booking office according to inputted data at Search box.	If the user does not input any data at Search box, the system will display all booking office on list table. Otherwise, display search result on the booking office list table.	When database connection has error -> Display message "Database connection error" When the system does not find out any booking office, then display message "No matches"

3.1.2.2. Add booking office

Screen of adding booking office

Screen	Add booking office
Description	Allows staff to add booking office information
Screen Access	Click Booking office management -> Click "Booking office" -> Click "Add"
Screen Content	

Item	Type	Data	Description
Booking office name	Text field – String (50)		
Phone number	Text field – String (50)		
Price	Text field –		

	String (50)		
Place	ComboBox		
Contract deadline	Date Picker		
Reset	Button		The user clicks Reset to delete all inputted data
Add	Button		The user clicks Add to add booking office information and update database.

Screen Actions

Action Name	Description	Success	Failure
Reset	When user click **Reset**, the system will delete all inputted data	Delete all inputted data	
Add	When the user clicks **Add**, the system will validate data. If data is valid, the system will update data into database, otherwise display error message.	Back to Detail screen and display message "Add booking office successfully"	When inputting amount of money into price box with wrong format -> Display the message "Wrong format of price." When inputting invalid contract deadline, then the system display message "Invalid contract deadline"

3.1.3. Parking lot management
3.1.3.1. Parking lot list
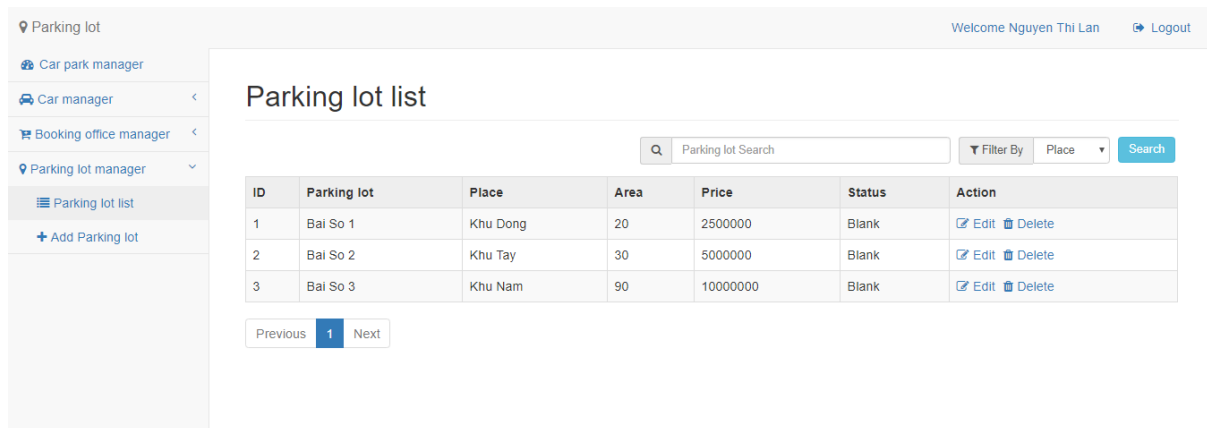
Screen of Parking lot list page

Screen	Parking lot list
Description	Display parking lot list
Screen Access	Admin clicks **Parking lot -> List**
Screen Content	

Item	Type	Data	Description
Search	Search Box		
Search criteria	ComboBox		
Search	Button		
ID	Label-Interger		
Parking lot	Link - String (50)		
Place	Label - String(50)		
Area	Label - String(20)		
Status	Label - String(20)		
	Label – String(20)		
Prev	Link		When user clicks this link, then display parking lot list at the previous page
1	Link		When the user clicks

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			this link, then display parking lot list at page 1
2	Link		When the user clicks this link, then display parking lot list at page 2
3	Link		When the user clicks this link, then display parking lot list at page 3
Next	Link		When user clicks this link, then display parking lot list at the next page

Screen Actions

Action Name	Description	Success	Failure
Search	When the user clicks **Search,** the system will search parking lot according to inputted data at search box.	If the user does not input any data at Search box, the system will automatically display all parking lot on ticket list table. Otherwise, display the search result on ticket list table.	When database connection has error -> Display message "Database connection error" When the system does not find out any parking lot, then display message "No matches"

3.1.3.2. Add parking lot

Screen of adding parking lot

Screen	Add parking lot
Description	Allow staff to add parking lot information
Screen Access	Click Parking lot management -> Click "Parking lot" -> Click "Add"

Screen Content

Item	Type	Data	Description
Parking lot	Text field – String (50)		
Place	ComboBox		
Area	Text field – String (50)		
Price	Text field – String (10)		
Reset	Button		The user clicks Reset to reset all data into default
Add	Button		The user clicks Add to add information of parking lot and update into database

Screen Actions

Action Name	Description	Success	Failure

Reset	When user click **Reset**, the system will delete all inputted data	Delete all inputted data	
Add	When the user clicks **Add**, the system will validate data. If data is valid, the system will update data into database, otherwise display error message.	Back to Detail screen and display message "Add booking office successfully"	When inputted "Area" is not number, the system will display message "Please input area with number format" When inputted "Price" is not number, the system will display message "Please input price with number format"

3.1.4. Car management
3.1.4.1. Car list

Screen	Car list		
Description	Display Car list		
Screen Access	Admin clicks **Car Management -> Car parking in lot -> List**		
Screen Content			

Item	Type	Data	Description
Search	Search Box		
Search criteria	ComboBox		
Search	Button		
License plate	Label - String (20)		
Car type	Label - String(50)		
Car color	Label - String(20)		
Company	Label - String(50)		
Parking lot	Label - String(50)		
	Label – String(20)		
Prev	Link		When user clicks this link, then display car list at the previous page
1	Link		When the user clicks this link, then display car list at page 1
2	Link		When the user clicks this link, then display car list at page 2
3	Link		When the user clicks this link, then display car list at page 3
Next	Link		When user clicks this link, then display car

			list at the next page

Screen Actions

Action Name	Description	Success	Failure
Search	When the user clicks **Search,** the system will search car according to inputted data at search box.	If the user does not input any data at Search box, the system will automatically display all car on ticket list table. Otherwise, display the search result on car list table.	When database connection has error -> Display message "Database connection error" When the system does not find out any car, then display message "No matches"

3.1.4.2. Add car

Screen	Add car
Description	Allow Staff to add car information
Screen Access	Click Car management -> click "Car parking in lot" -> Click "Add"

Screen Content

Item	Type	Data	Description

License plate	Text field – String (50)		
Car type	Text field – String (50)		
Car color	Text field – String (50)		
Company	ComboBox		
Parking lot	ComboBox		Box to select parking lot (Only display parking lots with status "Emply"
Reset	Button		The user clicks Reset to reset all data into default
Add	Button		The user clicks Add to add information of cars and update into database,

Screen Actions

Action Name	Description	Success	Failure
Reset	If user clicks Reset, then system deletes inputted information.	Delete all inputted information.	
Add	When the user clicks **Add**, the system will validate data. If data is valid, the system will update new data into database, otherwise display error message.	Back to detail screen and display message "Add car successfully"	When License plate box is empty -> The system will display message ''Please input License plate »

3.1.5. Trip management
3.1.5.1. Trip list
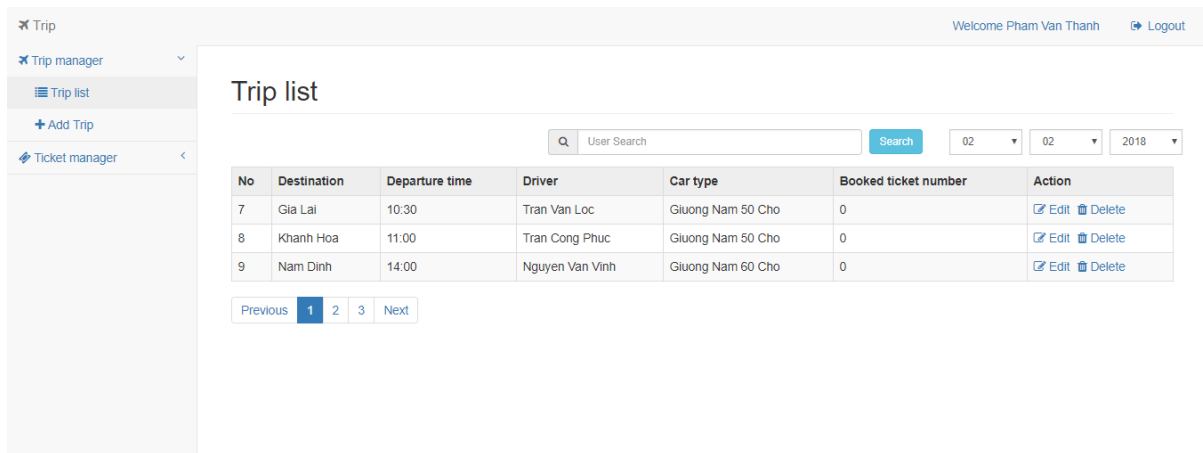
Screen	Trip list of company
Description	Display trip list of company
Screen Access	Admin clicks **Trip management -> List**
Screen Content	

Item	Type	Data	Description
Search	Search Box		
Search	Button		
No.	Label - String (20)		
Destination	Label - String(50)		
Departure time	Label - String(20)		
Driver	Label - String(50)		
Car type	Label - String(50)		
Booked ticket number	Label – String(20)		
Prev	Link		When user clicks this link, then display trip list at the previous page

1	Link		When the user clicks this link, then display trip list at page 1
2	Link		When the user clicks this link, then display trip list at page 2
3	Link		When the user clicks this link, then display trip list at page 3
Next	Link		When user clicks this link, then display trip list at the next page

Screen Actions

Action Name	Description	Success	Failure
Paging	When the user clicks any page at Paging, the system will query trip list at that page. Then the system will display trip list of the clicked page.	Display screen "Trip list"	

3.1.5.2. Add trip

Screen	Add information of trip		
Description	Allows company to add trip information		
Screen Access	Click Trip management -> Click "Add"		
Screen Content			
Item	**Type**	**Data**	**Description**
Destination	Text field – String (50)		
Departure time	Text field – String (50)		
Driver	Text field – String (50)		
Car type	Text field – String (50)		
Maximum online ticket number	Text field – String (50)		
Departure date	Date Picker		
Reset	Button		The user clicks Reset to reset data into default

Add	Button	24	The user clicks Add to add information of trip into database

Screen Actions

Action Name	Description	Success	Failure
Add	When the user clicks **Add**, the system will validate data. If data is valid, the system will save new data into database, otherwise display error message.	Back to detail screen and display message "Add trip successfully"	When Maximum online ticket number is empty -> The system will display message ''Please select online ticket number'' When inputting data over minimum, maximum of online ticket number -> The system will display message "Please input data between min and max" When database connection has error -> Display message "Database connection error"

3.1.6. Ticket management
3.1.6.1. Ticket list

Screen	Ticket list
Description	Display Ticket list
Screen Access	The admin clicks **Ticket management -> List -> List**
Screen Content	

Item	Type	Data	Description
Search	Search Box		Box to input search data
Search criteria	ComboBox		Box to select search criteria
Search	Button		
No.	Label - Integer		
Trip	Label - String (50)		
License plate	Label - String (50)		
Customer	Label - String(50)		
Booking time	Label - Time		
View	Link		When the user clicks **View** at any row, then display detail information page of ticket at that row
Prev	Link		When user clicks this link, then display ticket list at the

			previous page
1	Link		When the user clicks this link, then display ticket list at page 1
2	Link		When the user clicks this link, then display ticket list at page 2
3	Link		When the user clicks this link, then display ticket list at page 3
Next	Link		When user clicks this link, then display ticket list at the next page

Screen Actions

Action Name	Description	Success	Failure
Search	When the user clicks **Search,** the system will search ticket according to inputted data at search box.	If the user does not input any data at Search box, the system will automatically display all tickets on ticket list table. Otherwise, display the search result on ticket list table.	When database connection has error -> Display message "Database connection error" When the system does not find out any ticket, then display message "No matches"
View	When the user clicks **View** at any row, the system will query information of the ticket at that row. Then the system will forward to screen View detail of ticket.	Display screen "View detail of ticket."	When database connection has error -> Display message "Database connection error"

Paging	When the user clicks any page at Paging, the system will query 10 records of tickets at that page. Then the system will display ticket list of the clicked page.	Display screen "Ticket management"	

3.1.6.2. Add ticket

Screen	Add information of ticket
Description	Allows company to add ticket information
Screen Access	Click Ticket management -> Click "Add Ticket"
Screen Content	

Item	Type	Data	Description
Customer	Text field – String (50)		
Booking time	Time Picker		
Trip	Combo box		
License plate	Combo box		

Reset	Button		The user clicks Reset to reset data into default
Add	Button		The user clicks Add to add information of ticket into database

Screen Actions

| Action Name	Description	Success	Failure
Add	When the user clicks **Add**, the system will validate data. If data is valid, the system will save new data into database, otherwise display error message.	Back to detail screen and display message "Add ticket successfully"	When database connection has error -> Display message "Database connection error"

3.1.6.3. Delete ticket
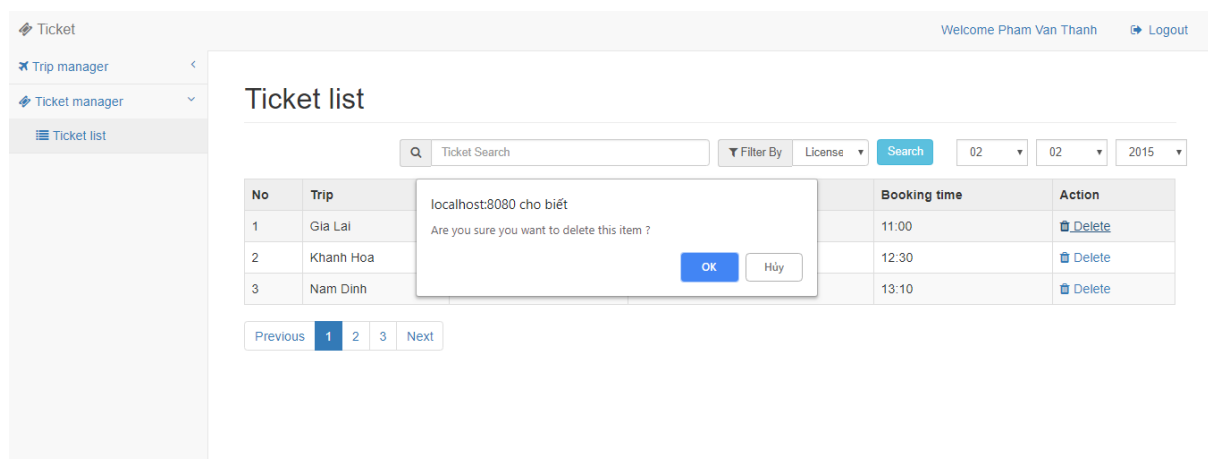
Screen	Delete ticket
Description	Allows company to delete ticket
Screen Access	Click Ticket management -> Click "List" -> Click "Delete"

Screen Content

Item	Type	Data	Description
Title	Label-String (20)		Display title of popup
Content	Label – String (50)		Display content of popup, warning users to confirm before deleting.
Yes	Button		Click Yes if deleting ticket
No	Button		Click No if not deleting ticket

Screen Actions

Action Name	Description	Success	Failure
No	If the user does not want to delete the ticket, then click No	Close Popup, display the current page.	When database connection has error -> Display message "Database connection error" The screen still displays the current page
Yes	If the user confirms to delete the ticket, then click Yes	The screen displays message "Delete successfully" and back to Ticket list screen.	When database connection has error -> Display message "Database connection error" The screen still displays the current page

3.2 Detailed Non-Functional Requirements

3.2.1 Logical Structure of the Data

The logical structure of the data to be stored on the system is given below:
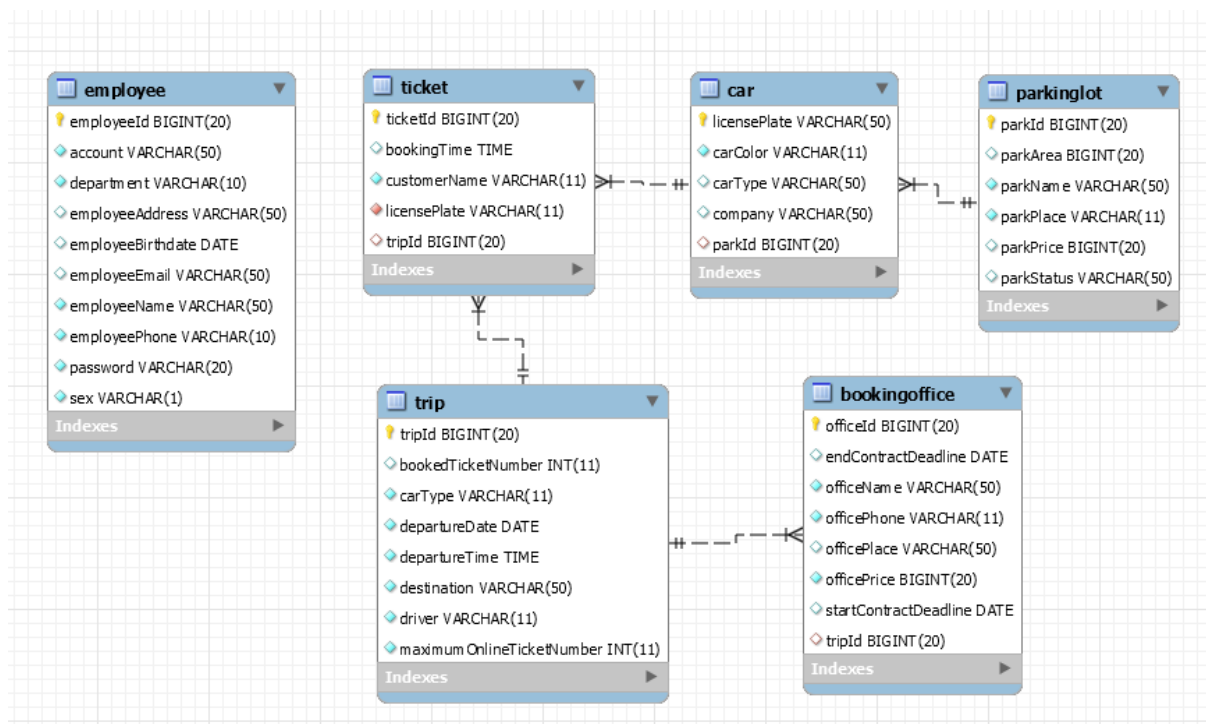
3.2.2 Security

TBD

3.2.3 Performance

TBD

3.2.4 Technial Requirement

Framwork : Spring framwork version 4.x
IDE, tools : Eclipse, Maven 3.x
Server tool : Tomcat 8.x
Java version : Java 1.8 or late
Data base : Oracle 11g