#### 1. Introduction

The objective of this document is to detail the testing approach for the internet forensics application, including the test cases and the associated test evidence.

#### 2. Testing Approach – Group 2

The testing involves manual and automated testing

The automated tests, which are written using Django's test utility also need to be tested, hence the requirement for manual testing, to verify the automated tests work correctly

#### 3. Automated Testing

The following commands need to be entered:

- pip install pytest
- python tests.py

Enclosed is the evidence from running the tests.py file:

Requirement already satisfied: packaging in c:\users\janea\appdata\local\programs\python\python311\lib\site-packages (from pytest) (22.0)

Requirement already satisfied: pluggy<2.0,>=0.12 in c:\users\janea\appdata\local\programs\python\python311\lib\site-packages (from pytest) (1.0.0)

Requirement already satisfied: colorama in c:\users\janea\appdata\local\programs\python\python311\lib\site-packages (from pytest) (0.4.6)

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics>

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics> python test.py

C:\Users\janea\AppData\Local\Programs\Python\Python311\python.exe: can't open file 'C:\Users\janea\\OneDrive\\Documents\\GitHub\\DjangoForensics\\test.py': [Errno 2] No such file or directory

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics> cd Group2

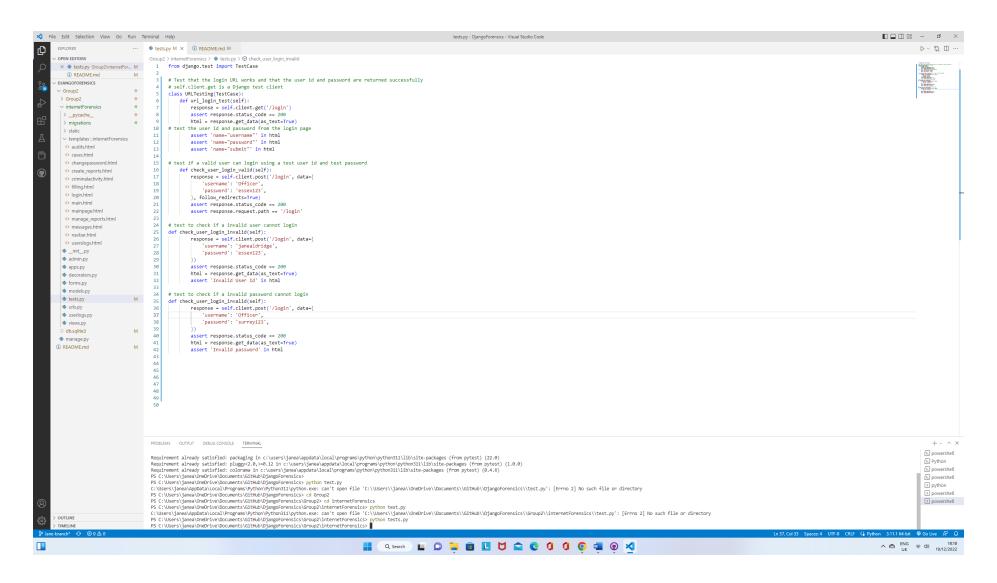
PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics\Group2> cd internetForensics

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics\Group2\internetForensics> python test.py

C:\Users\janea\AppData\Local\Programs\Python\Python311\python.exe: can't open file 'C:\\Users\janea\\OneDrive\\Documents\\GitHub\\DjangoForensics\\Group2\\internetForensics\\test.py': [Errno 2] No such file or directory

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics\Group2\internetForensics> python tests.py

PS C:\Users\janea\OneDrive\Documents\GitHub\DjangoForensics\Group2\internetForensics>



#### 4. Design Requirements

The below test cases cover functional and security testing, and also test against the design requirements, as documented in the design proposal document: 'Sprint One will be a 4 week sprint, and will focus on the current top OWASP threats (See Appendix in Design Document). The sprint will include a mitigation from each of the first one to seven OWASP categories'

Scope as defined in the design proposal:

Threat Mitigation Category	Proposed Threat Mitigation Changes	OWASP	STRIDE
Authorization	<ul> <li>User permissions and roles</li> <li>An administrator UI where a locked user can be unlocked, and where new users can be added</li> </ul>	Yes	Yes
	and leavers de-activated		
Multi-factor Authentication	Password standards	Yes	Yes
	<ul><li>OTP</li><li>Three attempts to logon</li></ul>		
Input Validation	Logon UI which includes input validation	Yes	Yes
	Server-side input validation		
Encryption	Encryption of data in transit and at rest	Yes	Yes
Security Misconfiguration	Implementation of the MVC architecture pattern	Yes	No

## 5. <u>Sprint One – Scope Changes</u>

## 5.1 New Functionality added to Sprint One Scope

Sprint one scope was changed to include the following:

- For sprint one, in order to be able to test permissions and user roles adequately, we also developed a dashboard, where access to different functions is dependent on the user role and associated permissions.
- A CSRF token was implemented, which mitigates the risk of cross site request forgery :

'In any template that uses a POST form, use the **csrf\_token** tag inside the **<form>** element if the form is for an internal URL' (<a href="https://docs.diangoproject.com/en/4.1/howto/csrf/">https://docs.diangoproject.com/en/4.1/howto/csrf/</a>) Django website

- If a user is already authenticated and tries to navigate to the login page this is prevented.
- A logout function was added, to provide the user with the ability to logout of the application.
- If a user is logged out then the user cannot navigate to the admin or main dashboard page.

#### 5.2 Functionality which will now be included in Sprint Two

The following functionality was taken out of scope for Sprint One, and will be included in Sprint 2. The changes detailed in section 3.1 were determined to be of a higher priority or required for sufficient testing of user roles and permissions:

- OTP functionality will be included in sprint 2
- Three attempts to login will be included in sprint 2

#### 5.3 Out of Scope

The objective of the testing is not to test the Django framework, but the code which the team has written:

- The Django admin page and functionality is part of the Django web framework and is out of scope for testing
- Libraries are excluded for testing
- The password encryption is excluded because this is provided by Django

# 6.0 Testing Phases

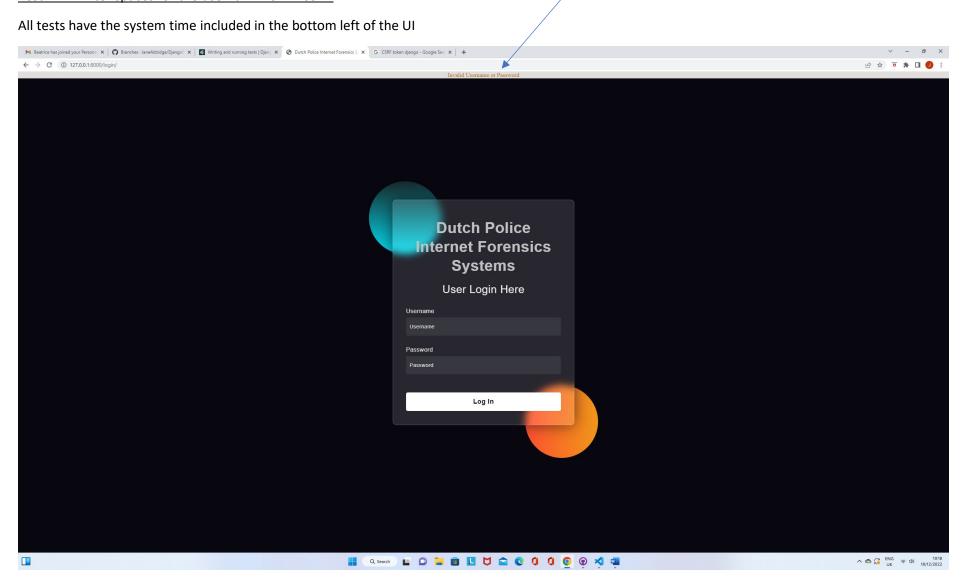
The testing approach was to plan for three cycles of testing

All the tests planned for cycle 1 sprint one passed

7.0 Test Cases and Test Results

Test Group	Security or Functional Test Type	Design Requirement which was in scope for the first sprint – Threat Mitigation Category	Function being tested	Test Id	Test Description	Data entered (where applicable)	Expected Result - Valid/Invalid Data Entry	Pass/Fail	Testing cycle when test passed
1	Security – Confidentiality	Multi-factor authentication	Login Functionality – User Id	1.1	Enter spaces for the user id	<spaces></spaces>	Invalid	Pass	1
				1.2	Enter a return character for the user id	<return></return>	Invalid	Pass	1
				1.3	Enter an invalid character	!	Invalid	Pass	1
				1.4	Enter a valid test user id	Officer	Valid	Pass	1
		SQL Injection		1.5	Enter a SQL command	SELECT * FROM auth_user	Invalid	Pass	1
Con	Security – Confidentiality and Integrity	Multi-factor authentication	Login Functionality – Password validation	2.1	Enter a password which does not exist in the database	AAAAAA	Invalid	Pass	1
		Input validation		2.2	Enter a password which is a valid password	essex123	Valid	Pass	1
			SQL Injection	2.3	Enter a SQL command for the password	SELECT * FROM auth_user	Invalid	Pass	1
3	Security – Confidentiality	Multi-factor authentication	Login Page Navigation – prevent user from going back to the login page	3.1	Login to the main page as admin and enter in the URL for the login page	Login in as Jane, essex123 Update URL	Invalid	Pass	1
4	Security – Confidentiality	Authorization	Permissions	4.1	Login as the administrator Can the dashboard options be accessed	Navigate to the dashboard as jane, essex123	Valid	Pass	1
				4.2	Login as the Officer Can the dashboard options be accessed, only the change password page should be available not the administrator page	Navigate to the dashboard, as Officer essex123	Invalid	Pass	1
	Functionality	Logout	Logout	4.3	Login as the Officer and logout from the dashboard	Submit the logout option	Valid	Pass	1
5	Functionality	User profile	Extended user profile as part of the admin page	5.1	Update the DOB, gender, department name, location (these attributes use drop downs)	01-02-1996 Male Name4 Location4	Valid	Pass	1
6	Functionality	Create a new user	New user	6.1	Create a new user and then logon with that user profile	LAldridge98 Suffolk123! Changed to Norfolk123!	Valid	Pass	1

# <u>Test 1.1 – Enter spaces for the user id – TEST PASSED</u>

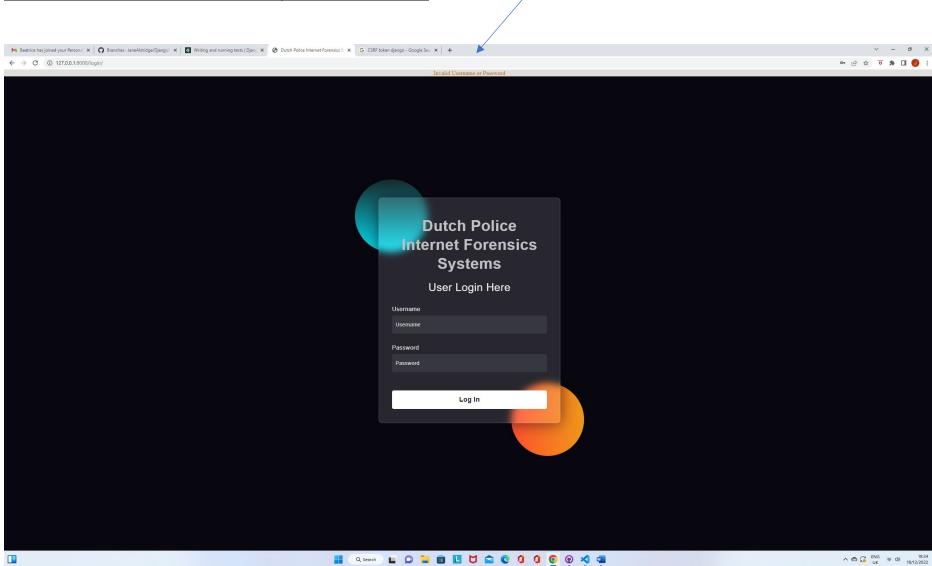


# Test 1.2 – Enter a return character for the user id – TEST PASSED M Beatrice has joined your Persons: X | Q Branches - JaneAldridge/Django: X | 6 Writing and running tests | Djans: X | O Dutch Police Internet Forensics S | X | G CSRF token django - Google Ses: X | + v - 0 × ← → C ① 127.0.0.1:8000/login/ e ☆ ♥ ★ □ 0 : **Dutch Police** Internet Forensics **Systems** User Login Here Username Password Log In

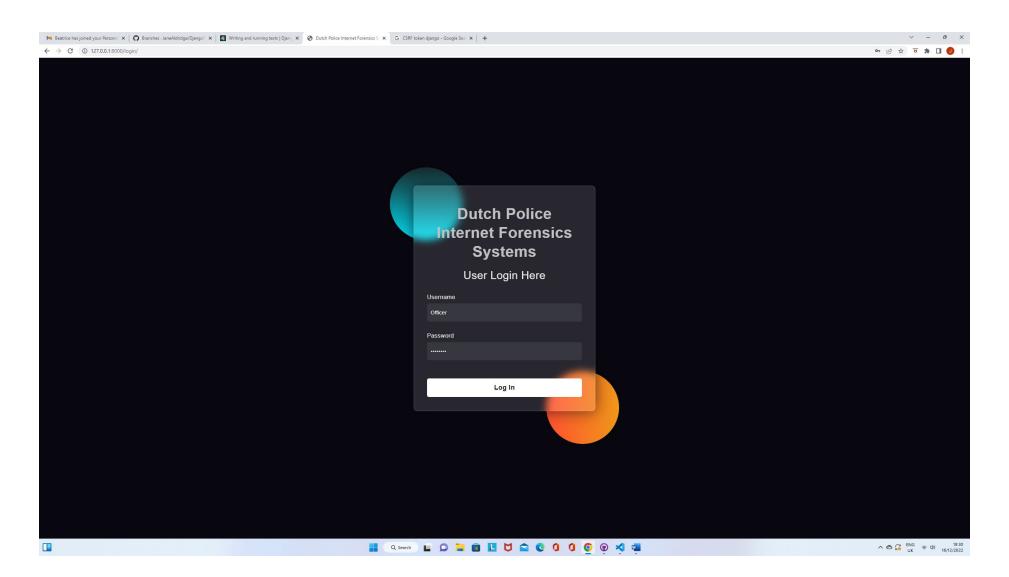
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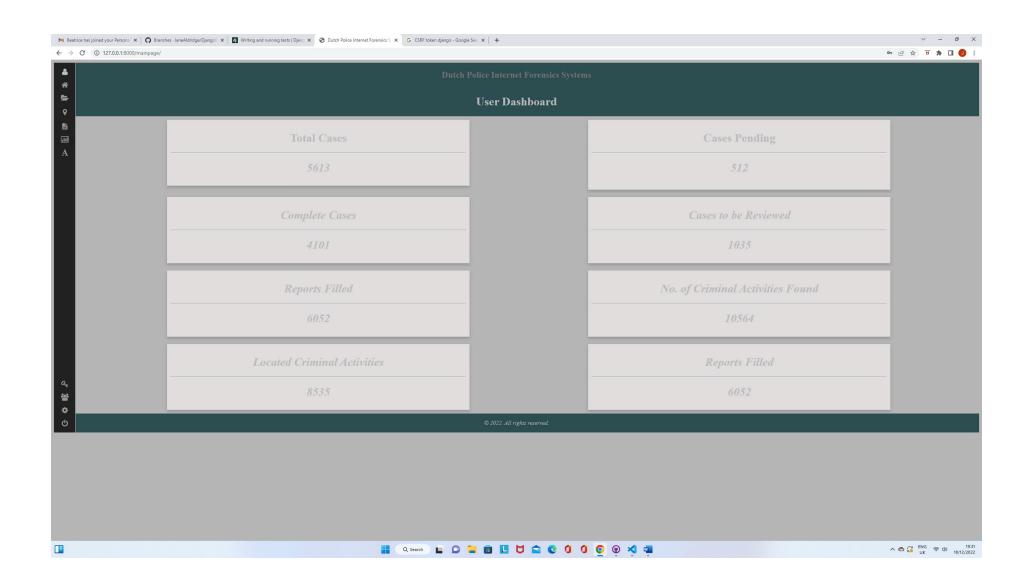
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<u>Test 1.3 – Enter an invalid '!' character for the password – TEST PASSED</u>

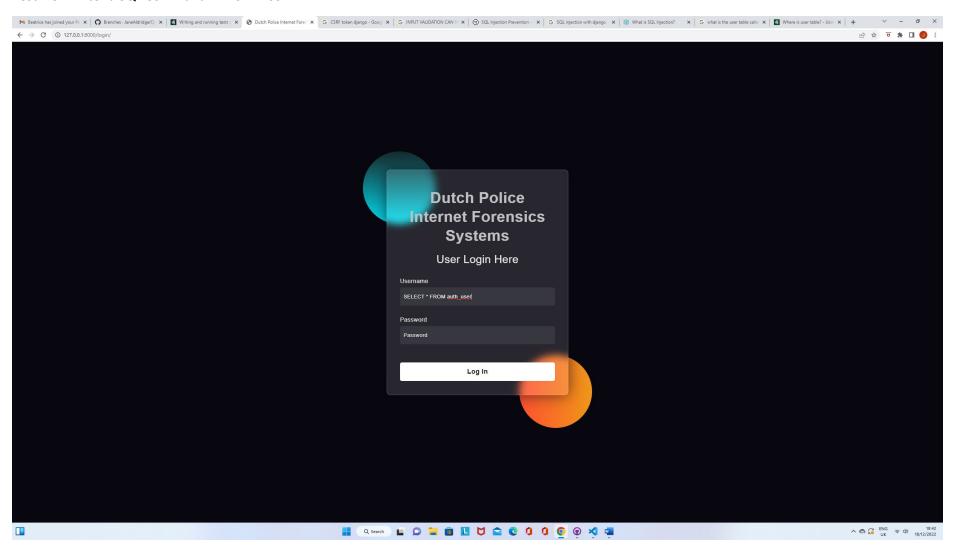


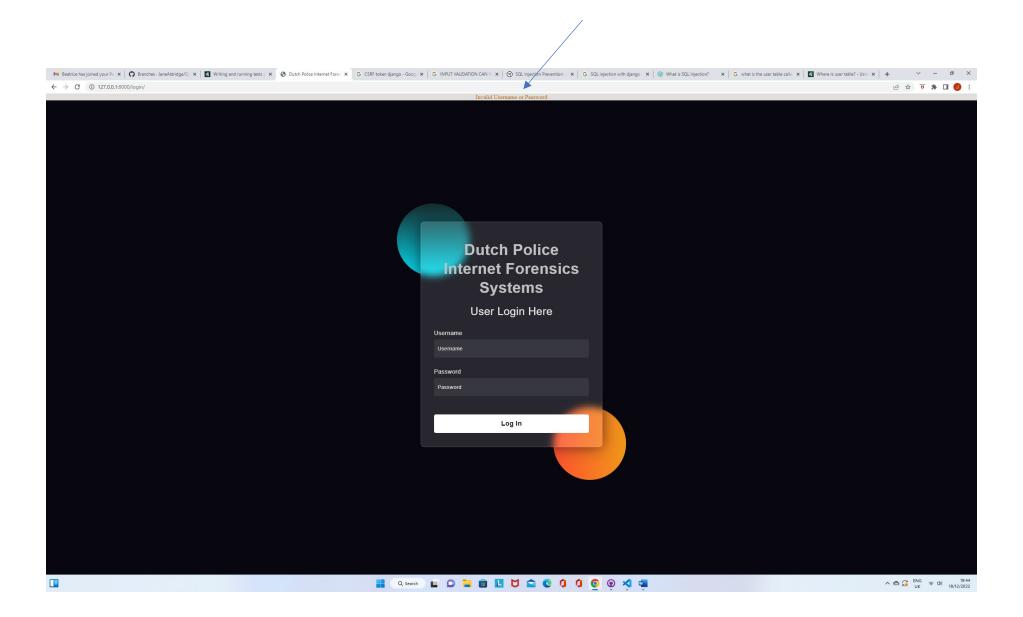
Test 1.4 – Enter a valid test user id and password – TEST PASSED



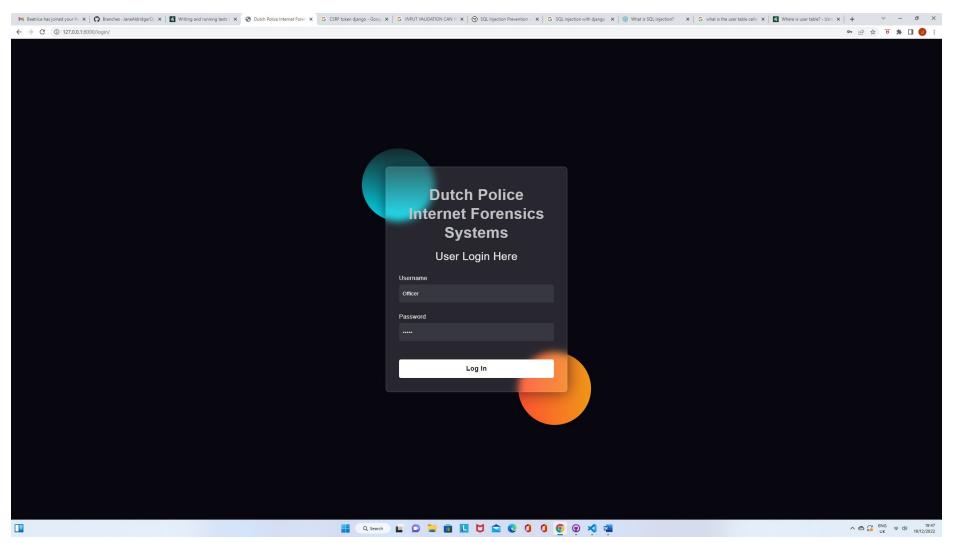


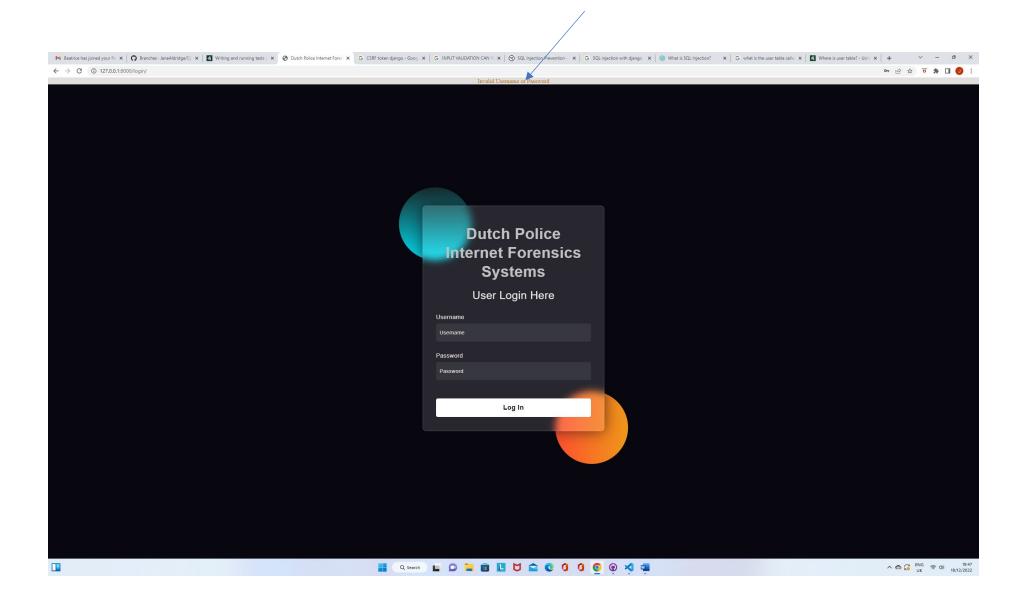
Test 1.5 – Enter a SQL Command – TEST PASSED



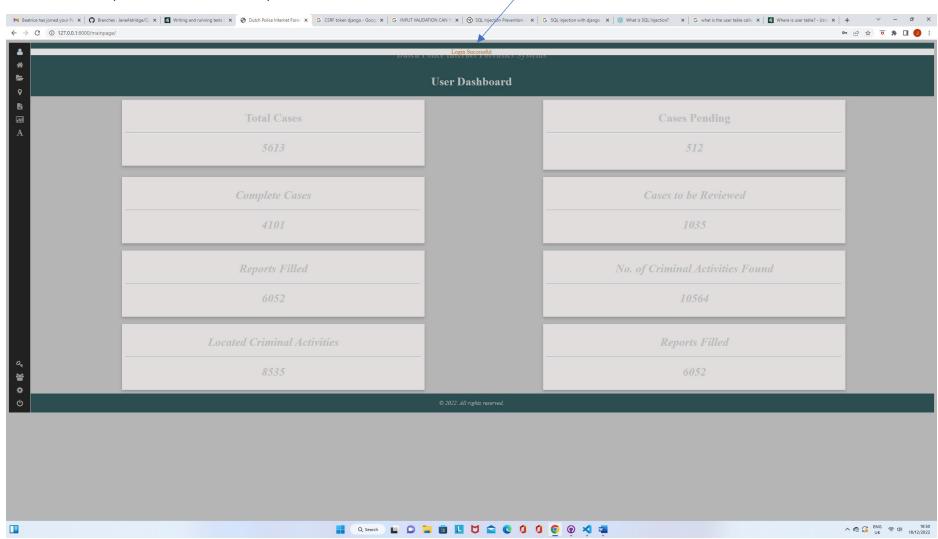


TEST 2.1 - Enter a password which does not exist in the database – TEST PASSED

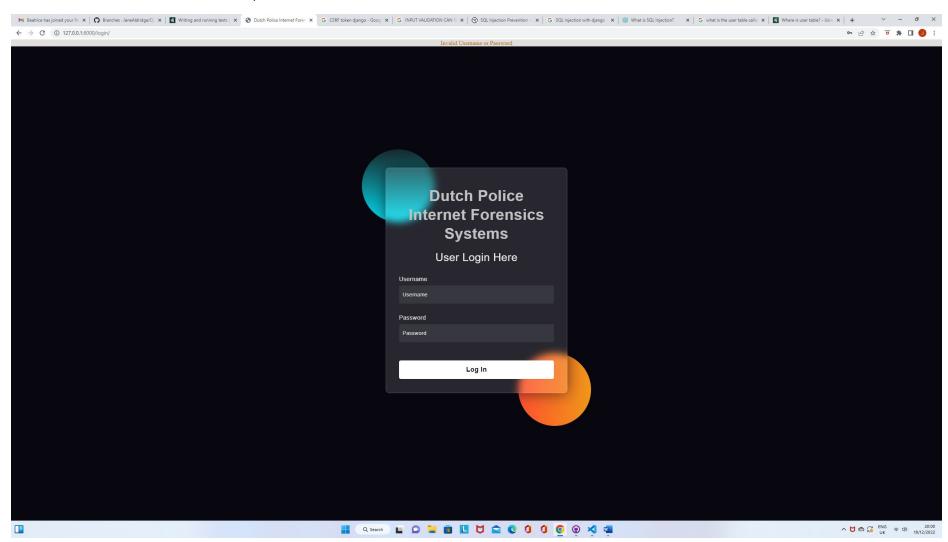




Test 2.3 – Enter a password which is a valid password – TEST PASSED

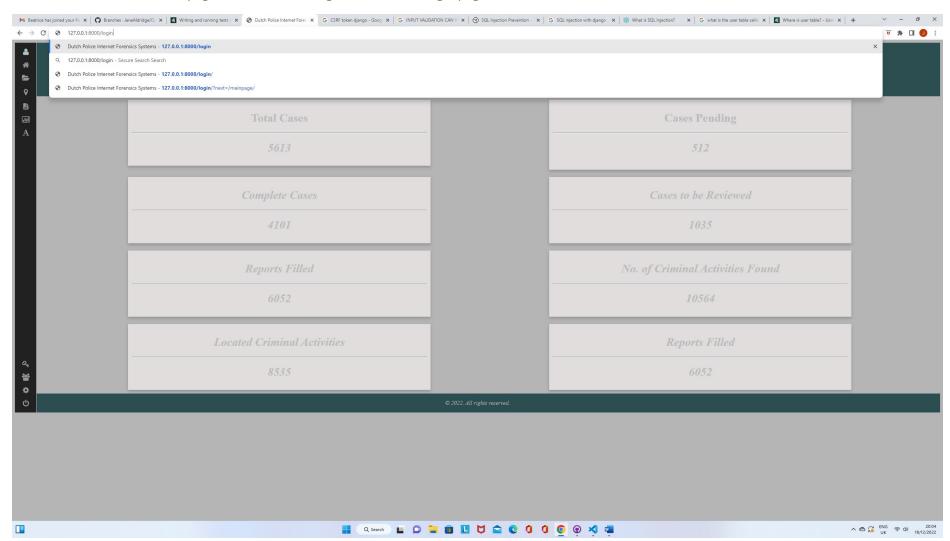


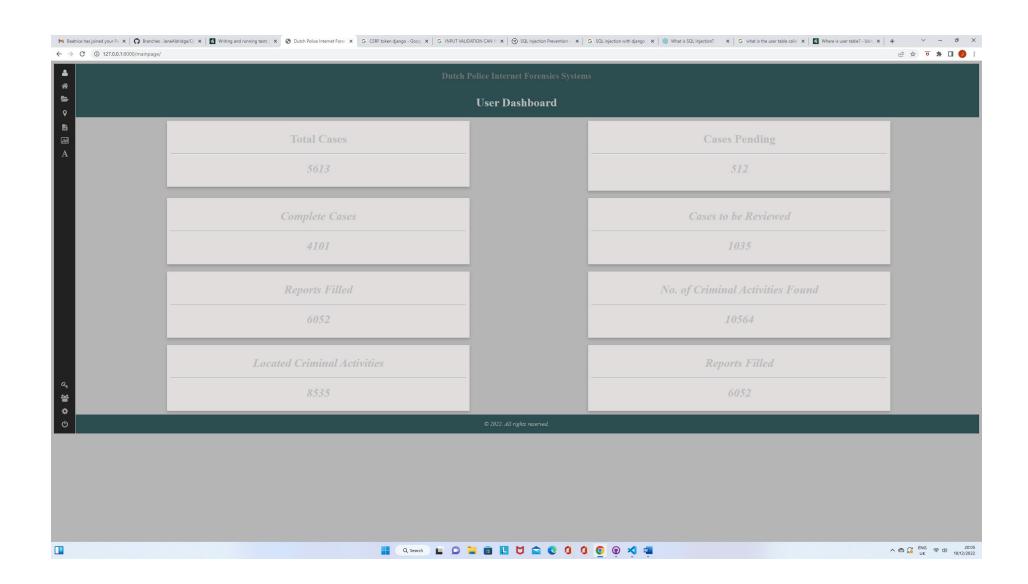
Test 2.4 – Enter a SQL Command for the password – Test PASSED



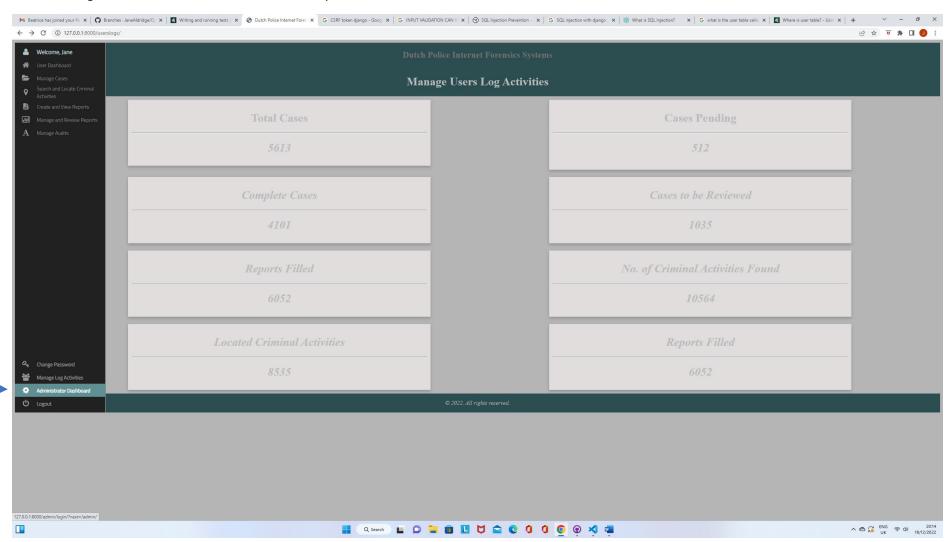
### Test 3.1 - Login to the main page as admin and enter in the URL for the login page – TEST PASSED

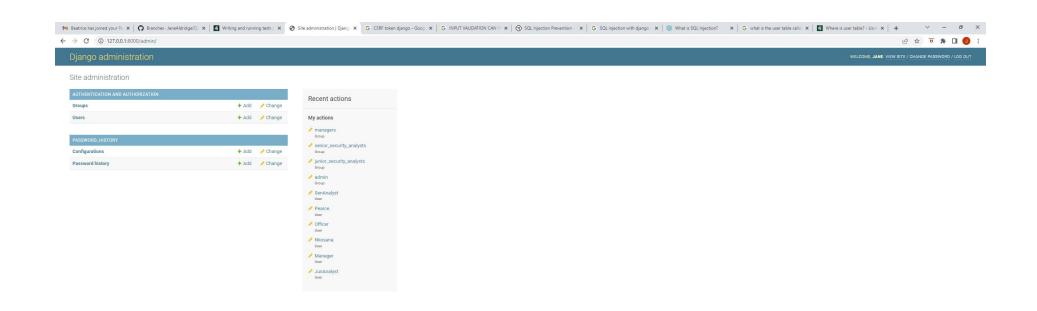
The URL remains on the mainpage and does not navigate back to the login page



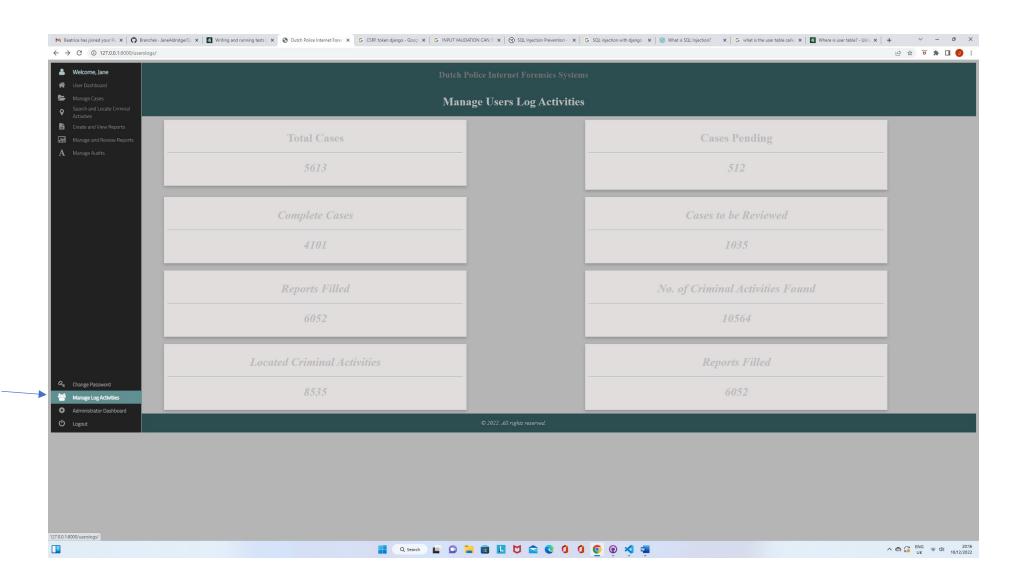


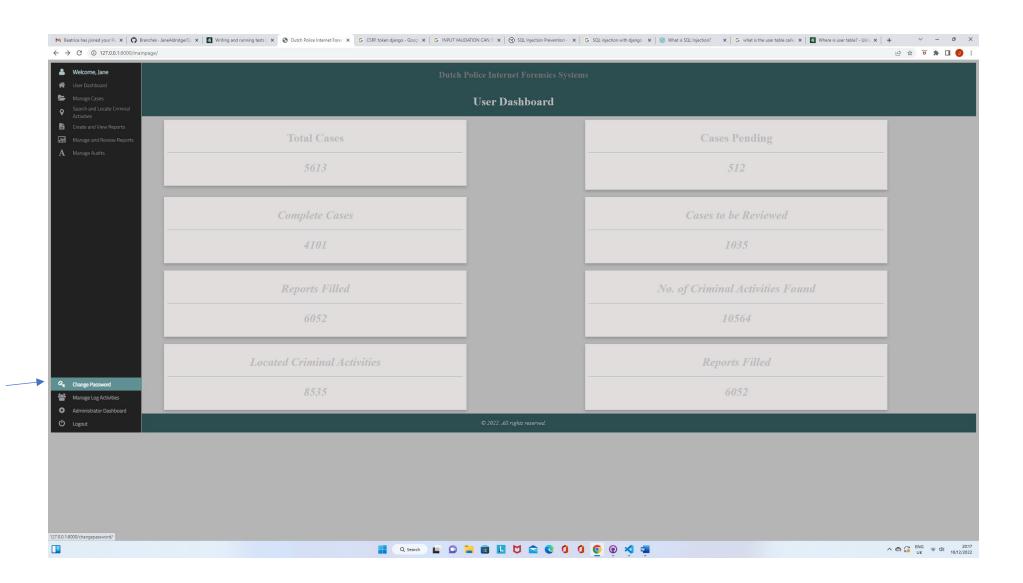
Test 4.1 – Login as admin can the dashboard menu options be accessed – TEST PASSED

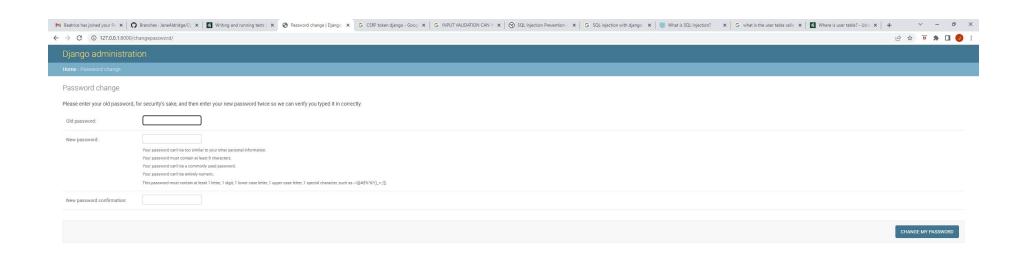




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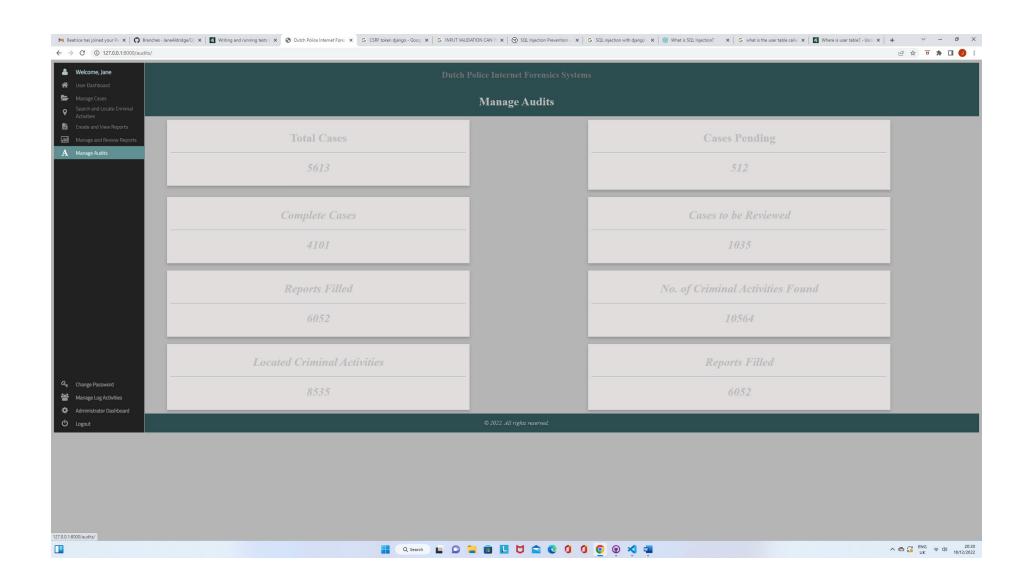


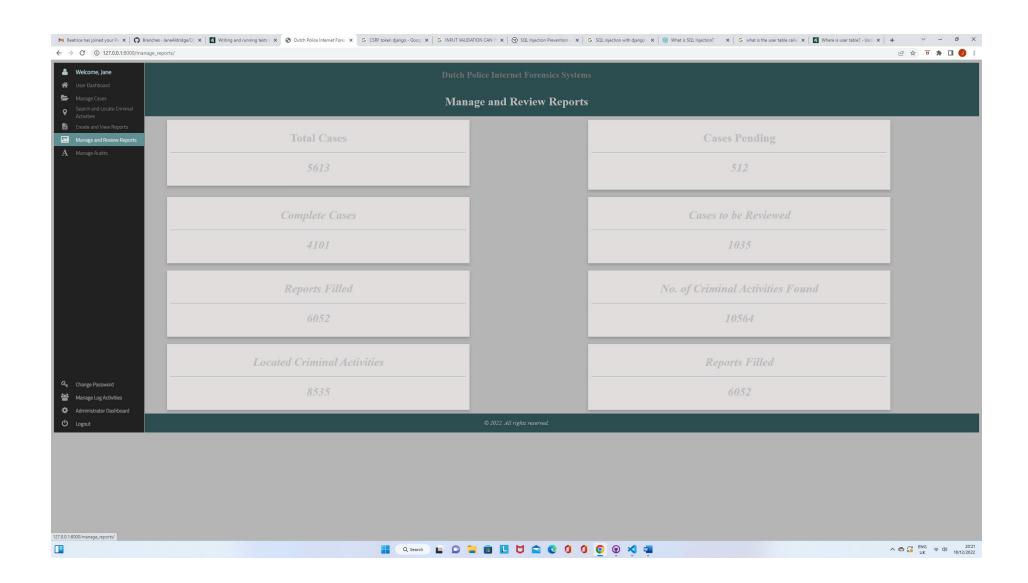


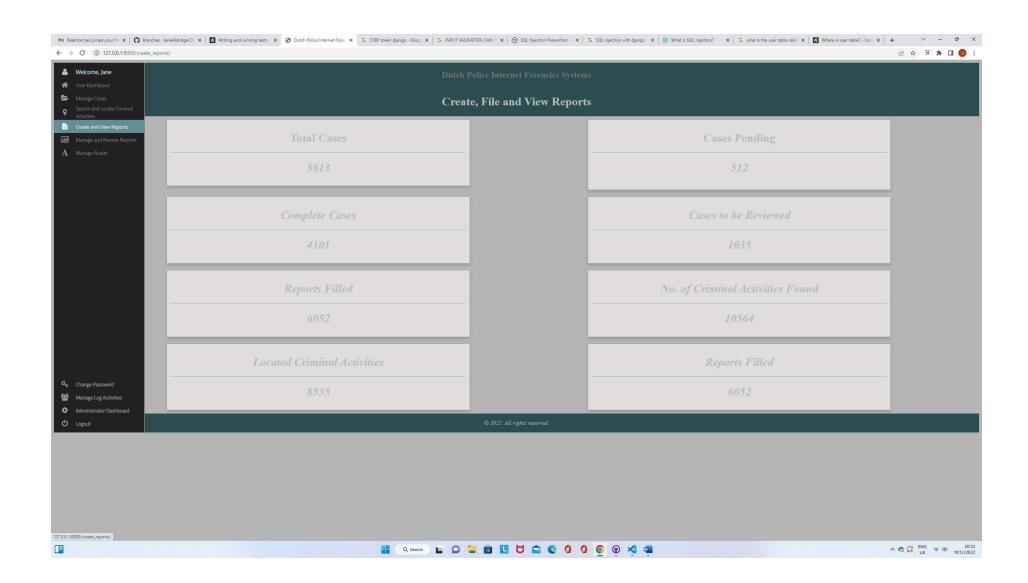


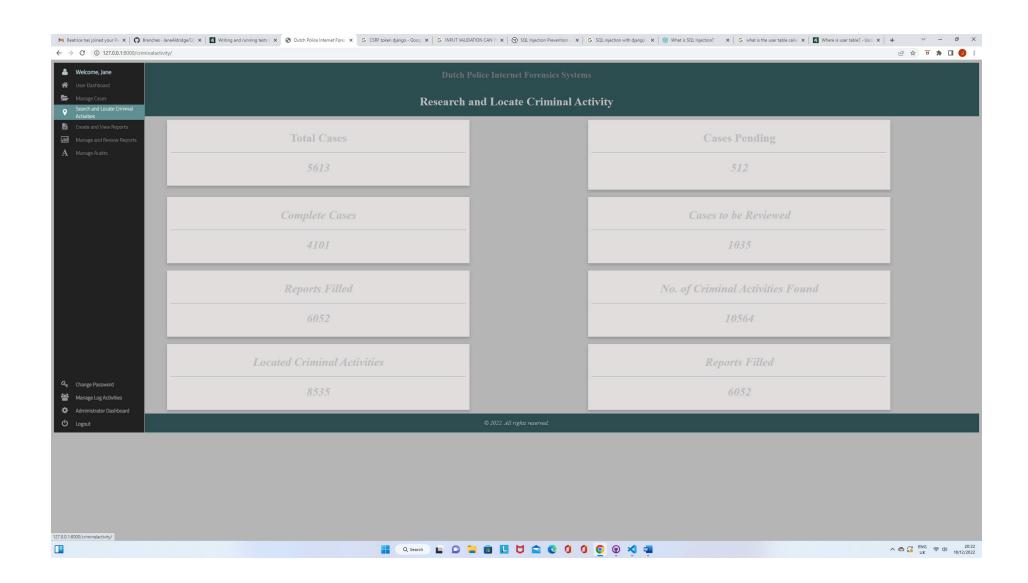
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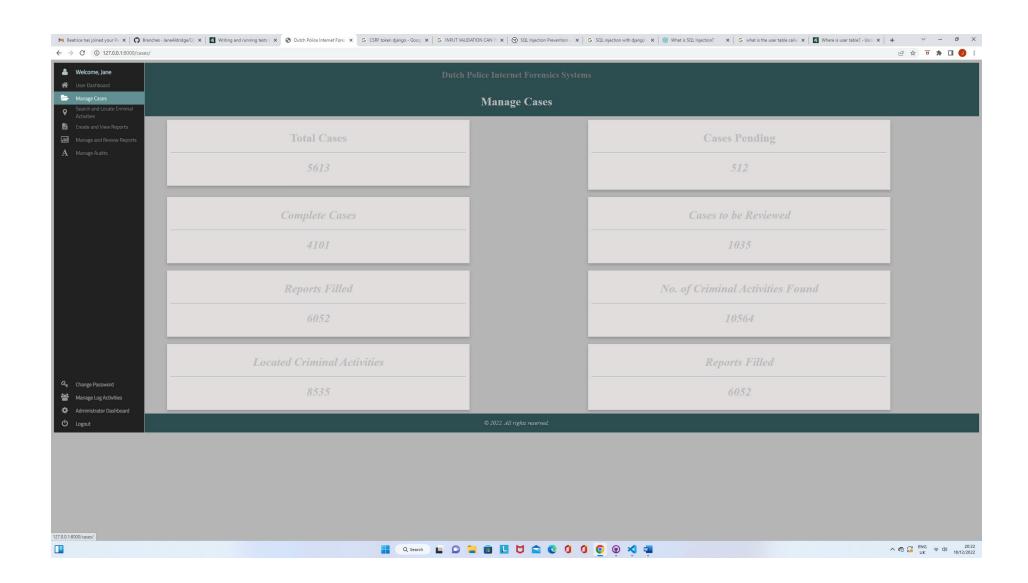
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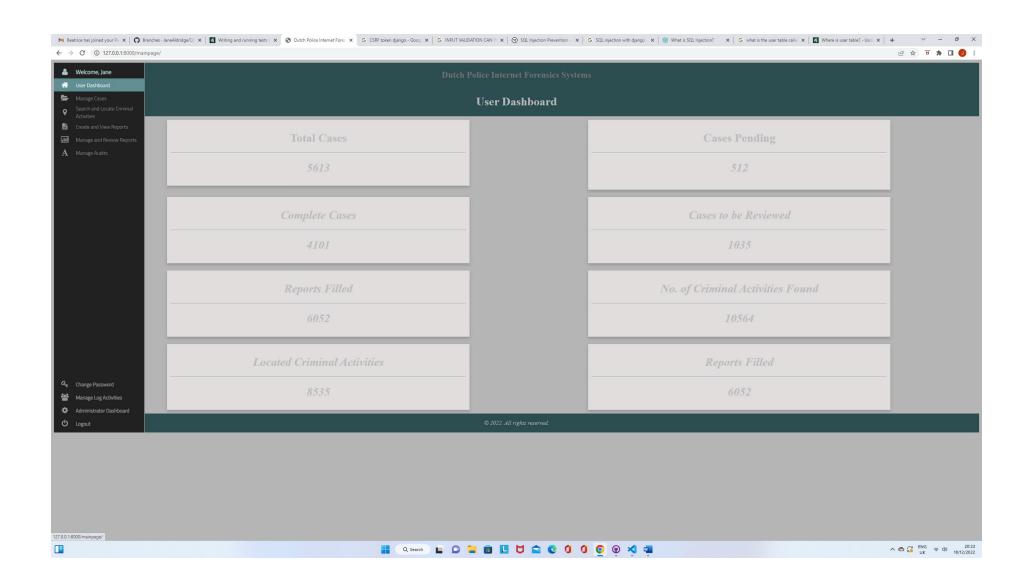






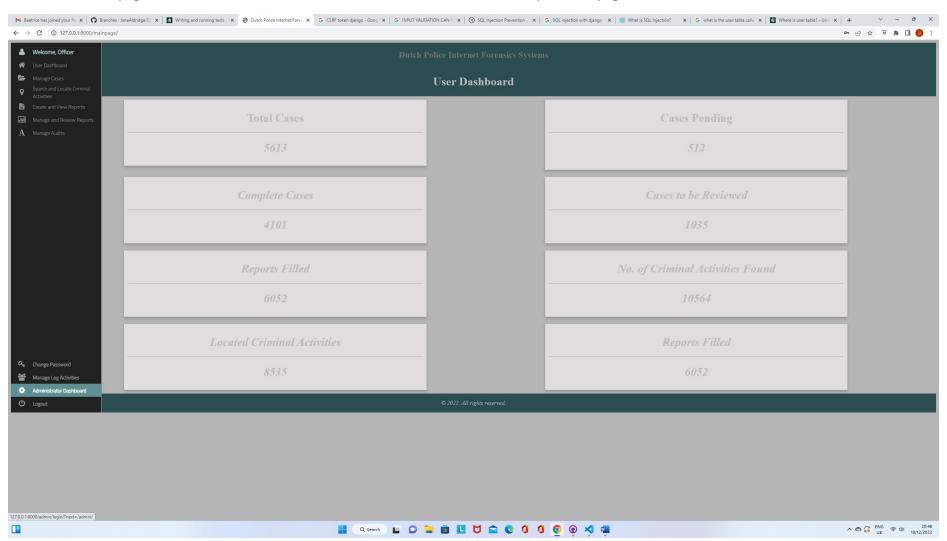


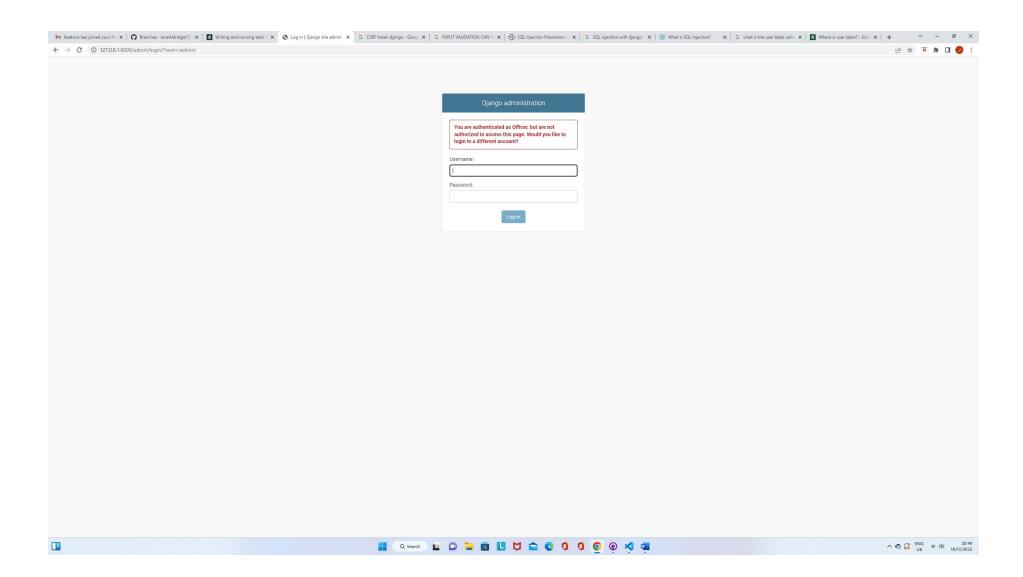


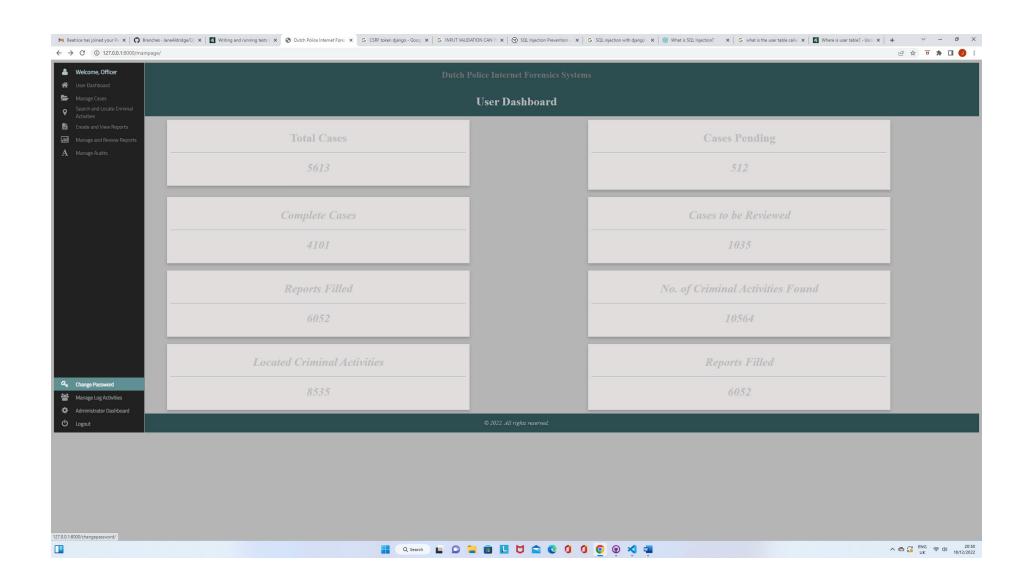


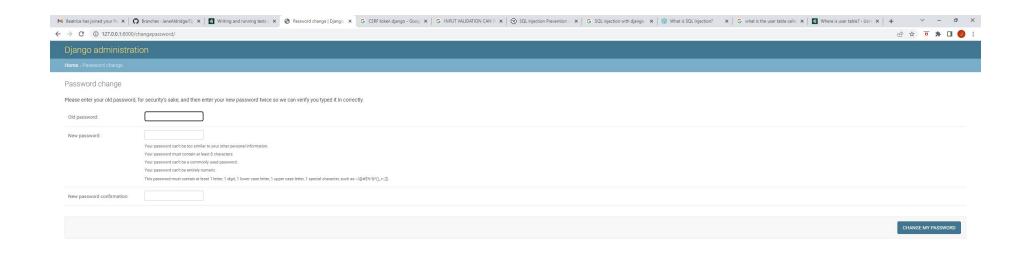
### Test 4.2 - Login as the Officer - Can the dashboard options be accessed – TEST PASSED

The administrator page should not be available but the officer should have access to the password page

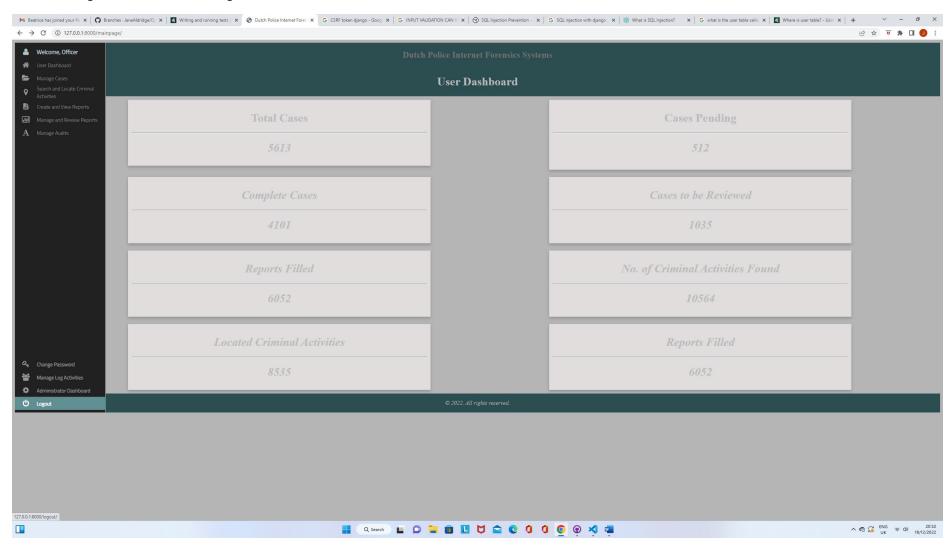


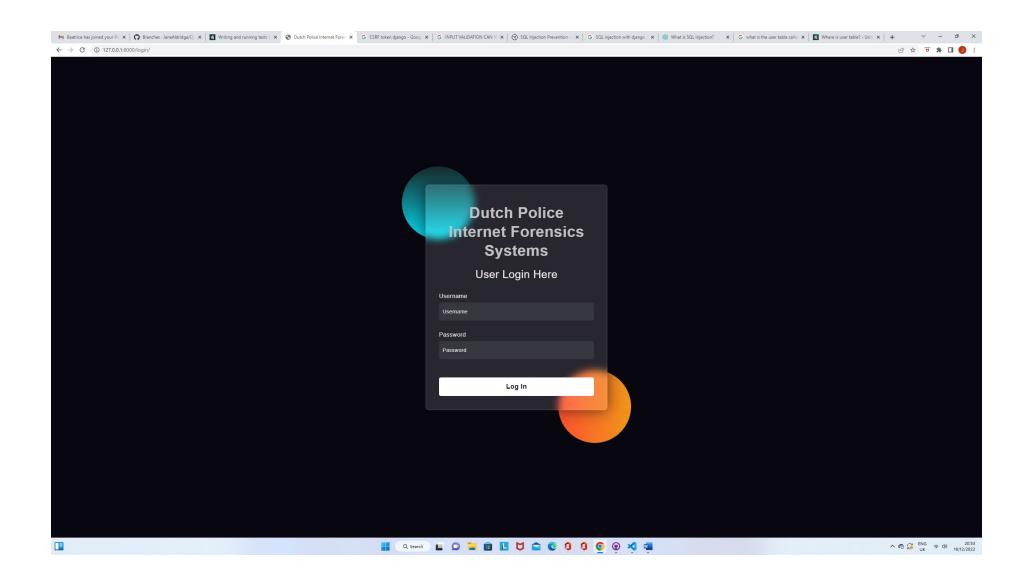




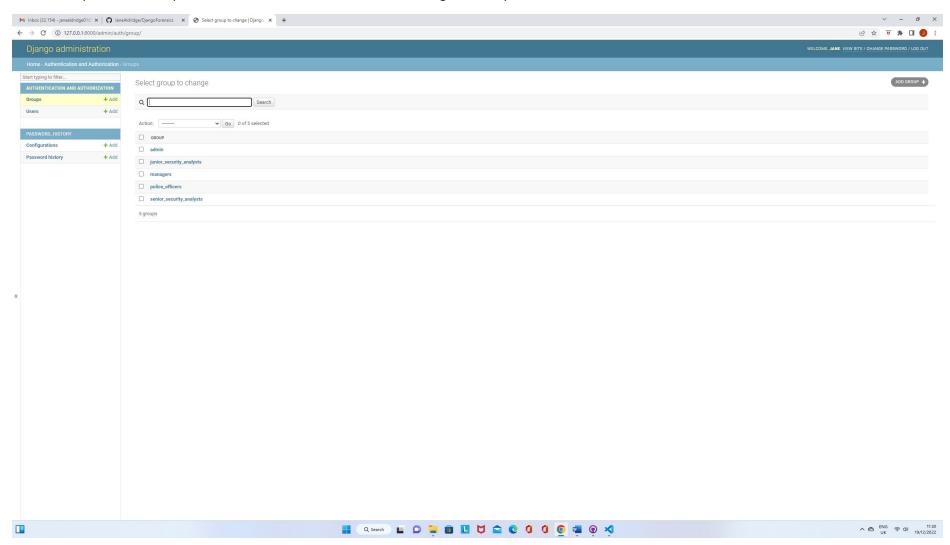


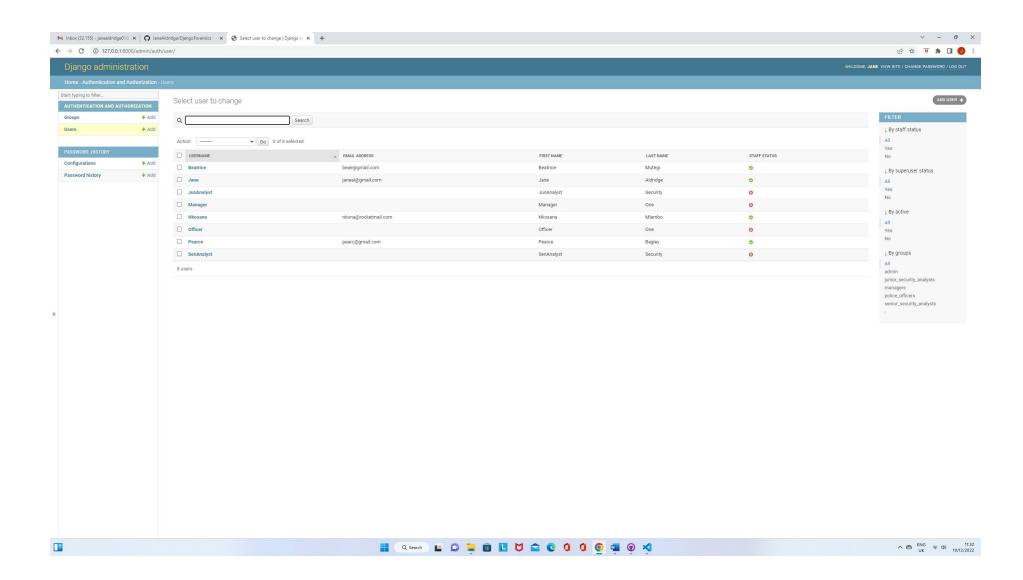
### Test 4.2 – Login as the officer and logout from the dashboard – TEST PASSED

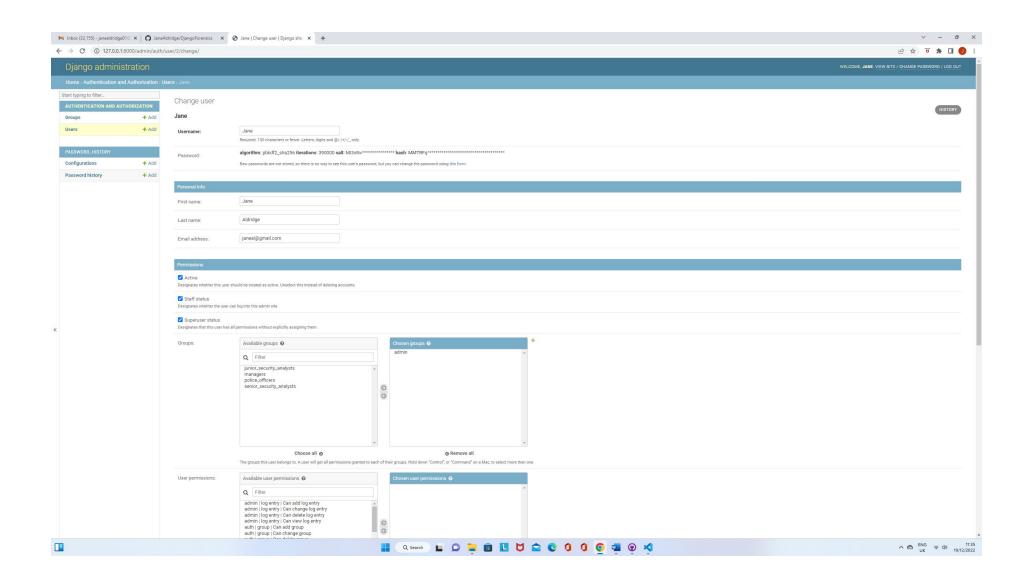


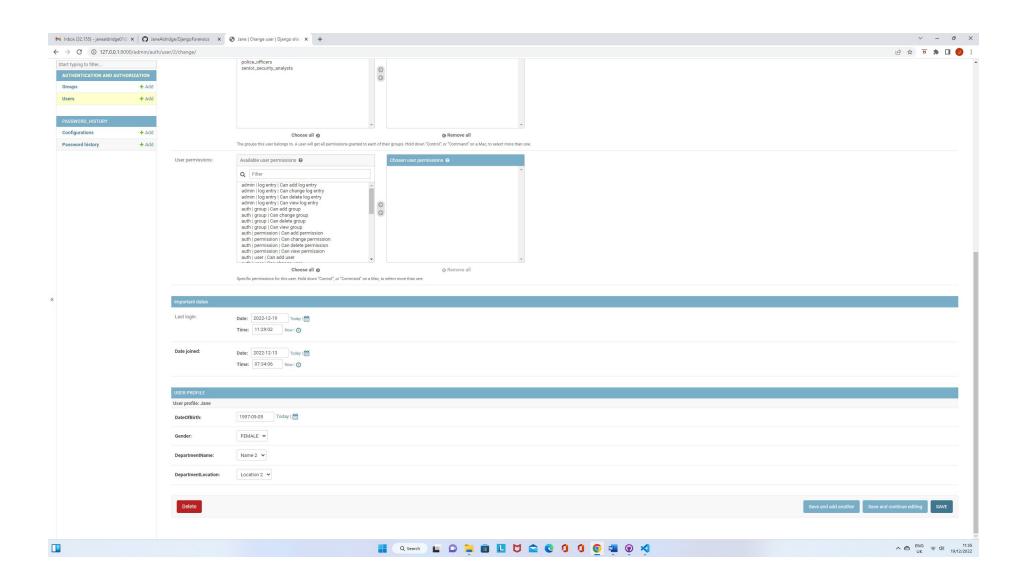


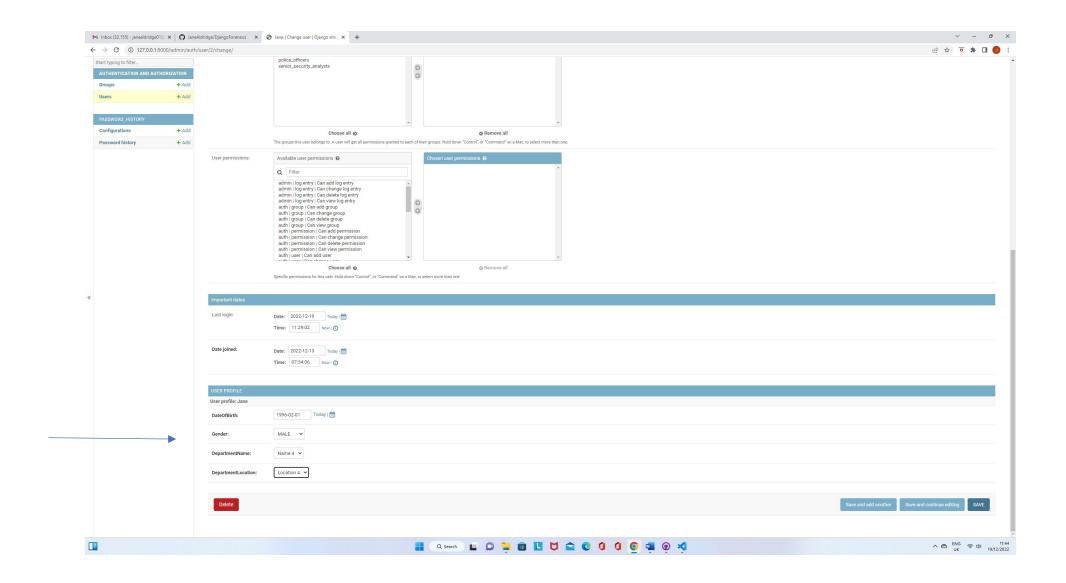
Test 5.1 – Update the user profile fields which have been added – DOB, gender, department name, location – TEST PASSED

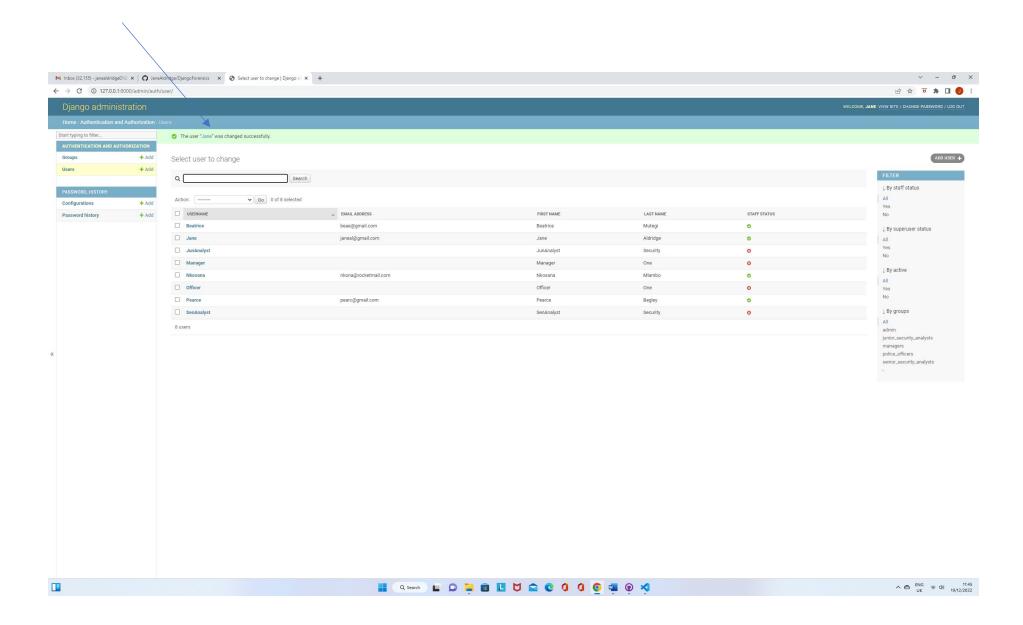


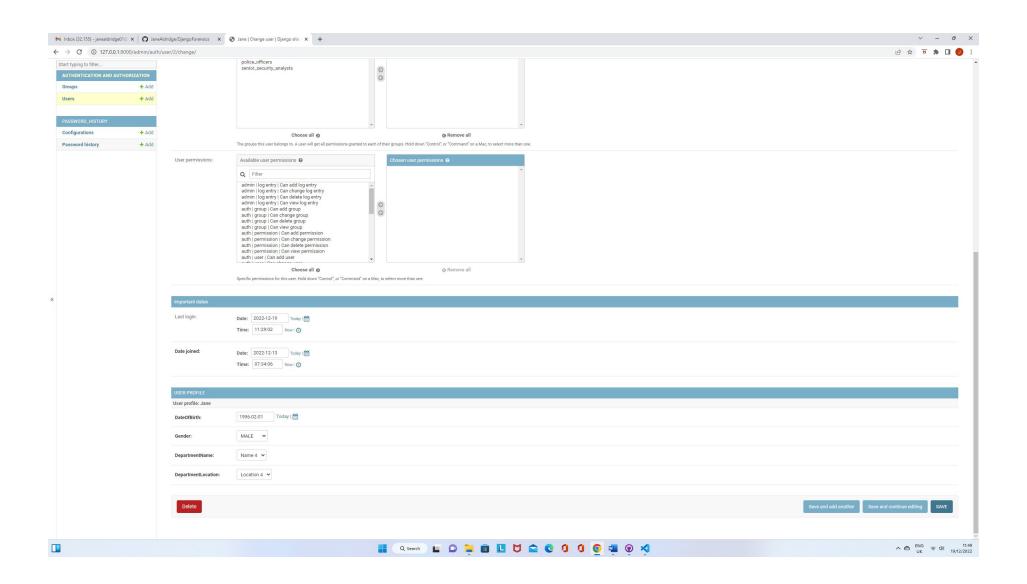












## Test 6.1 – Create a new user and then logon with that user – TEST PASSED

