

## Use Case Analysis

### Actor List

Actor	Role
Customers	Customers can access the cashless train system on iOS and Android mobile phones to register an account or login to the account. In the system, customers can deposit money, transfer money, check transactions, buy train tickets, subscribe to train passes, view train schedules, search for a specific train, get a collection point and spend the collection point.
Administrators	Administrators can offer special promotions depending on the season. They can also offer discounts for some specific trains or some specific areas of the train and adjust train schedules.
Train Officer	Train officers can validate virtual tickets from customers.
Thailand National ID validation API	Thailand National ID validation API is an external service to validate the legitimacy of citizen ID cards. For the security purpose it is required to know who boards the trains from where to where.

### Use Case List

Use Case Name	Description
Register accounts for the cashless train ticket system.	The customers register an account by providing their basic information including first name, last name, address, password, national ID.
Login to the cashless train ticket system.	The customer can login to the cashless train ticket by input national ID and password.
Deposit money into the virtual wallet.	The customers can deposit money into the virtual wallet using 3 methods. 1. via a bank account. 2. via credit card. 3. at any convenient store by showing the payment code to the convenient store and handing in the money to the cashier, the money will directly deposit to the virtual wallet.
Transfer money between accounts.	The customer can transfer money between accounts by using the same kind of application.

Purchase virtual tickets.	The customer can purchase a train ticket via an application which is called top-up ticket. For example, you want to take the train from Bangsu station to Salaya. The price of this ride is 20 baht. so you would withdraw 20 baht from the virtual wallet that you have and buy a ticket for 20 baht.
Subscribe to train passes.	The customer can subscribe to a train pass which means they can ride a train as many times as they want for some period of time. There will be 3 types of pass for them to choose. 1. daily pass 2. monthly pass 3. annual pass.
Check transactions.	The customer can check virtual wallet total balance, check payment transaction and payment history.
View train schedules.	The customer can check the train schedule whether it's going to be a normal train, high speed train or any type of train so they can select the schedule of the train according to the date and time.
Search for specific train numbers.	The customer can search for some specific train number by querying the train number in the search box.
Use collection points.	The customers will be rewarded with collection points when using the application to purchase virtual tickets and they can spend the point by 3 ways. 1. converted into money in the virtual wallet. 2. Keep in account for a maximum of 100 points. 3. exchange the points for gifts.
Offer special discounts and promotions.	The administrator can offer special promotions depending on the season and they can offer special discounts for some specific train or some specific area.
adjust train schedules.	The administrator can adjust the train schedule by editing arrival time and destination time.
validate virtual tickets.	The train officer can validate the customer's virtual ticket by scanning QR code from the customer.

## Use Case Narrative 1

<b>Use Case Name</b>	Register accounts for the cashless train ticket system.
<b>Goal in Context</b>	A customer register account for the cashless train ticket system. The Thailand National ID validation API validates the input national ID from the user.
<b>Primary Actor</b>	Customer
<b>Secondary Actor</b>	Thailand National ID validation API
<b>Precondition</b>	Thailand National ID validation API must be available.
<b>Trigger</b>	When customers want to use the cashless train ticket system.
<b>Scenario (Typical Flows of Events)</b>	<ol style="list-style-type: none"><li>1. The customer opens the application for the first time.</li><li>2. The system asks the customer to input their basic information including first name, last name, password, address, national ID.</li><li>3. The Thailand National ID validation API validates the input national ID.</li><li>4. The system creates an account and stores customer information in a database.</li></ol>
<b>Exception</b>	<p><b>Exception 1.</b> The input National ID is incorrect, the system will prompt customers to re-entry information.</p> <p><b>Exception 2.</b> Thailand National ID validation API is down.</p> <p><b>Exception 3.</b> The customer already registered for the cashless train ticket system. Switch to use case login.</p>
<b>Post-condition</b>	The customer account for the cashless train ticket system has been created.

## Use Case Narrative 2

<b>Use Case Name</b>	Purchase legitimate virtual train tickets.
<b>Goal in Context</b>	The customer purchases a virtual train ticket.
<b>Primary Actor</b>	Customer
<b>Secondary Actor</b>	Train Officer
<b>Precondition</b>	The customer must register or login to the cashless train ticket.
<b>Trigger</b>	When a customer wants to buy a train ticket.
<b>Scenario (Typical Flows of Events)</b>	<ol style="list-style-type: none"><li>1. The customer specify the origin and destination location</li><li>2. The customer selects the available train time schedule.</li><li>3. the customer confirms the transaction.</li><li>4. The system checks for the customer account total balance.</li><li>5. The system withdraws the money from the customer account virtual wallet.</li><li>6. The system rewarded the user with the collection point.</li><li>7. The customer shows the QR code to the train officer.</li><li>8. The train officer validates the virtual ticket by scanning the QR code.</li></ol>
<b>Exception</b>	<p><b>Exception 1.</b> The customer does not have sufficient money in their virtual wallet. the system will prompt customers to deposit more money.</p> <p><b>Exception 2.</b> The train is unavailable.</p> <p><b>Exception 3.</b> The customer does not login or register for the cashless train ticket system. the system will prompt customers to login or register to the system.</p> <p><b>Exception 4.</b> The virtual ticket is not legit.</p>
<b>Post-condition</b>	The customer received a legitimate virtual train ticket.

### Use Case Narrative 3

<b>Use Case Name</b>	Offer special discounts and promotions.
<b>Goal in Context</b>	deploy special promotions or special discounts.
<b>Primary Actor</b>	Administrator
<b>Secondary Actor</b>	Customer
<b>Precondition</b>	<ol style="list-style-type: none"><li>1. The account must be at an administrator level.</li><li>2. The administrator must login to the system.</li></ol>
<b>Trigger</b>	special occasions occur.
<b>Scenario (Typical Flows of Events)</b>	<ol style="list-style-type: none"><li>1. The administrator selects between special discount or special promotion.</li><li>2. The administrator selects the location area or specific train numbers.</li><li>3. The administrator input the details for the special promotion such as collection point x2, lucky ticket, buy 1 get 1 free, special discount, etc.</li><li>4. The system updates the price and the condition to meet the special promotion for the input location or input train number.</li><li>5. The customer acknowledged the special promotion.</li></ol>
<b>Exception</b>	<p><b>Exception 1.</b> The account is not at an administrator level.</p> <p><b>Exception 2.</b> The administrator does not login to the system.</p> <p><b>Exception 3.</b> The administrator input the incorrect information, the system will prompt the administrator to re-entry information.</p>
<b>Post-condition</b>	Special promotion has been deployed.

