



## **CAPSTONE PROJECT REPORT**

### **Report 3 – Software Requirement Specification**

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## I. Project Report

### 1. Status Report

#	Work Item	Status	Notes (Work Item in Details)
1	Coding	In Progress	Done all the screens which is identified in the Design phase
2	UT	In Progress	Create the test cases and run UT for the screen which is done about coding

### 2. Team Involvements

#	Task	Member	Notes (Task Details, etc.)
1	Code front-end	UyenHTN UyenNTT LongNTH VuTH	Code for all the screen which is defined in the phase Design
2	Review coding	ChuongTV	Review and detect bug in front-end code
3	Create test cases and run UT	UyenHTN	Create test cases and run UT to detect bug
4	Document	UyenHTN UyenNTT	Meeting to discuss and create document for the system

### 3. Issues/Suggestions

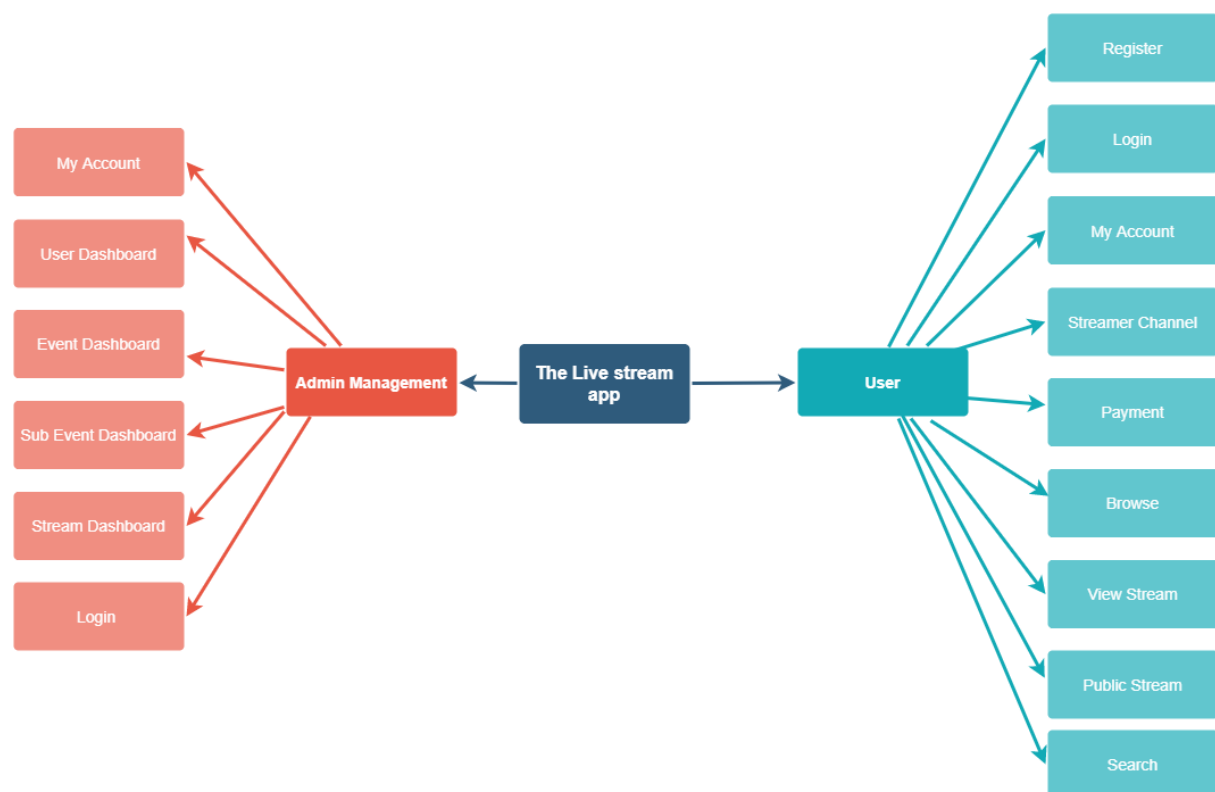
#	Issue	Status	Notes (Solution, Suggestion, etc.)
1			
2			
3			

## II. Software Requirement Specification

### 1. Overall Description

#### 1.1 Product Overview

A livestream platform is one that helps people live video, stream information, sell, or even make money. It is also a place for online events where everyone can join together. The ecosystem diagram below illustrates the external entities and the system interface.



#### 1.2 Business Rules

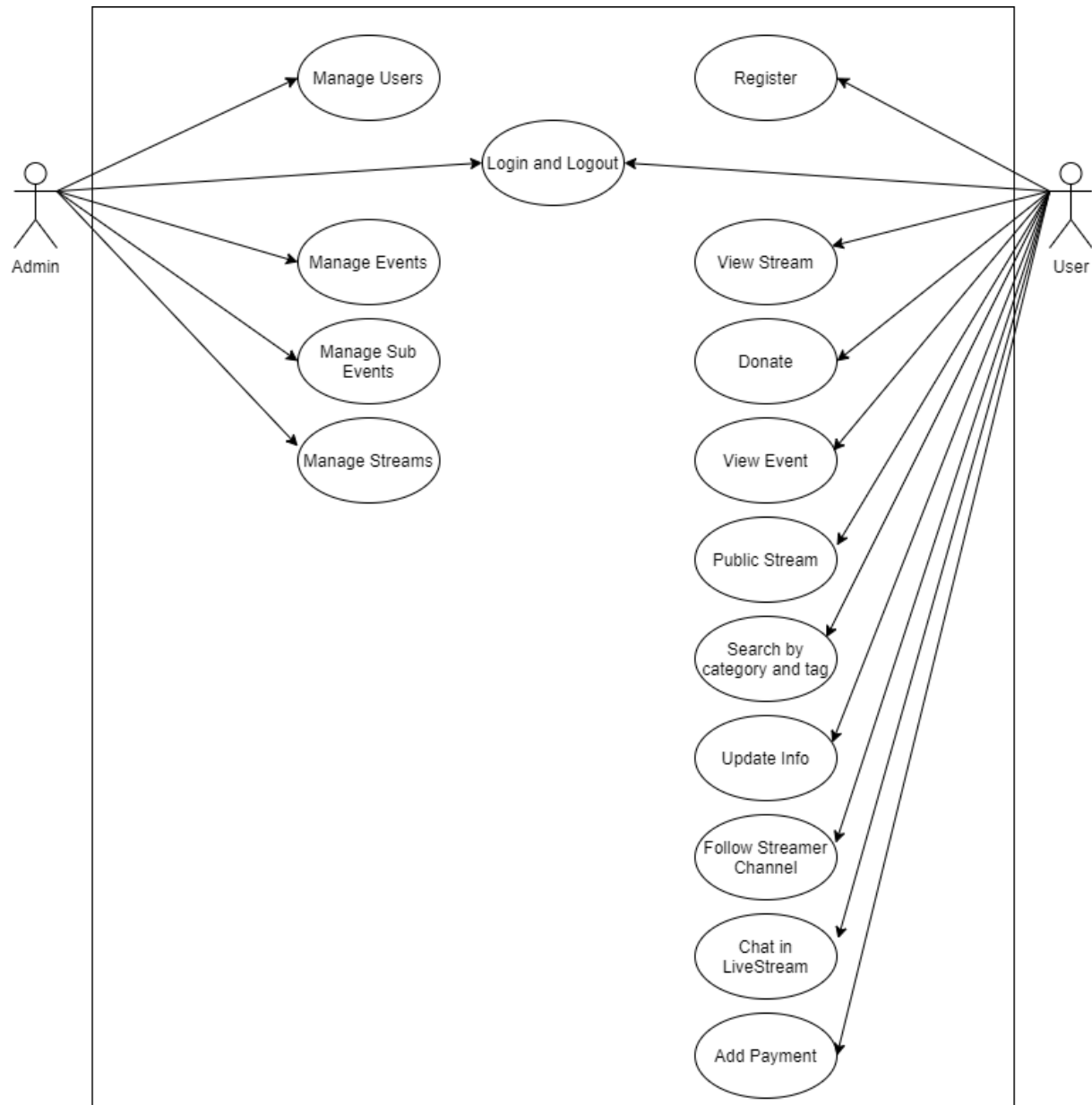
ID	Rule Definition
BR-01	Username with password and associated google account acceptable to login.
BR-02	Username with password and available google account acceptable to sign up.
BR-03	Format datetime dd/mm/yyyy.
BR-04	Username consists of up to 20 characters.
BR-05	Search bar can consist of up to 100 characters.
BR-06	Top up your account and change to the web's money before making a donation.
BR-07	Text box consists of up to 200 characters.
BR-08	All label must be left, consists pixel, font-size

BR-09	Password must be (special keyword, number)
BR-10	Field number must be integer min range to max range (0 -> 100).
BR-11	Text area consists of up to 5000 characters.
BR-12	Users can only request one registration OTP resending per minute.
BR-13	Images can contain sizes up to 10MB file.
BR-14	End date must be equal or larger than Start date.
BR-15	If users do not upload images the images must be default.
BR-16	Steam keys must be unique with others.

## 2. User Requirements

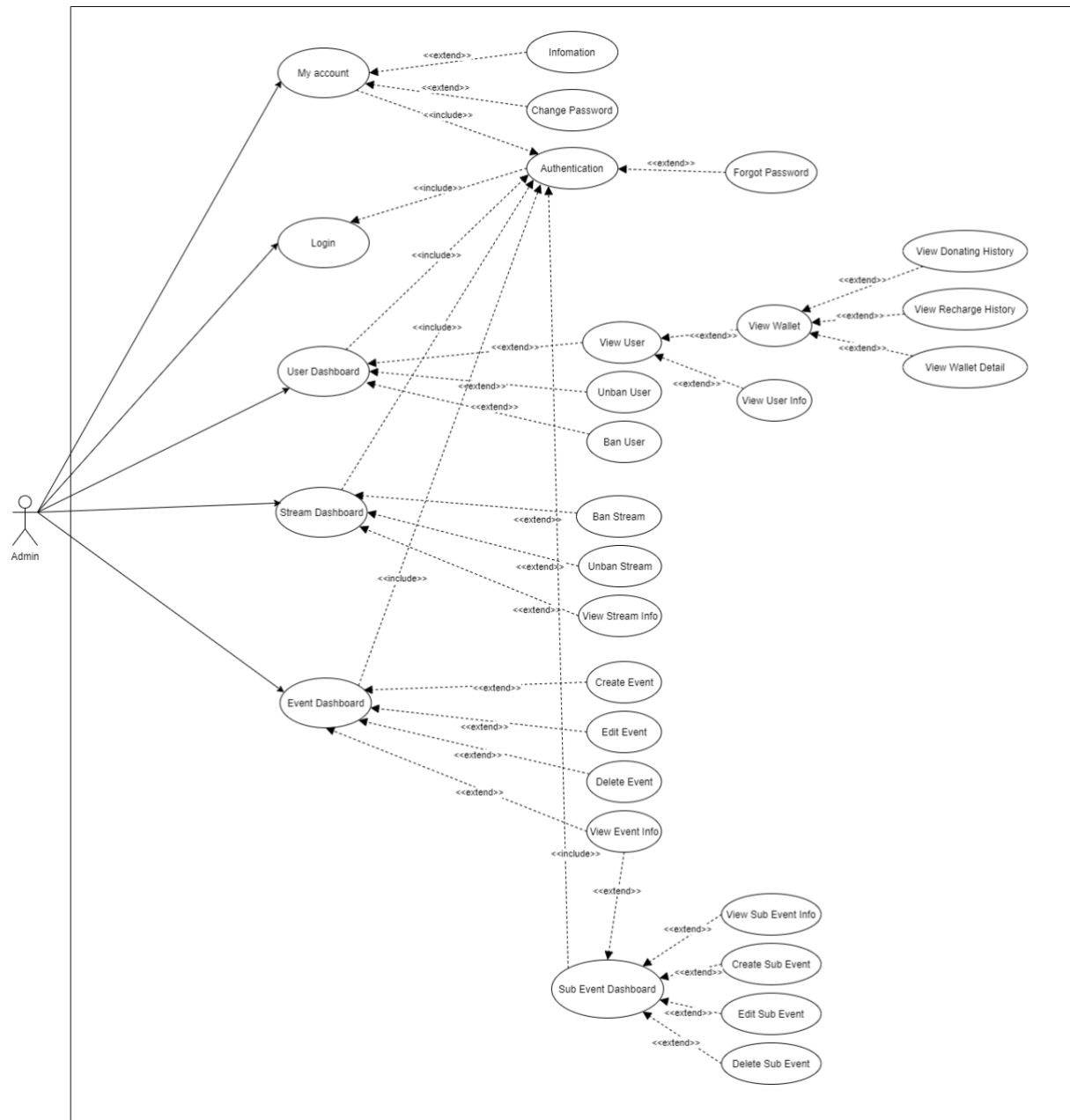
### 2.1 Overview

#### a. Use Case Diagram

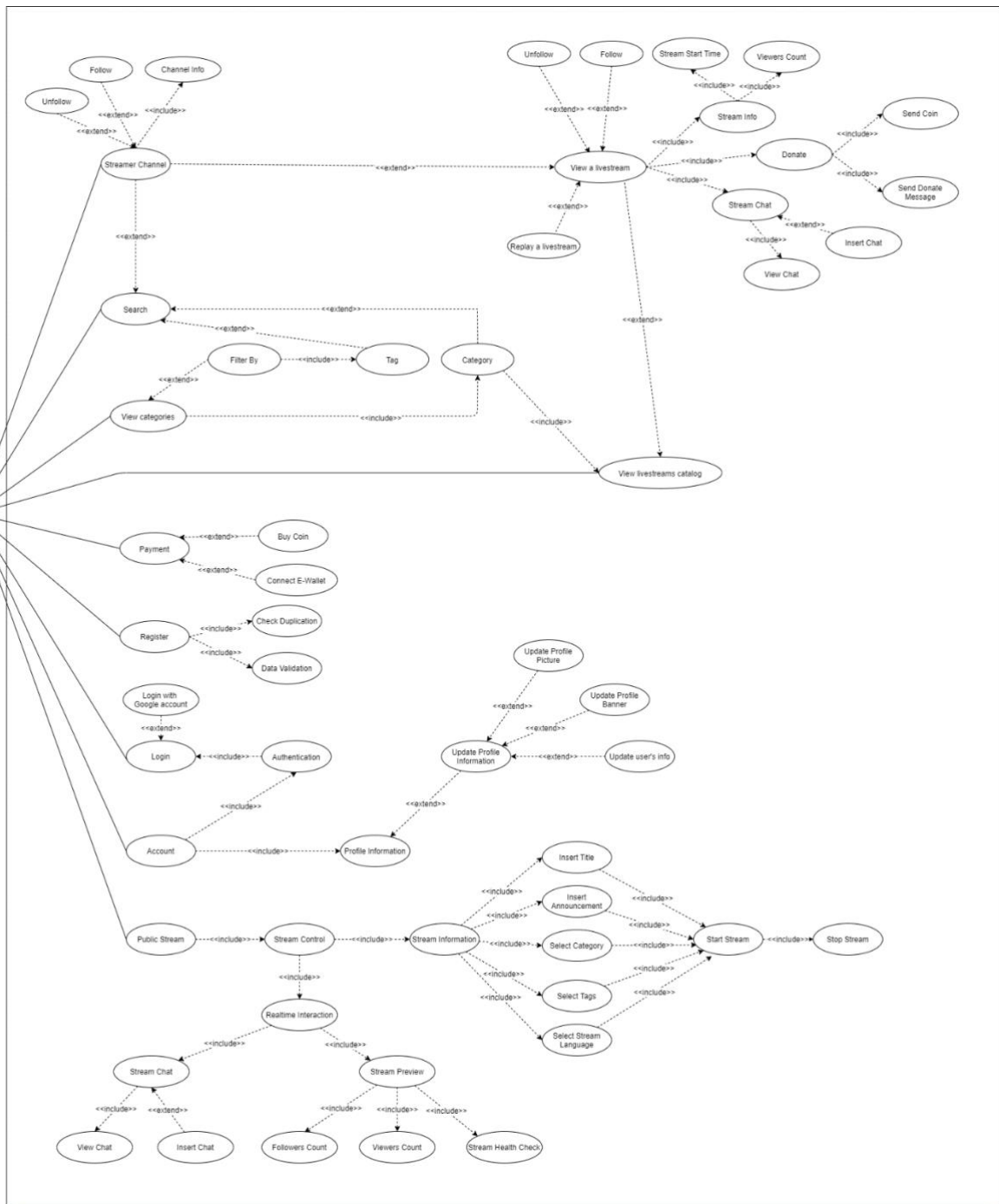


Overall use case diagram





Use case diagram of admin



Use case diagram of user

**b. System Actors**

#	Actor	Description
1	Administrator	Control and manage the system.
2	User	Authorized user, view information, use services of the system, provide information and services to the system.

**c. Use Cases List**

ID	Use Case	Primary Actors	Secondary Actors
UC-01	Login	Admin User	
UC-02	Register	User	
UC-03	User Dashboard	Admin	
UC-04	Ban User	Admin	
UC-05	Unban User	Admin	
UC-06	View User	Admin	
UC-07	View User's Wallet	Admin	
UC-08	Create Event	Admin	
UC-09	Edit Event	Admin	
UC-10	Ban Stream	Admin	
UC-11	Unban Stream	Admin	
UC-12	View Stream	Admin User	
UC-13	Change password	Admin User	
UC-14	Forgot password	Admin User	
UC-15	View Donating History	Admin	
UC-16	View Recharge History	Admin	
UC-17	Search by Event	Admin	
UC-18	View Streamer Channel	User	
UC-19	Follow Streamer Channel	User	
UC-20	Search	User	
UC-21	Donate	User	
UC-22	Payment	User	
UC-23	Search by stream	Admin	
UC-24	View Live Stream Chat	User	
UC-25	Insert Live Stream Chat	User	
UC-26	Follow Live Stream	User	
UC-27	View Profile Information	User	
UC-28	Create Live Stream	User	

UC-29	Edit Live Stream	User	
UC-30	Start Stream	User	
UC-31	Stop Stream	User	
UC-32	View Stream Preview	User	
UC-33	Replay a livestream	User	
UC-34	Sub Event Dashboard	Admin	
UC-35	View Sub Event Information	Admin	
UC-36	Create Sub Event	Admin	
UC-37	Edit Sub Event	Admin	
UC-38	Delete Sub Event	Admin	
UC-39	Search by sub event	Admin	
UC-40	Update Profile Picture	User	
UC-41	Update Profile Banner	User	
UC-42	Search by Streamer channel	User	
UC-43	Update Profile information	User	
UC-44	Unfollow live stream	User	

## 2.2. Use case specifications

### 2.2.1. Register

<b>UC ID and Name:</b>	UC-02 Register		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	User		
<b>Trigger:</b>	User clicks “sign up” at the login page.		
<b>Description:</b>	This function allows Guests to sign up to the website with username and password.		
<b>Preconditions:</b>	Guest has a message “sign up has successfully”.		
<b>Post-conditions:</b>	Guest is signed up and becomes a user.		
<b>Normal Flow:</b>	<ol style="list-style-type: none"><li>1. User goes to the website, fills in the information and clicks “sign up” in the sign up screen.</li><li>2. A message will be sent and moved to the confirmation screen.</li><li>3. User completes user information and default address in a form.</li><li>4. Users have the option to upload their avatar image.</li><li>5. Signing up is completed, users can be redirected to the home page.</li></ol>		
<b>Alternative Flows:</b>	<p>At step 2, if actor wants to use another username, they can</p> <ol style="list-style-type: none"><li>2. Refills another username in textbox username.</li><li>3. Rolls back to Sign up form.</li></ol> <p>At step 4, if actor does not want to upload image, they can</p> <ol style="list-style-type: none"><li>6. Viewer skips avatar image upload step.</li></ol>		
<b>Exceptions:</b>	<p>At step 2, if viewer doesn’t receive message from mail</p> <ol style="list-style-type: none"><li>3. Website display error message.</li></ol> <p>At step 3, if actor is not registered</p> <ol style="list-style-type: none"><li>4. Move to Sign up information screen.</li></ol> <p>At step 5, cannot communicate with server</p> <ol style="list-style-type: none"><li>6. Check the internet connection.</li></ol>		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	Low		
<b>Business Rules:</b>	BR-02, BR-03, BR-04		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.2. Login

<b>UC ID and Name:</b>	UC-01 Login		
<b>Created By:</b>		<b>Date Created:</b>	10/03/2021
<b>Primary Actor:</b>	User, Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Viewer clicks "login" at the login page.		
<b>Description:</b>	This function allows Guest to login to the website with username and password, google account.		
<b>Preconditions:</b>	Actor has a username and password or associated google account.		
<b>Post-conditions:</b>	Actor is logged in.		
<b>Normal Flow:</b>	Actor goes to the home page.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	If actor is not registered 1. Move to Register information screen.		
<b>Exceptions:</b>	If username or password are incorrect, or connection is lost 1. Website prompts a dialog alerting about the invalid data.		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	Low		
<b>Business Rules:</b>	BR-01, BR-09		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.3. User Dashboard

<b>UC ID and Name:</b>	UC-03 User Dashboard		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	10/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on "Users" in the menu bar.		
<b>Description:</b>	This function allows the admin see user dashboard.		
<b>Preconditions:</b>	Admin has to login and click into the function "Users" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on "Users" in the menu bar. 2. Application shows all user information and Ban Status.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	View User, Ban User, Unban User, Search User		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection. At step 2, if there is no data 3. Website displays none.		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-08, BR-05		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.4. Ban User

<b>UC ID and Name:</b>	UC-04 Ban User		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on “Users” in the menu bar.		
<b>Description:</b>	This function allows the admin to ban users.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “User” on the menu bar. 2. Application shows all user information and Ban Status. 3. Admin click on “Ban” in the user dashboard.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



### 2.2.5. Unban User

<b>UC ID and Name:</b>	UC-05 Unban User		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	10/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on “Users” in the menu bar.		
<b>Description:</b>	This function allows the admin to ban users.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “User” on the menu bar. 2. Application shows all user information and Ban Status. 3. Admin click on “Unban” in the user dashboard.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection. At step 2, if there is no data 3. Website displays none.		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.6. View User

<b>UC ID and Name:</b>	UC-06 View user		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on “Users” in the menu bar.		
<b>Description:</b>	This function allows the admin to view users.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “User” on the menu bar. 2. Application shows all user information and user Status.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with the server. 3. Check the internet connection. At step 2, if there is no data 3. Website displays none.		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.7. View User's Wallet

<b>UC ID and Name:</b>	UC-07 View User's Wallet		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on User Dashboard		
<b>Description:</b>	This function allows the admin to see the information wallet of users		
<b>Preconditions:</b>	Admin has to login and click into the function "Users" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on "User" on the menu bar. 2. Application shows all user information and user Status. 3. Admin click on the dashboard table. 4. Admin click on View User's Wallet.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.8. View Donating History

<b>UC ID and Name:</b>	UC-15 View Donating History		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on User Dashboard		
<b>Description:</b>	This function allows the admin to see the View Donating History of users.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “User” on the menu bar. 2. Application shows all user information and user Status. 3. Admin click on the dashboard table. 4. Admin click on View Donating History		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.9. View Recharge History

<b>UC ID and Name:</b>	UC-16 View Recharge History		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on User Dashboard		
<b>Description:</b>	This function allows the admin to see the View Recharge History of users.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “User” on the menu bar. 2. Application shows all user information and user Status. 3. Admin click on the dashboard table. 4. Admin click on View Recharge History		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.10. Change Password

<b>UC ID and Name:</b>	UC-13 Change Password		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin, User		
<b>Trigger:</b>	Admin has to click on User Dashboard		
<b>Description:</b>	This function allows the admin to change the admin account.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “My account” on the menu bar. 2. Application shows all admin information. 3. Admin click on the “Change password” button. 4. Admin fill all information to change password		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-09, BR-08, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.11. Forgot Password

<b>UC ID and Name:</b>	UC-14 Forgot Password		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on User Dashboard		
<b>Description:</b>	This function allows the admin to Forgot Password of admin.		
<b>Preconditions:</b>	Admin has to login and click into the function “Users” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “My account” on the menu bar. 2. Application shows all admin information. 3. Admin click on the “Forgot Password” button. 4. Admin fill all information to change password		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-09, BR -08, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.12. View Stream

<b>UC ID and Name:</b>	UC-12 View Stream		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on Stream		
<b>Description:</b>	This function allows the admin to view streams.		
<b>Preconditions:</b>	Admin has to login and click into the function “Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “Stream” on the menu bar. 2. Application shows all Stream of Streamer. 3. Admin click View Stream		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



### 2.2.13. Create Event

<b>UC ID and Name:</b>	UC-08 Create Event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Event		
<b>Description:</b>	This function allows the admin to create events.		
<b>Preconditions:</b>	Admin has to login and click into the function “Event” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “Event” on the menu bar. 2. Admin click button “Create Event” to navigate Create Event page. 3. Admin fill all information to create an event		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-07, BR-11, BR-08		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.14. Edit Event

<b>UC ID and Name:</b>	UC-09 Edit Event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Event		
<b>Description:</b>	This function allows the admin to edit events.		
<b>Preconditions:</b>	Admin has to login and click into the function “Event” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “Event” on the menu bar. 2. Admin click button “Edit Event” to navigate Edit Event page. 3. Admin fill all information to create an event		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-07, BR-11, BR-08		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.15. View Streamer Channel

<b>UC ID and Name:</b>	UC-18 View Streamer Channel		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	User		
<b>Trigger:</b>	User has to click on streamer channel		
<b>Description:</b>	This function allows the User to view streamer channels.		
<b>Preconditions:</b>	User has to login and click into the function “Streamer channel” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “streamer channel” on the menu bar. 2. User click button “streamer channel” to navigate information page. 3. User can view all information of streamer		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.16. Search

<b>UC ID and Name:</b>	UC-21 Search		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Search		
<b>Description:</b>	This function allows the User to search.		
<b>Preconditions:</b>	User has to login and click into the function "Search" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Search" on the menu bar. 2. Users click on the "Search" bar to search by category or search by tag. 3. Show all information after filter by category or by tag		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.17. Follow Streamer Channel

<b>UC ID and Name:</b>	UC-19 Follow Streamer Channel		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on streamer channel		
<b>Description:</b>	This function allows the User to view streamer channels.		
<b>Preconditions:</b>	User has to login and click into the function "Streamer channel" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "streamer channel" on the menu bar. 2. User click button "streamer channel" to navigate information page. 3. User can view all information of streamer 4. User click button "Follow" to follow streamer		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.18. Donate

<b>UC ID and Name:</b>	UC-21 Donate		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Live Stream		
<b>Description:</b>	This function allows the User to donate to streamers.		
<b>Preconditions:</b>	User has to login and click into the function “Live Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Live Stream” on the menu bar. 2. Users click the button “Donate” to navigate the information page. 3. User fill all information 4. User click button “Donate” to send coin and donate message to streamer		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-10, BR-07, BR-11		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.19. Payment

<b>UC ID and Name:</b>	UC-22 Payment		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Payment		
<b>Description:</b>	This function allows the User payment.		
<b>Preconditions:</b>	User has to login and click into the function "Payment" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Payment" on the menu bar. 2. Users click the button "Buy coin" or "E-wallet" to choose methods to recharge money. 3. User fill all information 4. User click button "payment" to process transaction		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-10, BR-07, BR-11		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.20. View Live Stream Chat

<b>UC ID and Name:</b>	UC-24 View Live Stream Chat		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Stream Chat		
<b>Description:</b>	This function allows the User to view live stream chat.		
<b>Preconditions:</b>	User has to login and click into the function “Live Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Live Stream” on the menu bar. 2. Users click the “Stream chat” button to see another viewer chat together.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



### 2.2.21. Unban Stream

<b>UC ID and Name:</b>	UC-10 Unban stream		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on “Stream” in the menu bar.		
<b>Description:</b>	This function allows the admin to ban stream.		
<b>Preconditions:</b>	Admin has to login and click into the function “Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “Stream” on the menu bar. 2. Application shows all user information and Ban Status. 3. Admin click on “Unban” in the Stream dashboard.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.22. View Profile Information

<b>UC ID and Name:</b>	UC-27 View Profile Information		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on update profile information		
<b>Description:</b>	This function allows the User to view profile information.		
<b>Preconditions:</b>	User has to login and click into the function "Account" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Account" on the menu bar. 2. User click button "Profile information" to navigate the profile information page.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-11, BR-08, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.23. Create live stream

<b>UC ID and Name:</b>	UC-28 Create live stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on create live stream		
<b>Description:</b>	This function allows the User to create a live stream.		
<b>Preconditions:</b>	User has to login and click into the function "Public Stream" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Public Stream" on the menu bar. 2. User click button "Stream control" to navigate Stream control page 3. User click button "Stream information" 4. User fill all information needed 5. User click start live stream button to create live stream		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-11, BR-08, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.24. Stop Stream

<b>UC ID and Name:</b>	UC-31 Stop Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on stop stream		
<b>Description:</b>	This function allows the User to stop the stream.		
<b>Preconditions:</b>	User has to login and click into the function "Public Stream" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Public Stream" on the menu bar. 2. User click button "Stream control" to navigate Stream control page 3. User click button "Stream information" 4. User fill all information needed 5. User click start live stream button to create live stream 6. User click stop stream to finish live stream		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.25. Replay a livestream

<b>UC ID and Name:</b>	UC-33 Replay a livestream		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	User		
<b>Trigger:</b>	User has to click on replay a livestream		
<b>Description:</b>	This function allows the User to watch livestream again.		
<b>Preconditions:</b>	User has to login and click into the function “Streamer Channel” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Streamer Channel” on the menu bar. 2. User click button “View a livestream” to navigate livestream page 3. User click button “Replay” to watch previous livestream		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.26. Sub event dashboard

<b>UC ID and Name:</b>	UC-34 Sub event dashboard		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on Sub event dashboard		
<b>Description:</b>	This function allows the admin to manage sub events.		
<b>Preconditions:</b>	Admin has to login and click into the function “Event Dashboard” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Event Dashboard” on the menu bar. 2. User click button “View Event info” to navigate Sub event dashboard page 3. User click on “sub event dashboard” 4. Display “sub event dashboard” screen.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.27. View sub event information

<b>UC ID and Name:</b>	UC-35 View sub event information		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on view sub event information		
<b>Description:</b>	This function allows the admin to view sub event information.		
<b>Preconditions:</b>	Admin has to login and click into the function “Event Dashboard” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Event Dashboard” on the menu bar. 2. User click button “View Event info” to navigate Sub event dashboard page 3. User view sub dashboard event 4. Click random events on the dashboard to view sub event information.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.28. Create sub event

<b>UC ID and Name:</b>	UC-36 Create sub event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on create sub event		
<b>Description:</b>	This function allows the admin to create sub events.		
<b>Preconditions:</b>	Admin has to login and click into the function "Event Dashboard" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Event Dashboard" on the menu bar. 2. User click button "View Event info" to navigate Sub event dashboard page 3. Users click on the button "create sub event" to navigate to create sub event page. 4. Users fill all information in the sub event. 5. Click the button create to Create a new sub event.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-03, BR-07, BR-14, BR-13		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



### 2.2.29. Edit sub event

<b>UC ID and Name:</b>	UC-37 Edit sub event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Edit sub event		
<b>Description:</b>	This function allows the admin to edit sub events.		
<b>Preconditions:</b>	Admin has to login and click into the function "Event Dashboard" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Event Dashboard" on the menu bar. 2. User click button "View Event info" to navigate Sub event dashboard page 3. Users click on the button "edit sub event" to navigate edit sub event page. 4. Users fill all information in the edit sub event. 5. Click button edit to Edit sub event.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-03, BR-07, BR-14, BR-13		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.30. Delete sub event

<b>UC ID and Name:</b>	UC-38 Delete sub event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Delete sub event		
<b>Description:</b>	This function allows the admin to Delete sub events.		
<b>Preconditions:</b>	Admin has to login and click into the function "Event Dashboard" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Event Dashboard" on the menu bar. 2. User click button "View Event info" to navigate Sub event dashboard page 3. User click on button "Delete sub event" to Delete sub event		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.31. Update Profile information

<b>UC ID and Name:</b>	UC-43 Update Profile information		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Update Profile information.		
<b>Description:</b>	This function allows the User to Update Profile information.		
<b>Preconditions:</b>	User has to login and click into the function "Account" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Account" on the menu bar. 2. User click button "Profile information" to navigate profile information details. 3. User click button "Update Profile information" to navigate profile information screen.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-03, BR-07, BR-14, BR-13, BR-11		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.32. Update profile picture

<b>UC ID and Name:</b>	UC-40 Update profile picture		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	User		
<b>Trigger:</b>	User has to click on the Update profile picture.		
<b>Description:</b>	This function allows the User to Update profile picture.		
<b>Preconditions:</b>	User has to login and click into the function “Account” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Account” on the menu bar. 2. User click button “Profile information” to navigate profile information details. 3. User click choose picture 4. Click update to update picture		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-13		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.33. Update profile banner

<b>UC ID and Name:</b>	UC-41 Update profile banner		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	User		
<b>Trigger:</b>	User has to click on the Update profile banner.		
<b>Description:</b>	This function allows the User to Update profile banner.		
<b>Preconditions:</b>	User has to login and click into the function “Account” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Account” on the menu bar. 2. User click button “Profile information” to navigate profile information details. 3. User click choose banner 4. Click update to update banner		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.34. Search by Streamer Channel

<b>UC ID and Name:</b>	UC-42 Search by Streamer Channel		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Users have to click on Search by Streamer Channel.		
<b>Description:</b>	This function allows the User to Search by Streamer Channel.		
<b>Preconditions:</b>	User has to login and click into the function "Search" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on "Search" on the menu bar. 2. User click fill information streamer channel on "Search" nav bar 3. User click search button to show results		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.35. Search by Event

<b>UC ID and Name:</b>	UC-17 Search by Event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Search by Event.		
<b>Description:</b>	This function allows the User to Search by Event.		
<b>Preconditions:</b>	Admin has to login and click into the function "Search" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on "Event Dashboard" on the menu bar. 2. Admin click fill information Event on "Search" nav bar 3. Admin click search button to show results		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.36. Search by Sub Event

<b>UC ID and Name:</b>	UC-39 Search by Sub Event		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Search by sub event.		
<b>Description:</b>	This function allows the Admin to Search by sub event.		
<b>Preconditions:</b>	Admin has to login and click into the function "Search" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on "Event Dashboard" on the menu bar. 2. Admin click on "Sub event dashboard". 2. Admin click fill information Sub event dashboard on "Search" navbar. 3. Admin click the search button to show results.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



### 2.2.37. Search by Stream

<b>UC ID and Name:</b>	UC-23 Search by Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	Admin	<b>Secondary Actors:</b>	
<b>Trigger:</b>	Admin has to click on Search by stream.		
<b>Description:</b>	This function allows the User to Search by stream.		
<b>Preconditions:</b>	Admin has to login and click into the function "Stream dashboard" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on "Stream dashboard" on the menu bar. 2. Admin click fill information stream on "Search" nav bar. 3. Admin click the search button to show results.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.38. Follow Live Stream

<b>UC ID and Name:</b>	UC-26 Follow Live Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on followed by a stream.		
<b>Description:</b>	This function allows the User to follow a live stream.		
<b>Preconditions:</b>	Admin has to login and click into the live stream		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. User click on a live stream, 2. User click follow button		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.39. Unfollow Live Stream

<b>UC ID and Name:</b>	UC-44 Unfollow Live Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Unfollow by stream.		
<b>Description:</b>	This function allows the User to unfollow a live stream.		
<b>Preconditions:</b>	Admin has to login and click into the live stream		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. User click on a live stream, 2. User click unfollow button		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.40. Edit Live Stream

<b>UC ID and Name:</b>	UC-29 Edit Live Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Edit by stream.		
<b>Description:</b>	This function allows the User to edit a live stream.		
<b>Preconditions:</b>	User has to login and click into the function “Public Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Public Stream” on the menu bar. 2. User click button “Stream control” to navigate Stream control page. 3. User click button “Stream information”. 4. Users fill all information needed. 5. Users click the start live stream button to create a live stream. 6. User click edit stream to edit live stream .		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-16, BR-11		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.41. Start Stream

<b>UC ID and Name:</b>	UC-30 Start Stream		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on start stream		
<b>Description:</b>	This function allows the User to start a stream.		
<b>Preconditions:</b>	User has to login and click into the function “Public Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click on “Public Stream” on the menu bar. 2. User click button “Stream control” to navigate Stream control page. 3. User click button “Stream information”. 4. Users fill all information needed. 5. Users click the start live stream button to create a live stream.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.42. Search by Streamer channel

<b>UC ID and Name:</b>	UC-43 Search by Streamer channel		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on Search by sub event.		
<b>Description:</b>	This function allows the User to Search by Streamer channel.		
<b>Preconditions:</b>	User has to login and click into the function "Search" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Users click fill information on "Search" navbar. 2. Users click the search button to show results.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

### 2.2.43. View Stream Preview

<b>UC ID and Name:</b>	UC-32 View Stream Preview		
<b>Created By:</b>	UyenNTT	<b>Date Created:</b>	12/03/2021
<b>Primary Actor:</b>	User	<b>Secondary Actors:</b>	
<b>Trigger:</b>	User has to click on start stream		
<b>Description:</b>	This function allows the User to start a stream.		
<b>Preconditions:</b>	User has to login and click into the function "Public Stream" on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	<ol style="list-style-type: none"> <li>1. Users click on "Public Stream" on the menu bar.</li> <li>2. User click button "Stream control" to navigate Stream control page.</li> <li>3. User click button "Stream information".</li> <li>4. Users fill all information needed.</li> <li>5. Users view a preview of the live stream.</li> <li>6. Users click the start live stream button to create live stream.</li> </ol>		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	<p>At step 2, if cannot communicate with server</p> <ol style="list-style-type: none"> <li>3. Check the internet connection</li> </ol> <p>At step 2, if there is no data</p> <ol style="list-style-type: none"> <li>3. Website displays none</li> </ol>		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	N/A		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		

#### 2.2.44. Ban Stream

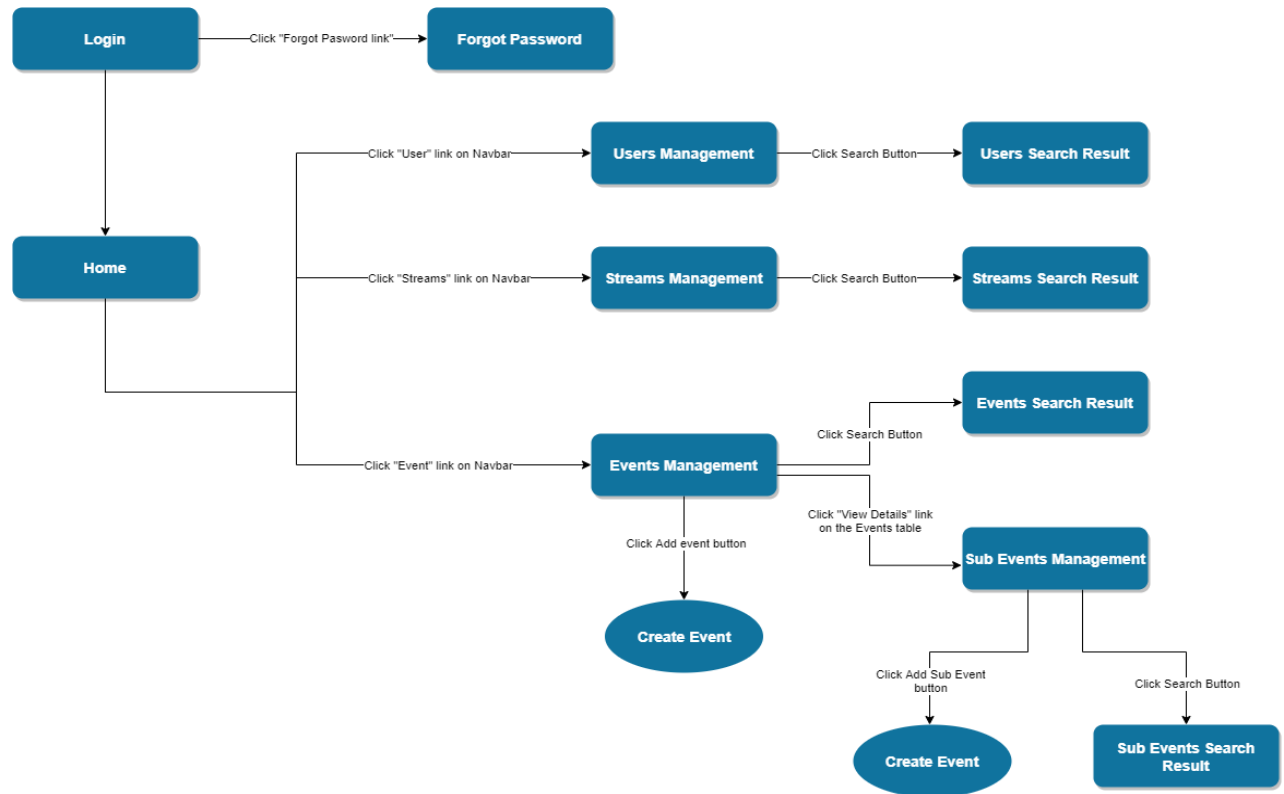
<b>UC ID and Name:</b>	UC-10 Ban stream		
<b>Created By:</b>	UyenNTT		
<b>Primary Actor:</b>	Admin		
<b>Trigger:</b>	Admin has to click on “Stream” in the menu bar.		
<b>Description:</b>	This function allows the admin to ban stream.		
<b>Preconditions:</b>	Admin has to login and click into the function “Stream” on the menu bar.		
<b>Post-conditions:</b>	N/A		
<b>Normal Flow:</b>	1. Admin click on “Stream” on the menu bar. 2. Application shows all user information and Ban Status. 3. Admin click on “Ban” in the Stream dashboard.		
<b>Alternative Flows:</b>	N/A		
<b>Extension flow</b>	N/A		
<b>Exceptions:</b>	At step 2, if cannot communicate with server 3. Check the internet connection At step 2, if there is no data 3. Website displays none		
<b>Priority:</b>	High		
<b>Frequency of Use:</b>	High		
<b>Business Rules:</b>	BR-05, BR-07		
<b>Other Information:</b>	N/A		
<b>Assumptions:</b>	N/A		



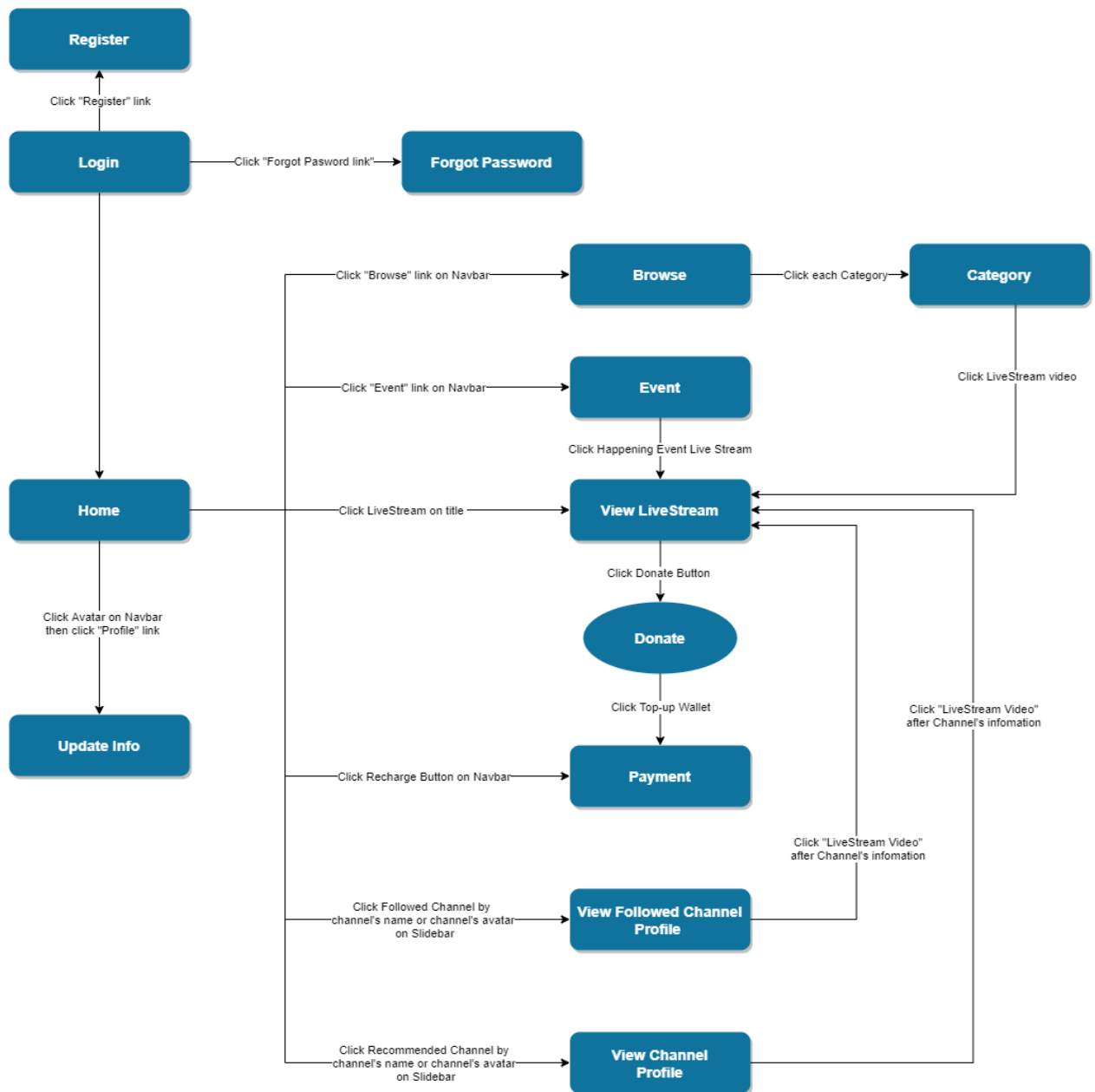
### 3. Functional Requirements

#### 3.1 System Functional Overview

##### a. Screen Flow



Screen Flow of Admin



Screen Flow of User

## b. Screen Details

#	Feature	Screen	Description
1	Register	Register	The Screen provides a form for filling username, password and repeat password to sign up.
2	Login	Login	The Screen provides a form for filling the username, the password, button login with google account to authenticate and sign up button.
3	Home	Home	The Screen has a navbar include link to another page, the profile avatar to manage account, the sidebar include followed channels and recommended channel, live stream video, recommended categories .
4	Manage Users	Users Management	The Screen provides a table including user information and ban button and search input.
5	Manage Streams	Streams Management	The Screen provides a table including stream information and ban button and search input.
6	Manage Events	Events Management	The Screen provides a table including event information, create and edit button and search input.
7	Manage Events	Create Event	The screen includes a form for filling necessary information in order to create event data.
8	Manage Sub Events	Sub Events Management	The Screen provides a table including sub event information, create and edit button and search input.
9	Manage Sub Events	Create Sub Event	The screen includes a form for filling necessary information in order to create sub event data.
10	User Information	Update User Information	The screen includes updates of profile picture, profile banner and profile information.
11	Category list	Browse	The screen includes all categories with tags and search input.
12	Event list	Events	The screen includes categories with tag, search input, calendar, event with calendar and follow button to follow event.
13	Category Information	Category	The screen includes category information, video live stream of this category and follow button to follow category.
14	Payment	Payment	The screen includes payment method, amount and top-up button to top-up to the wallet.
15	Followed channel	View Followed	The screen includes the channel information with the unfollow button to unfollow the channel.

		Channel Profile	
16	Channel (not follow)	View Channel Profile	The screen includes channel information with a follow button to follow the channel.
17	Video live stream	View Live Stream	The screen includes a video live stream, chat frame, donate button and follow button.

### 3.1.b.1. Home Screen

#### a. View knowledge data list

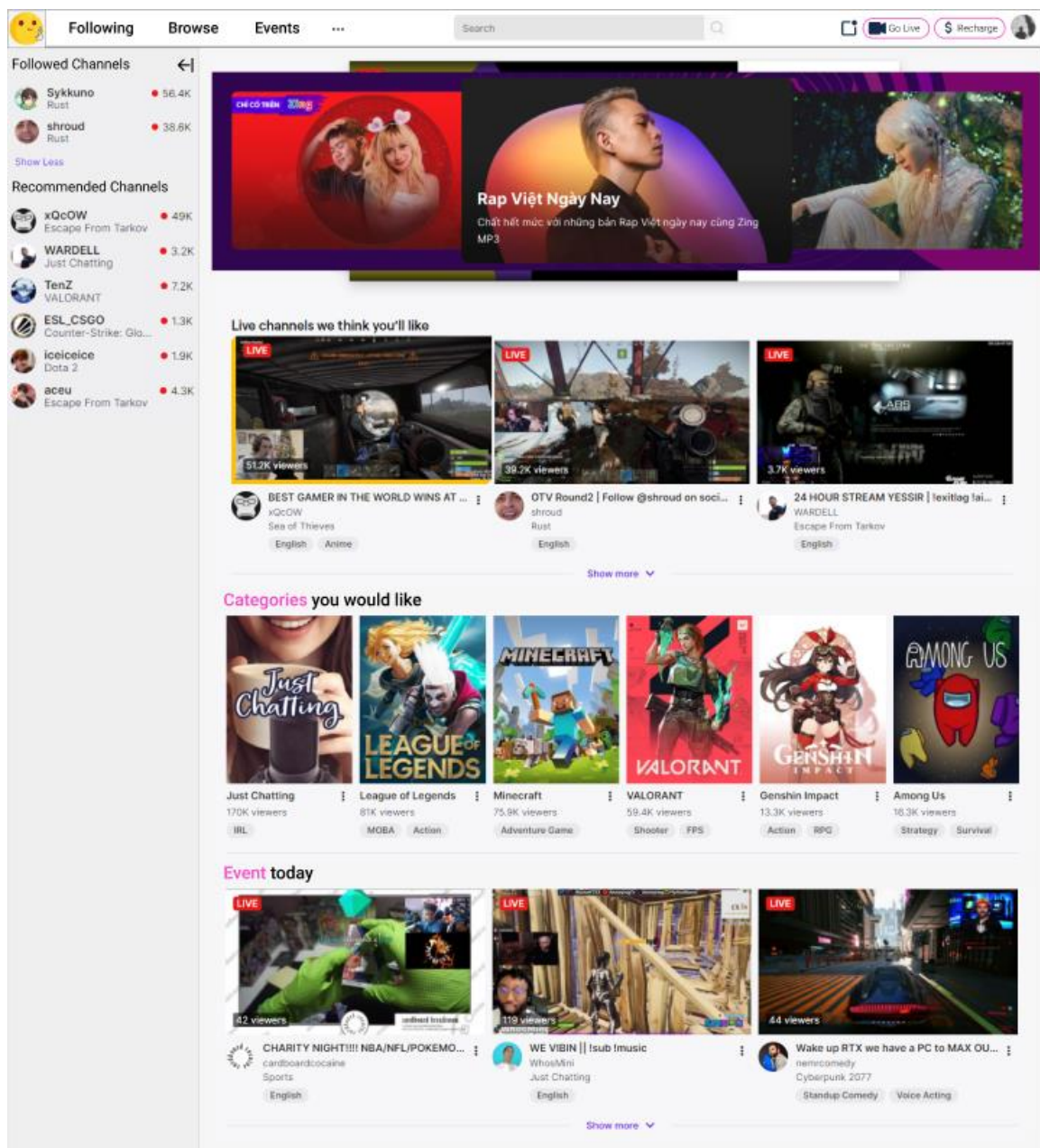
Function trigger:

- After login success.

Function description:

- Role: User.
- Purpose: Display Home page screen.

Screen layout:



#### Function details:

- Display screen about Followed Channels, Recommended channels, Categories, Event, Navigation Bar.
- Users can view categories by choosing a specific by click.
- Users can view events by choosing a specific by click.
- Users can view or edit profiles by clicking the icon on the right of the navigation bar.
- Click browser on navigation bar to redirect browser page.
- Click following to redirect page users are following.
- Users can search fill text on the search box and click search to display the result.
- Users can click go live to redirect to the live stream page.
- Users can click Followed Channels or Recommended channels to redirect quickly.

### 3.1.b.2. Browse Screen

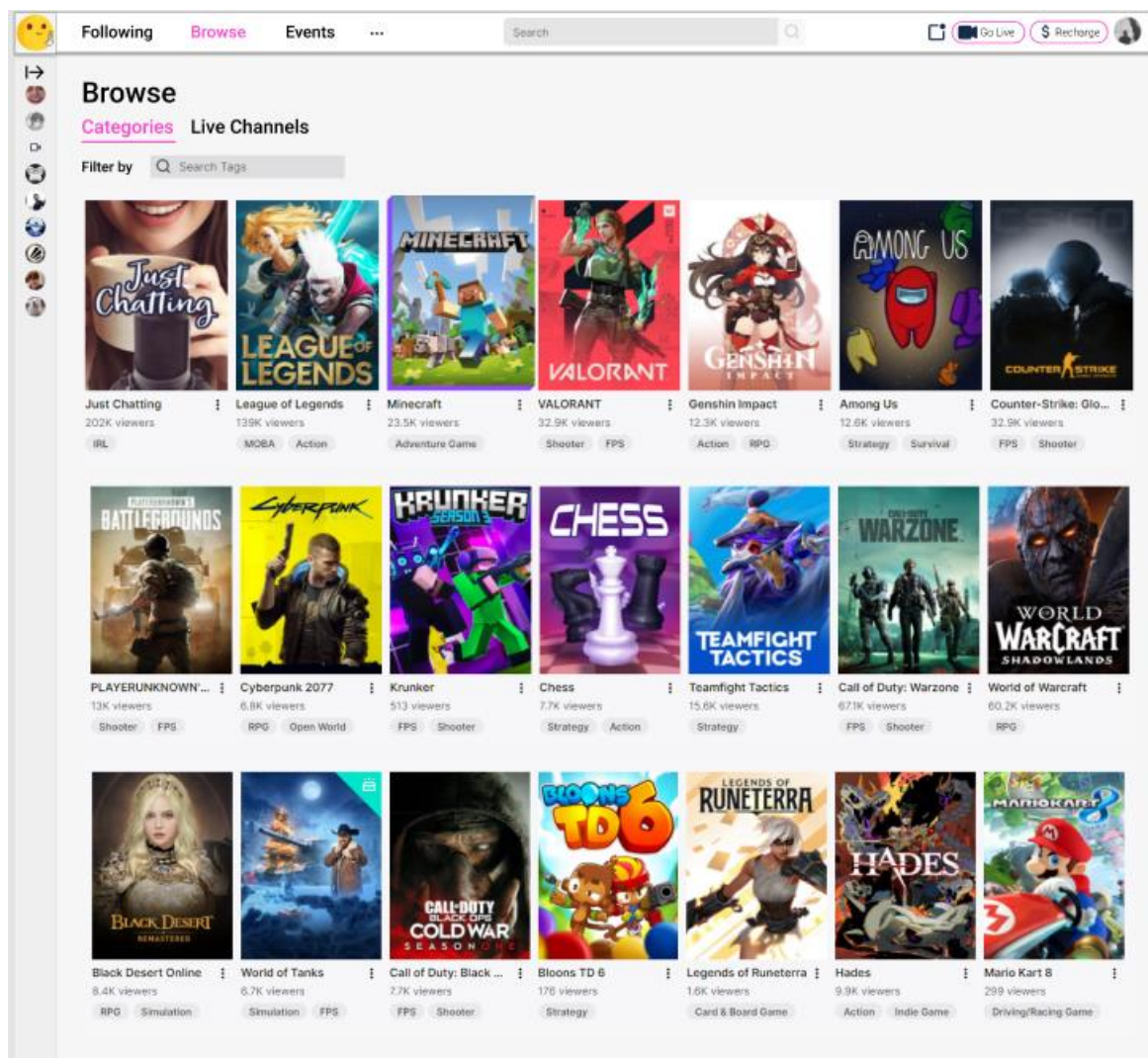
Function trigger:

- Click on Browse on the navigation bar.

Function description:

- Role: User.
- Purpose: View all Categories or view all Live Channels.

Screen layout:



Function details:

- Screen displays all categories automatically.
- Users can view all Live Channels by clicking the Live Channels link.
- The Filter search makes users can search by categories or by Live channels.



### 3.1.b.3. View Streamer Profile Screen

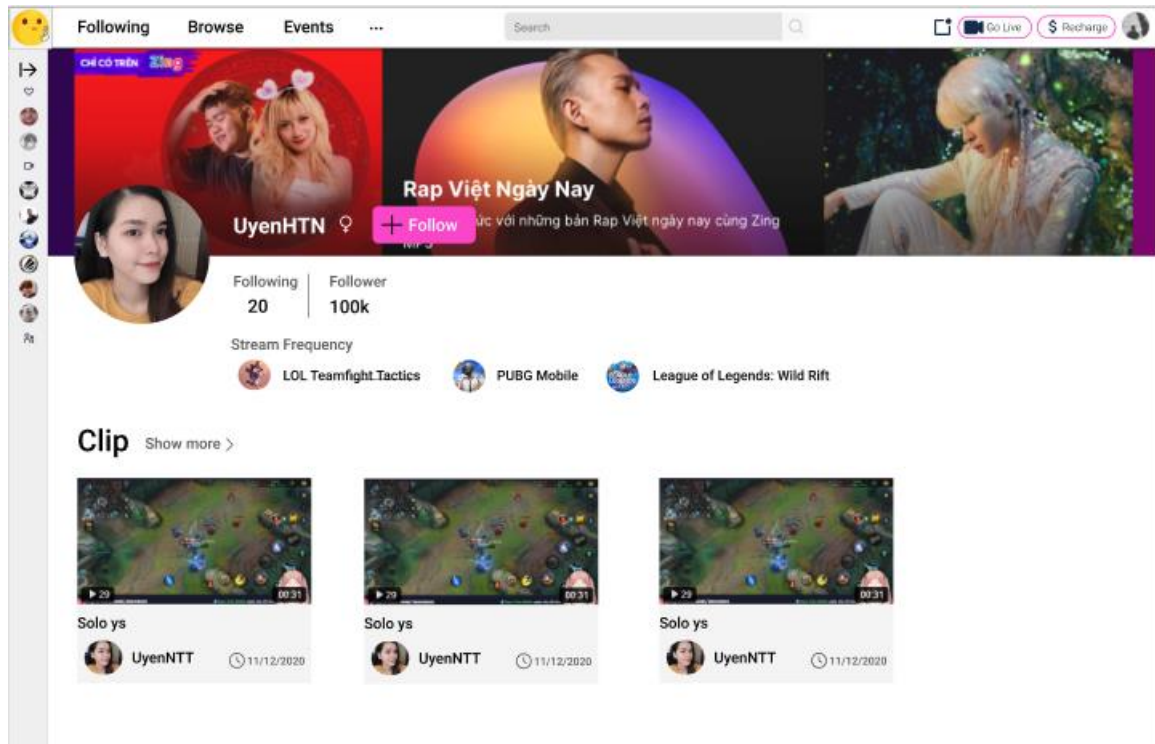
Function trigger:

- Click the icon on the sidebar of the screen.

Function description:

- Role: User.
- Purpose: Display the information about streamer profile screen.

Screen layout:



Function detail:

- Display information about streamer profiles on the screen.
- Provide all information for users who want to be followers.
- Users can click the follow button to subscribe to the streamer.
- Users can click clip and view their videos.



### 3.1.b.4. Stream Manager Screen

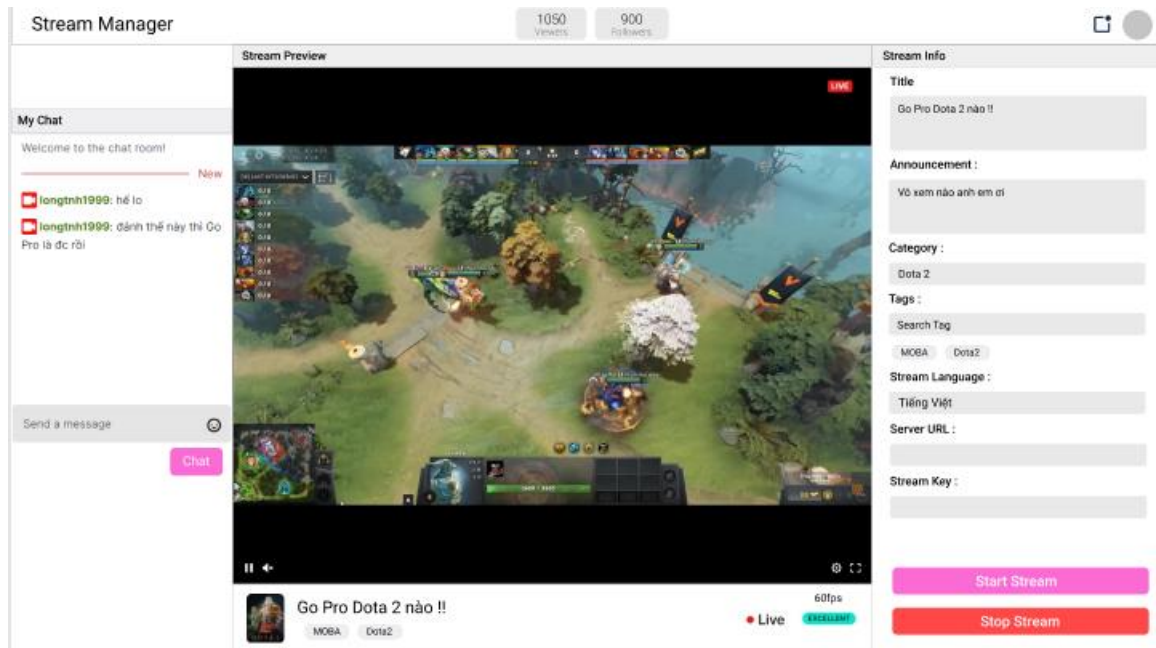
Function trigger:

- Click the go live button on the navigation bar.

Function description:

- Role: User.
- Purpose: Display the stream manager screen.

Screen layout:



Function detail:

- Users fill all information on the stream info and click the button start live to live stream.
- Users can stop the live stream after it starts.
- During the live stream, streamers can chat with viewers.
- Streamers can view what people chat on the tab My chat.

### 3.1.b.5. View Stream Screen

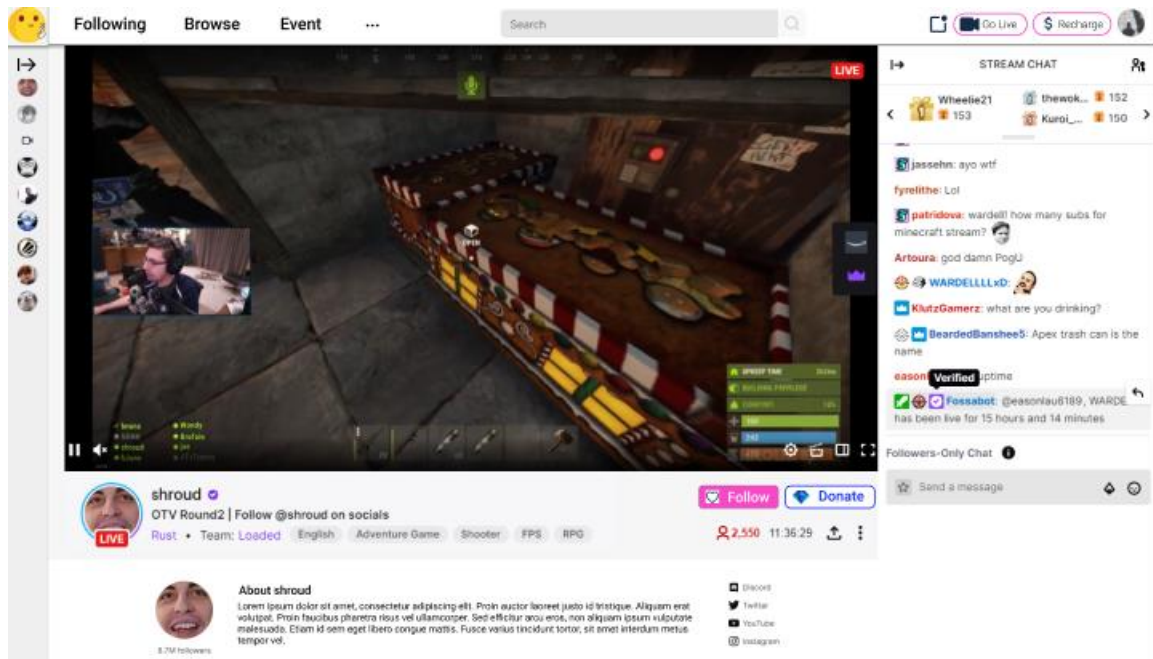
Function trigger:

- Users click on the streamer are streaming on the home page or side bar.

Function description:

- Role: User.
- Purpose: Display the screen stream of the streamer.

Screen layout:



Function detail:

- Viewers can click the button follow to get notified when the streamer live stream.
- Viewers can click donate to send gifts or money to streamers.
- Viewers can type text in the text box "send a message" send message to streamer but just viewers subscribe their channels can chat.

### 3.1.b.6. Event Screen

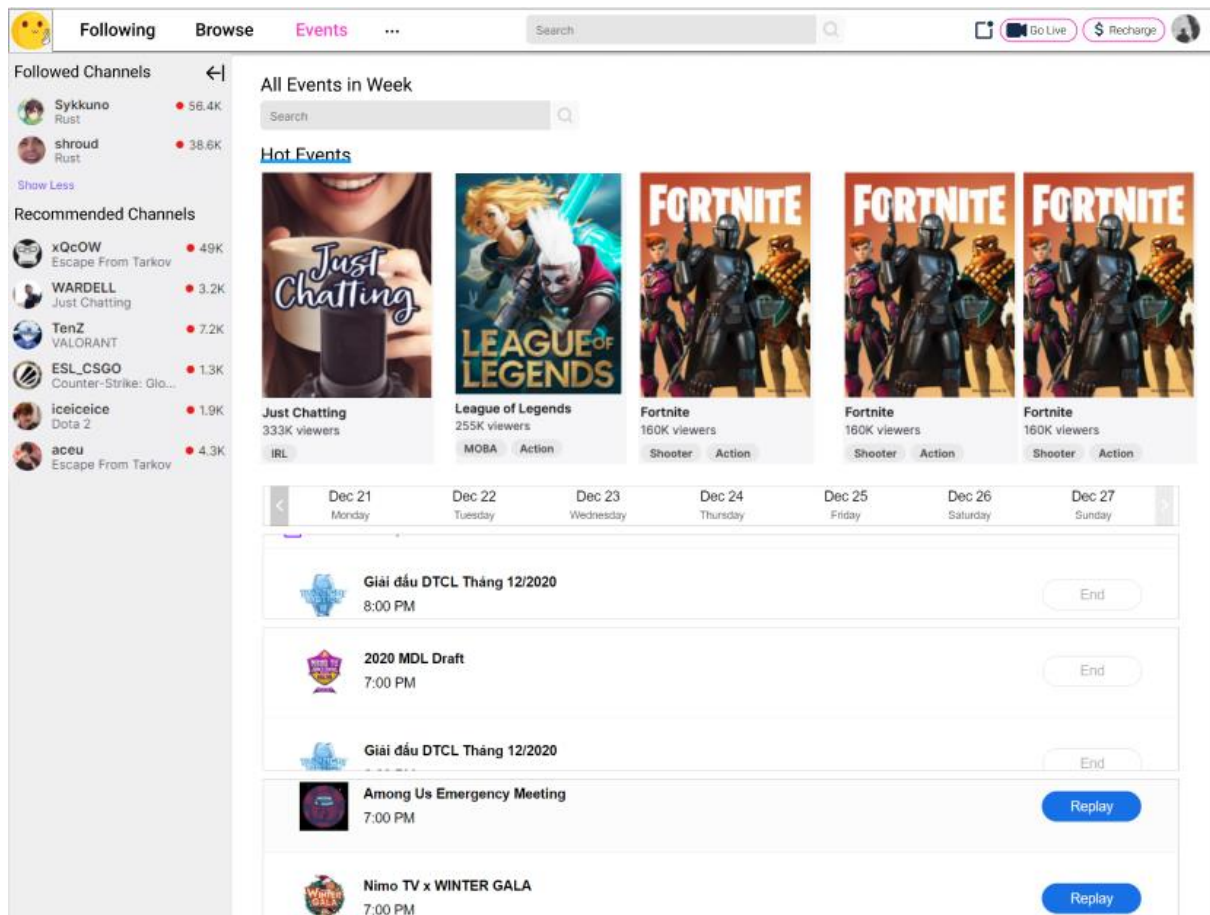
Function trigger:

- On the navigation bar user click event to redirect event screen.

Function description:

- Role: User.
- Purpose: Display the event page.

Screen layout:



Function detail:

- Users can click titles or images of categories to view events of the categories.
- Users can search categories to view events of the categories.
- Users can view all events on a day of the month.
- Show all the events on the screen.

### 3.1.b.7. Payment Screen

Function trigger:

- Button recharge on the right of the navigation bar.

Function description:

- Role: User.
- Purpose: Display payment screen.

Screen layout:

The screenshot shows a payment interface. At the top, there is a navigation bar with four items: 'diamonds top up' (underlined), 'R diamond recharge', 'Coins top up', and 'Golden bean top-up'. On the right side of the navigation bar, there is a balance of '5000' next to a blue diamond icon and a user profile icon. Below the navigation bar, the 'Payment Method:' section displays two options: 'Momo' (with a purple logo) and 'Paypal' (with a blue logo). To the right of these options, there is a dropdown menu for 'Current Area:' set to 'Việt Nam'. Below the payment methods, there is a section titled 'Select Top-Up Amount:' with five buttons: '20000VND' (highlighted in yellow), '100000VND', '100000VND', '100000VND', and '100000VND'. Below these buttons, a note states: 'You may need to pay more than the amount shown due to factors such as the exchange rate and taxes.' Below the note, there is a section titled 'Select Top-Up Amount: 41454' next to a blue diamond icon. At the bottom, there is a yellow button labeled 'Top-Up Now'.

Function detail:

- Users can pay with momo method. Select the top up amount and exchange money to diamond. Click the top-up now button to trigger the transaction. After the trigger transaction the diamonds have been updated successfully.

### 3.1.b.8. Manage Users Screen

Function trigger:

- Using path: /admin/admin-user.

Function description:

- Role: Admin.
- Purpose: Display all the users.

Screen layout:

Id	Username	Email	Gender	DisplayName	Bio	FollowingCount	FollowerCount	BanStatus
1	uyenhtn	uyenhtn@a.c	1	Nhật Uyên	abcxyz	100	100000	Ban
2	longtnh	longtnh@b.c	0	Hải Long	abcxyz	200	20000	Unban
2	longtnh	longtnh@b.c	0	Hải Long	abcxyz	200	20000	Unban
1	uyenhtn	uyenhtn@a.c	1	Nhật Uyên	abcxyz	100	100000	Ban
2	longtnh	longtnh@b.c	0	Hải Long	abcxyz	200	20000	Unban
2	longtnh	longtnh@b.c	0	Hải Long	abcxyz	200	20000	Unban
1	uyenhtn	uyenhtn@a.c	1	Nhật Uyên	abcxyz	100	100000	Ban
1	uyenhtn	uyenhtn@a.c	1	Nhật Uyên	abcxyz	100	100000	Ban

Function details:

- Admin can manage BanStatus of the users by clicking the “Ban” or “Unban” button.
- Admin can filter with search bars to find users quickly.

### 3.1.b.9. Manage Streams Screen

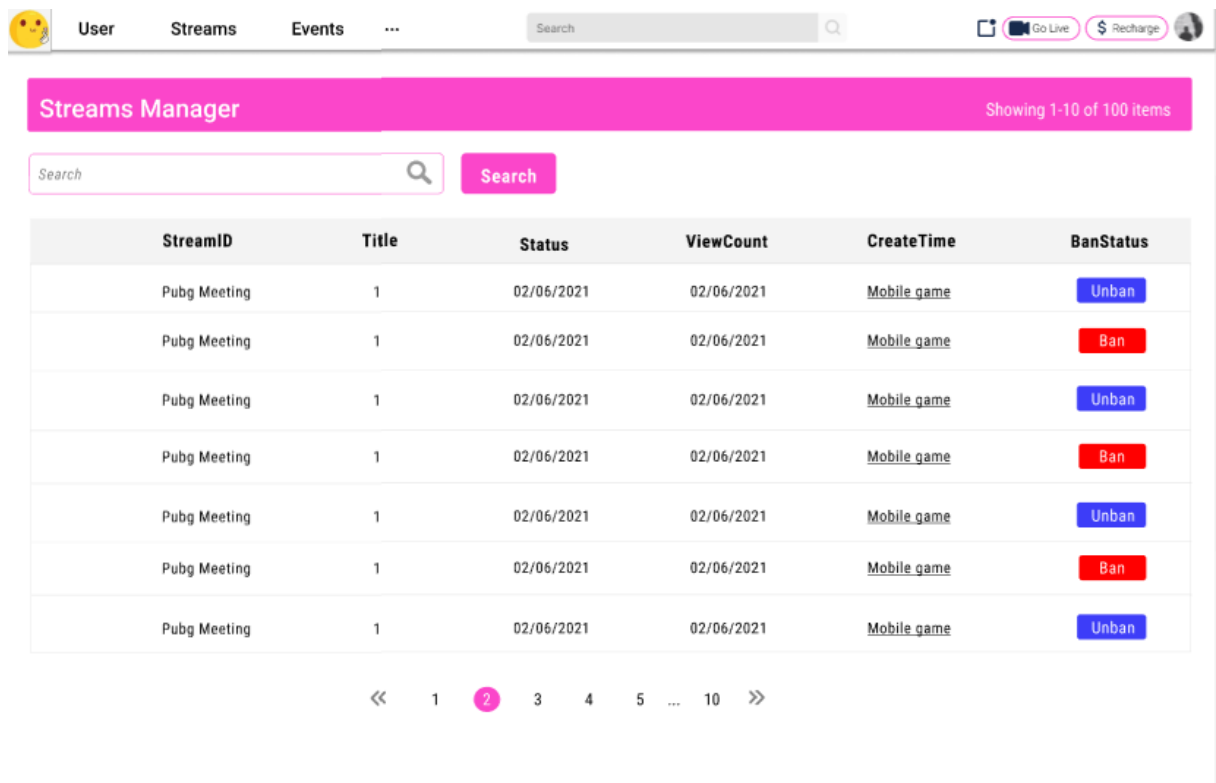
Function trigger:

- Using path: /admin/admin-streams.

Function description:

- Role: Admin.
- Purpose: Display all the Streams.

Screen layout:



The screenshot shows a web application interface for managing streams. At the top, there is a navigation bar with a yellow smiley face icon, a 'User' dropdown, and tabs for 'Streams' (active), 'Events', and a three-dot menu. A search bar is located to the right of the tabs. Further right are icons for 'Go Live' and 'Recharge', and a user profile icon. Below the navigation bar is a pink header bar with the text 'Streams Manager' on the left and 'Showing 1-10 of 100 items' on the right. Under the header bar is a search bar with the placeholder text 'Search' and a magnifying glass icon, followed by a pink 'Search' button. Below the search bar is a table with the following columns: 'StreamID', 'Title', 'Status', 'ViewCount', 'CreateTime', and 'BanStatus'. The table contains 7 rows of data, all with 'Pubg Meeting' as the title and '02/06/2021' as the status and create time. The 'ViewCount' column shows '02/06/2021' for all rows. The 'BanStatus' column shows 'Unban' (blue button) for rows 1, 3, 5, and 7, and 'Ban' (red button) for rows 2, 4, and 6. At the bottom of the table is a pagination bar with the text '<< 1 2 3 4 5 ... 10 >>'.

StreamID	Title	Status	ViewCount	CreateTime	BanStatus
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Unban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Ban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Unban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Ban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Unban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Ban
Pubg Meeting	1	02/06/2021	02/06/2021	Mobile game	Unban

Function details:

- Admin can manage the BanStatus of the streams by clicking the “Ban” or “Unban” button.
- Admin can filter with search bars to find streams quickly.

### 3.1.b.10. Manage Events Screen

Function trigger:

- Using path: /admin/admin-event.

Function description:

- Role: Admin
- Purpose: Admin can CRUD with events.

Screen layout:

Id	EventName	CategoryID	StartDay	EndDay	SubEvent	BanStatus
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Unban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Ban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Unban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Ban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Unban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Ban</button>
2	Pubg Meeting	1	02/06/2021	02/06/2021	<a href="#">View Details</a>	<button>Unban</button>

### Add Event

Event Name

Logo Image

Browse

Start Day

End day

Add

Cancel

Function details:

- Admin can manage BanStatus of the events by clicking the “Ban” or “Unban” button.
- Admin can filter with search bars to find events quickly.
- Admin can add new events.

### 3.1.b.11. Manage Sub Events Screen

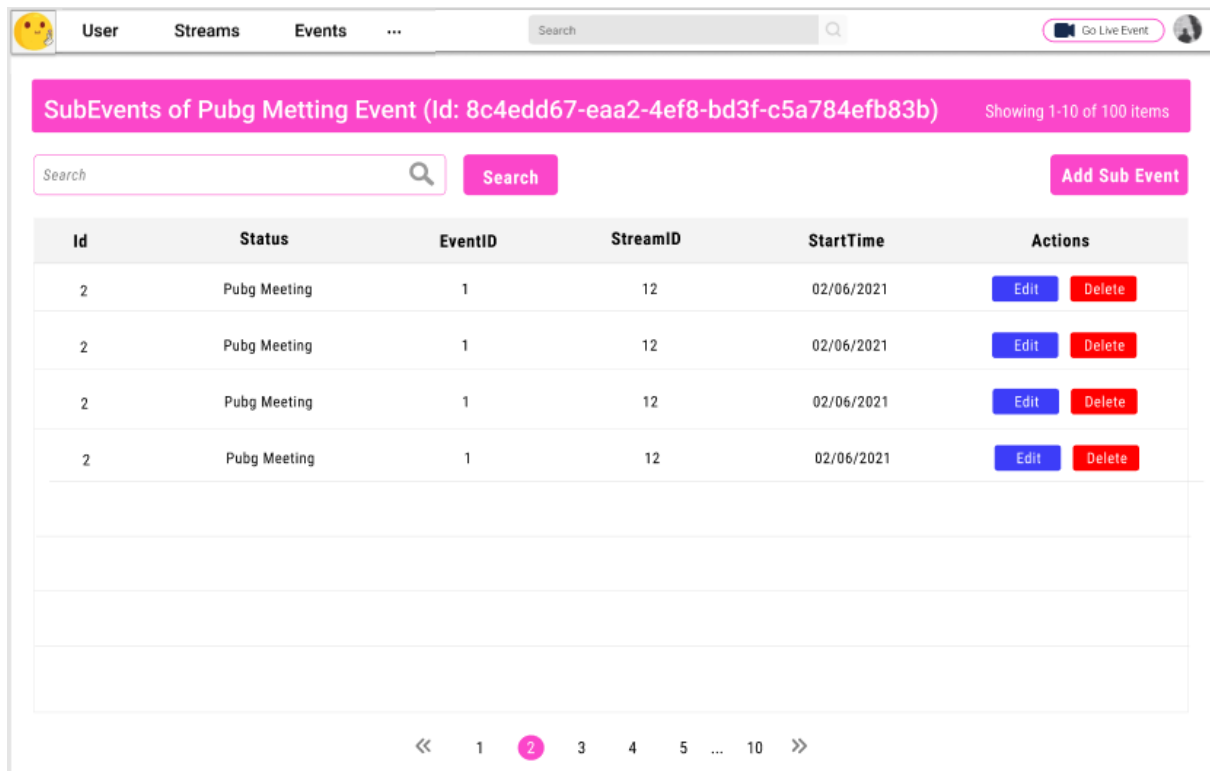
Function trigger:

- Using path: /admin/admin-event /sub-event.

Function description:

- Role: Admin.
- Purpose: Admin can CRUD with sub events.

Screen layout:



The screenshot shows a web application interface for managing sub-events. At the top, there is a navigation bar with a user profile icon, tabs for 'User', 'Streams', and 'Events', a search bar, and a 'Go Live Event' button. Below the navigation bar, a pink header bar displays the title 'SubEvents of Pubg Metting Event (Id: 8c4edd67-aaa2-4ef8-bd3f-c5a784efb83b)' and 'Showing 1-10 of 100 items'. A search bar and a 'Search' button are located below the header. To the right of the search bar is an 'Add Sub Event' button. The main content area contains a table with the following columns: 'Id', 'Status', 'EventID', 'StreamID', 'StartTime', and 'Actions'. The table lists four sub-events, each with an 'Id' of 2, 'Status' of 'Pubg Meeting', 'EventID' of 1, 'StreamID' of 12, and 'StartTime' of '02/06/2021'. Each row has 'Edit' and 'Delete' buttons in the 'Actions' column. Below the table, there is a pagination bar with navigation arrows and page numbers 1, 2, 3, 4, 5, ..., 10, and a double arrow.

Id	Status	EventID	StreamID	StartTime	Actions
2	Pubg Meeting	1	12	02/06/2021	<a href="#">Edit</a> <a href="#">Delete</a>
2	Pubg Meeting	1	12	02/06/2021	<a href="#">Edit</a> <a href="#">Delete</a>
2	Pubg Meeting	1	12	02/06/2021	<a href="#">Edit</a> <a href="#">Delete</a>
2	Pubg Meeting	1	12	02/06/2021	<a href="#">Edit</a> <a href="#">Delete</a>



### Add Sub Event

Start Time

Add
Cancel

Function details:

- Admin can manage BanStatus of the sub events by clicking the “Ban” or “Unban” button.
- Admin can filter with search bars to find sub events quickly.
- Admin can add new sub events.

#### c. Screen Authorization

Screen	Admin	User
Register		X
Login		
Stream Management	X	
User Management	X	
Event Management	X	
Sub Event Management	X	
Stream Management	X	
Home		X
Update Information		X
Browse		X
Category		X
Event		X
View Live Stream		X
Payment		X
View Followed Channel Profile		X
View Channel Profile		X

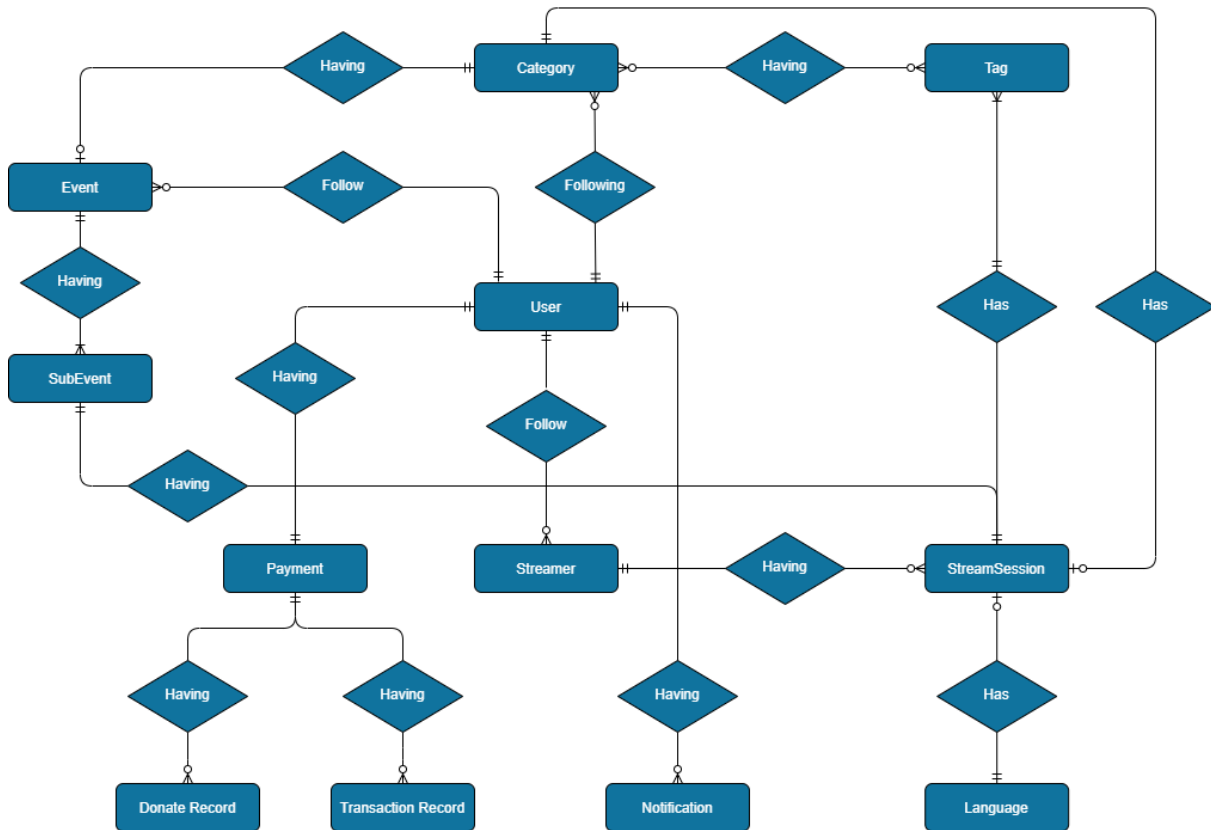
In which:

- Admin: A system administrator, or sysadmin, is a person who is responsible for the upkeep, configuration, and reliable operation of a system.
- Users: A person has an account, can act with all functions in the system except manage data.

#### d. Non-Screen Functions

#	Feature	System Function	Description
1	Logout	Logout	Logout the current user session in the system.

#### e. Entity Relationship Diagram



## Entities List

#	Entity	Description
1	User Account	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: user_id</li> <li>● user_name</li> <li>● password_hash</li> <li>● email</li> <li>● gender</li> <li>● biographic</li> <li>● phone_number</li> <li>● banner_number</li> <li>● profile_image</li> <li>● date_created</li> </ul>
2	Event	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: event_id_id</li> <li>● Foreign Key : category_id</li> <li>● name</li> <li>● logo_image_file_path</li> <li>● date_create</li> </ul>
3	Category	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: category_id</li> <li>● name</li> <li>● picture_file_path</li> <li>● date_created</li> </ul>
4	Tag	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: tag_id</li> <li>● name</li> <li>● date_create</li> </ul>
5	Streamer	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: streamer_id</li> <li>● user_id</li> <li>● auth_token</li> <li>● stream_key</li> <li>● date_created</li> </ul>
6	Stream Session Tag	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: stream_session_tag_id</li> <li>● tag_id</li> <li>● stream_session_id</li> <li>● date_created</li> </ul>

7	Notification	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: notification_id</li> <li>● user_id</li> <li>● content</li> <li>● forward_url</li> <li>● Date_created</li> </ul>
8	Donate Record	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: donate_record_id</li> <li>● payment_id</li> <li>● receiver_user_id</li> <li>● stream_session_id</li> <li>● amount</li> <li>● date_created</li> </ul>
9	Payment Record	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: payment_record_id</li> <li>● payment_id</li> <li>● type</li> <li>● payment_method</li> <li>● amount</li> <li>● date_created</li> </ul>
10	Sub Event	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: sub_event_id</li> <li>● event_id</li> <li>● status_id</li> <li>● stream_session_id</li> <li>● name</li> <li>● start_time</li> <li>● date_created</li> </ul>
11	Sub Event Status	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: sub_event_status_id</li> <li>● name</li> <li>● date_created</li> </ul>
12	Sub Event Follower	Attribute: <ul style="list-style-type: none"> <li>● sub_event_id</li> <li>● user_id</li> <li>● date_created</li> </ul>

13	Highlight Clip	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: clip_id</li> <li>● stream_session_id</li> <li>● title</li> <li>● date_created</li> </ul>
14	Stream Session	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: stream_session_id</li> <li>● streamer_id</li> <li>● stream_session_status_id</li> <li>● sub_event_id</li> <li>● category_id</li> <li>● language_id</li> <li>● title</li> <li>● announcement</li> <li>● view_count</li> <li>● thumbnail_image_url</li> <li>● date_created</li> </ul>
15	Language	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: language_id</li> <li>● name</li> <li>● date_created</li> </ul>
16	Stream Session Status	Attribute: <ul style="list-style-type: none"> <li>● Primary Key: stream_session_status_id</li> <li>● name</li> <li>● date_created</li> </ul>

## **4. Non-Functional Requirements**

### **4.1 External Interfaces**

UI-1: The Live Stream System screen displays shall conform to the Process Impact Internet Application User Interface Standard, Version 2.0 [3].

UI-2: The system shall have a simple interface and easy to use.

### **4.2 Quality Attributes**

#### **a. Usability**

- Design language is considerably developed to unify and simplify user interface. This reduces users' learning efforts and increases usability.
- User interface loads with visually attractive icons and colors, big texts and spacious margins to meet our desired clarity and build up enthusiasm for users.
- The site works on both mobile and desktop using Chromium-based browsers like the new Microsoft Edge, Google Chrome, Mozilla Firefox.
- Buttons and checkboxes are tappable.

#### **b. Performance**

- Below are the performance requirements of website LiveStream:
  - Under good internet connection, the majority of pages should load within 5 - 10 seconds.
  - The system operates real time but it must process as quickly as possible.

#### **c. Dependability**

##### **c1. Security**

- As a website about Live streaming, management functions of streamer and viewer, connect to information of user, security is indispensable and obligatory in this system.
- Apply account & password to restrict user access.
- Check role of user when login and use function of system.

##### **c2. Safety**

- Database is backup weekly using Google Cloud Service.
- SSL certificate provided by Comodo.

#### **d. Supportability**

- Apply micro services architecture for the back-end system.
- We wrote automation tests including Unit Tests and Integration Tests.

- Follow the coding convention to help improve readability of source code and make the website more maintainable.
- Using source code analysis tools for identifying problematic patterns found in code.
- Front-end: Eslint.
- Backend: Pylint.
- Client-side web application uses Redux architecture. It complements React's composable view components by utilizing a unidirectional data flow.

## 5. Appendix - Messages List

#	Message code	Message Type	Context	Content
1	MSG01	In line	There is not any search result	<i>No search result</i>
2	MSG02	In red, under the text box	Input-required fields are empty	<i>The * field is required.</i>
3	MSG03	Toast message	Updating asset(s) information successfully	<i>Update asset(s) successfully.</i>
4	MSG04	Toast message	Adding new asset successfully	<i>Add assets successfully.</i>
5	MSG05	Toast message	Confirming email of asset hand-over is sent successfully	<i>A confirmation email has been sent to {email_address}.</i>
6	MSG06	Toast message	Resetting asset information successfully	<i>Return asset(s) successfully.</i>
7	MSG07	Toast message	Deleting asset information successfully	<i>Delete asset(s) successfully.</i>
8	MSG08	In red, under the text box	Input value length > max length	<i>Exceed max length of {max_length}.</i>
9	MSG09	In line	Username or password is not correct when clicking sign-in	<i>Incorrect username or password. Please check again.</i>