			5verflow (Team 5) Test Cases			
	Project Name	Secure Face ID				
	Reference Document	Software Requirement Specification				
		Security Requirements				
	Candidate for elimination --> Deprecated					
Category	**Test Case ID**	**Test Descriptions**	**Test Step**	**Test Data**	**Expected Result**	**Requirement ID**
Precondition			Prepare the server application on Jetson Nano with fixed port number to connect with the client application.	./LgFaceRecDemoTCP_Jetson_NanoV2	Verify the server application is ready with displaying 'waiting'	N/A
			Execute the client application on window laptop.		The client applicationis displays and has control items.	N/A
[Input validation] Verify input IP address using VALID format	TC-01	This Verifies **SR 1-1** that Client Application must check if the format of input IP address is in valid format.	[Positive] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Live' radio button. 3. Enter a valid ip address. 4. Click 'Connect' button	Valid IP Address : 192.168.0.100	The Jetson Nano camera stream displays with face recognized results.	SR 1-1
[Input validation] Verify input IP address using INVALID format	TC-02	This Verifies **SR 1-1** that Client Application must check if the format of input IP address is in valid format.	[Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Live' radio button. 3. Enter a invalid ip address. 4. Click 'Connect' button	Invalid IP Address 1. Empty string 2. Include characters or symbols not IP formated. 3. Extremly long characters	An error messag pops up with "Invalid IP address. Try again" **--> 'Connect' button is not activated**	SR 1-1
[Input validation] Verify input username using VALID format	TC-03	This Verifies **SR 1-2** that Server and Client should check respectively whether the input for Username field on the Register mode is valid as a filename.	[Positive] 1. Select secure mode by checking 'Secure' check box. 2. Select 'Register' radio button. 3. Click 'Connect' button with valid IP address 4. Enter valid user name. 5. Click 'Register Person' button when a new persion is recognized. 6. Change mode to 'Live' by selecting radio button.	Tom Cruise	1. An image file "Tom Cruise_1.jpg" is created in <img_path> 2. A new registered person 'Tom Cruise' is recognized on Live video. **[Policy of Image file creation] - A filename of a new user is composed of username to be registered and index number considering to different users who have same name.**	SR 1-2
[Input validation] Verify input username with duplication	TC-04	This Verifies **SR 1-2** that Server and Client should check respectively whether the input for Username field on the Register mode is valid as a filename.	[Positive] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Register' radio button. 3. Click 'Connect' button with valid IP address 4. Enter an user name same with TC-03 5. Click 'Register Person' Button. 6. Change mode to 'Live' by selecting radio button.	Tom Cruise **[Precondition] - Same name (Tom Cruise) is supposed to be registered already through conducting like TC-03.**	1. A file for duplicated name is stored with index number. (e.g. Tom Cruise_2.jpg) 2. Recognized people are shown on Live video without index number. (e.g. Tom Cruise)	SR 1-2
[Input validation] Verify input username using INVALID format	TC-05	This Verifies **SR 1-2** that Server and Client should check respectively whether the input for Username field on the Register mode is valid as a filename.	[Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Register' radio button. 3. Click 'Register Person' Button. 4. Enter an invalid user name.	Invalid Username 1. Empty string 2. Extremly long characters 123456789A123456789B123456789C123456789D 123456789E123456789F123456789G123456789H 123456789I123456789J123456789K123456789L1 23456789M123456789N123456789O123456789P1 23456789Q123456789R123456789S123456789T1 23456789U123456789V123456789W123456789X1 23456789Y1234567 3. Special characters	An error messag pops up with "Invalid username. Try again." --> **'Register' button is not activated**	SR 1-2
[Input validation] Verify input filename using VALID format	TC-06	This Verifies **SR 1-4** that Server and client should check input validation respectively whether the input for video file name field on the Playback mode has video file format such as .mp4.	[Positive] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Playback' radio button. 3. Enter a valid filename.	sample.mp4	Recognized people are shown while video playing. --> This test is deprecated because input field for video filename is not activated.	SR 1-4
[Input validation] Verify input filename using INVALID format	TC-07	This Verifies **SR 1-4** that Server and client should check input validation respectively whether the input for video file name field on the Playback mode has video file format such as .mp4.	[Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Playback' radio button. 3. Enter an invalid filename.	Invalid filename 1. Empty string 2. Extremly long characters 3. Not mp4 file type like .exe 4. A filename not on the server application	An error messag pops up with "Invalid filename. Try again." --> This test is deprecated because input field for video filename is not activated.	SR 1-4
[Input validation] Verify images received from server has VALID format	TC-08	This Verifies **SR 1-5** that Client should check whether the image recevied from server is format of jpeg before displaying it	[Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Live' or 'Playback' radio button. 3. Click 'Connect' button with valid ip address.	sample.mp4' if using Playback mode.	Verify images from server are displayed well. Skip displaying an image and leave error message log if start byte of image data is compromised.	SR 1-5

	[Input validation] Verify the number of face received from server is VALID	TC-09	This Verifies **SR 1-6** that Client should compare the number of detected face and the number of its information, which are received from server, and they should be same.	[Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Live' or 'Playback' radio button. 3. Click 'Connect' button with valid ip address.	sample.mp4' if using Playback mode.	Verify images and face regions from server are displayed well. Skip displaying face regions and leave error message log if the number of recognized faces is different to the number of face region data. 서버에서 실제 인식된 사람의 수와 다르게 얼굴 정보를 보내주면 클라이언트는 받는대로 출력하게되는데, input validation에 해당하기 어려움	SR 1-6
	[Secure Data Transmission] Verify the username is encrypted.	TC-10	This Verifies **SR 2-1** that all the data transferred between server and client must be securely encrypted after connection establishment .	[Precondition] Prepare a packet sniffer and analysis tool such as Wireshark. [Positive] 1. Select Secure mode by checking 'Secure' check box. 2. Select 'Register' radio button. 3. Enter valid user name. 4. Click 'Register Person' Button	Tom Cruise	1. Verify to use TLS protocol. 2. Verify the username is encrypted.	SR 2-1
	[Secure Data Transmission] Verify the username is not encrypted.	TC-11	This Verifies **SR 2-1** that all the data transferred between server and client must be securely encrypted after connection establishment .	[Precondition] Prepare a packet sniffer and analysis tool such as Wireshark. [Negative] 1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Register' radio button. 3. Enter valid user name. 4. Click 'Register Person' Button	Tom Cruise	Verify the username is not encrypted.	SR 2-1
	[Secure Authentication] Verify certificates	TC-12	This Verifies **SR 2-2** that the integrity of all data transmitted between the server and the client must be checked.	[Precondition] Use valid credentials [Positive] 1. Select Secure mode by checking 'Secure' check box. 2. Select 'Live' radio button. 3. Enter a valid ip address. 4. Click 'Connect' button	Certificate from Trusted Issuer (Jetson Nano Server)	Verify the server application and the client application success connection and communcation.	SR 2-2
	[Secure Authentication] Verify certificates	TC-13	This Verifies **SR 2-2** that the integrity of all data transmitted between the server and the client must be checked.	[Precondition] Use invalid credentials [Negative] 1. Select Secure mode by checking 'Secure' check box. 2. Select 'Live' radio button. 3. Enter a valid ip address. 4. Click 'Connect' button	Certificate from Untrusted Issuer	Verify the server application and the client application fails connection and communcation.	SR 2-2
	[Secure Data Storage] Verify data storage in Jetson Nano	TC-14	This Verifies **SR 4-1** that image and name of registered users must be stored in secure storage to prevent access from unauthorized users.	[Positive] 1. Run shell with admin account to the Jetson Nano 2. Access Jetson Nano imgs directory and move image files to personl laptop 3. Open an image file in the personal laptop	Use admin account	1. Verify the admin can access the Jetson Nano imgs drectory 2. Verify the image files do not displays normally because of encryption	SR 4-1
		TC-15	This Verifies **SR 4-1** that image and name of registered users must be stored in secure storage to prevent access from unauthorized users.	[Negative] 1. Run shell with non-admin account to the Jetson Nano 2. Access Jetson Nano imgs directory and move image files to personl laptop	Use not admin account	Verify a user not admin can not access the Jetson Nano imgs directory	SR 4-1
		TC-16	This Verifies **SR 4-2** that Root and CA certificates must be stored in secure storage.	[Positive] 1. Run shell with admin account to the Jetson Nano 2. Access Jetson Nano directory of certificates.	Use admin account	Verify the admin can access the Jetson Nano directory of certificates.	SR 4-2
		TC-17	This Verifies **SR 4-2** that Root and CA certificates must be stored in secure storage.	[Negative] 1. Run shell with non-admin account to the Jetson Nano 2. Access Jetson Nano directory of certificates.	Use not admin account	Verify a user not admin can not access the Jetson Nano directory of certificates.	SR 4-2
	[Secure Data Storage] Verify data storage in Laptop	TC-18	This Verifies **SR 4-3** that Client certificates must be stored in secure storage.				SR 4-3
		TC-19	This Verifies **SR 4-3** that Client certificates must be stored in secure storage.				SR 4-3
	[Logging] Verifying Log messages are written	TC-20	This Verifies **SR 5-1** that Server and client should leave the message about the connection status as a log, respectively..	1. Select Insecure mode by unchecking 'Secure' check box. 2. Select 'Live' radio button. 3. Enter a valid ip address. 4. Click 'Connect' button	Valid IP Address : 192.168.0.100	Verify log messages in <log_path>	SR 5-1