Functionality Testing Output.

1. Admin Authentication Test

Figure 1 below depicts the output of Admin authentication, demonstrating a successful login.

```
+++++++++++++++++++++++++++++++++++++++++
*** SSD Group 4 Internet Forensics Tools ***
+++++++++++++++++++++++++++++++++++++++++

- To know more about our Tools Enter 1
- If you are exist user Enter 2 for login

Enter your choice : 2
+++++++++++++++++++++++++++++++++++++++++
*** SSD Group 4 Internet Forensics Tools ***
+++++++++++++++++++++++++++++++++++++++++

Enter your ID: 220

Enter your Password:


  ***   gAFBcVOw   ***


Enter your security code :

**Login Successfully**

I am an Admin
What is your favourite colour?

Enter your answer :


- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : █
```

Figure 1: Admin Authentication Test Output.

2. New user creation/registration

Figure 2 is a depiction of a successful user registration functional test.


```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 1

Enter your ID: 211
-1

Enter your Password:
The password must be more than 8 and include:
 UPPER,lower,numbers and special characters

Enter your Password:

Enter your Name : Agent_1

Enter user title : (Tester or Admin)Tester

Enter your Email : agent_1@dutchpolice.nl

Enter your Phone: 02033330220

**Please answer followings security questions**

What is your pet name? Caty

What is your first car? VW

 What is your favourite colour? Blue
1 Record inserted successfully into users Table
```

Figure 2: User Registration Functional Test.

2.1 User Authentication Test

The created user has been successfully authenticated, as depicted below.

Figure 3:User Authentication Test.

3. Fingerprint Functional Test

Fingerprinting functionality was completed successfully.


```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 2
quiet-forget
10.222.161.154
('quiet-forget', [], ['10.222.161.154'])
```

Figure 4:Fingerprinting Functional Test.

4. CPU and Memory Usage

CPU and Memory usage functionality was tested successfully.


```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 3
CPU Usage: 43.5 %
Memory Usage: svmem(total=805306368, available=581574656, percent=27.8, used=223731712, free=534994944, active=126214144, inactive=125313024, buffers=0, cached=46579712, shared=118784, slab=0)
Memory Used: 27.8 %
```

Figure 5: Memory and CPU Functional Testing.

5. ICMP Packet Capture.

A ping request was sent to 8.8.8.8 (Google's public DNS service), and the result a depicted below. Below is successful testing of the ICMP packet capture functionality.

Figure 6: ICMP Packet Capture Functionality

6. TCP Packet Capture

TCP packet capture functionality was completed successfully.

```
Version : 4 IP Header Length : 5 TTL : 63 Protocol : 6 Source Address : 192.168.11.51 Destination Address : 10.222.161.154
Source Port : 41148 Dest Port : 22 Sequence Number : 2980157885 Acknowledgement : 3925892409 TCP header length : 13
Data : b''
Version : 4 IP Header Length : 5 TTL : 63 Protocol : 6 Source Address : 192.168.11.51 Destination Address : 10.222.161.154
Source Port : 41148 Dest Port : 22 Sequence Number : 2980157885 Acknowledgement : 3925892409 TCP header length : 13
Data : b''
Version : 4 IP Header Length : 5 TTL : 63 Protocol : 6 Source Address : 192.168.11.51 Destination Address : 10.222.161.154
Source Port : 41148 Dest Port : 22 Sequence Number : 2980157885 Acknowledgement : 3925892409 TCP header length : 13
Data : b''
Version : 4 IP Header Length : 5 TTL : 63 Protocol : 6 Source Address : 192.168.11.51 Destination Address : 10.222.161.154
Source Port : 41148 Dest Port : 22 Sequence Number : 2980157885 Acknowledgement : 3925892409 TCP header length : 13
Data : b''
^CSource Port : 41148 Dest Port : 22 Sequence Number : 2980157885 Acknowledgement : 3925892409 TCP header length : 11
Something Wrong!

- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d
```

Figure 7: TCP Packet Capture.

7. User and Database Views

The User and Database view functionality was tested successfully.

```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 8

- Enter 1 to show Database
- Enter 2 to show users details
- Enter 3 to show users columns
To go back enter Ctrl+d

 Enter your choice :2
('200', 'Tester', 'Tester', 'Tester@ift.com', '02033330200')
('211', 'Agent_1', 'Tester', 'agent_1@dutchpolice.nl', '02033330220')
('212', 'System_User', 'Tester', 'system_user@police.nl', '02051554155')
('220', 'Admin', 'Admin', 'admin@ift.com', '02033330220')
```

Figure 8:User Details from the Table.

```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 8

- Enter 1 to show Database
- Enter 2 to show users details
- Enter 3 to show users columns
To go back enter Ctrl+d

 Enter your choice :1
('information_schema',)
('ift_database',)
```

Figure 9:List of Databases.

```
- Enter 1 for user registration
- Enter 2 for the Fingerprint
- Enter 3 for CPU & Memory Usage
- Enter 4 for the Current server portscan
- Enter 5 for specific IP port scan
- Enter 6 for ICMP packet captures
- Enter 7 for TCP packet captures
- Enter 8 for Users and Database views
To go back enter Ctrl+d

Enter your choice : 8

- Enter 1 to show Database
- Enter 2 to show users details
- Enter 3 to show users columns
To go back enter Ctrl+d

 Enter your choice :3
('id', 'varchar(4)', 'NO', 'PRI', None, '')
('password', 'varchar(30)', 'YES', '', None, '')
('name', 'varchar(255)', 'YES', '', None, '')
('title', 'varchar(30)', 'YES', '', None, '')
('email', 'varchar(255)', 'YES', '', None, '')
('phone', 'varchar(12)', 'YES', '', None, '')
```

Figure 10:A Metadata Description.