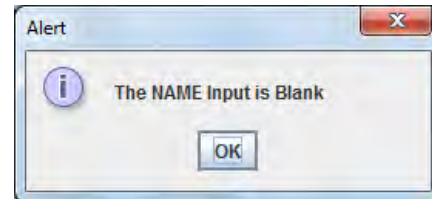


3. Testing the Application

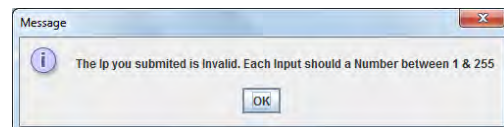
a. The user omits to submit a Username and is alerted about the false activity

The screenshot shows the 'InputWindow' application. At the top, there are four input fields containing the values '192', '168', '1', and '100'. To the right of these is a text box labeled 'IP Name'. Below the IP Name field, it says 'Registered Users: 0'. In the center, there are ten port input fields labeled 'Port 0' through 'Port 9'. At the bottom, there are three buttons: 'submit', 'statistics', and 'clear'.

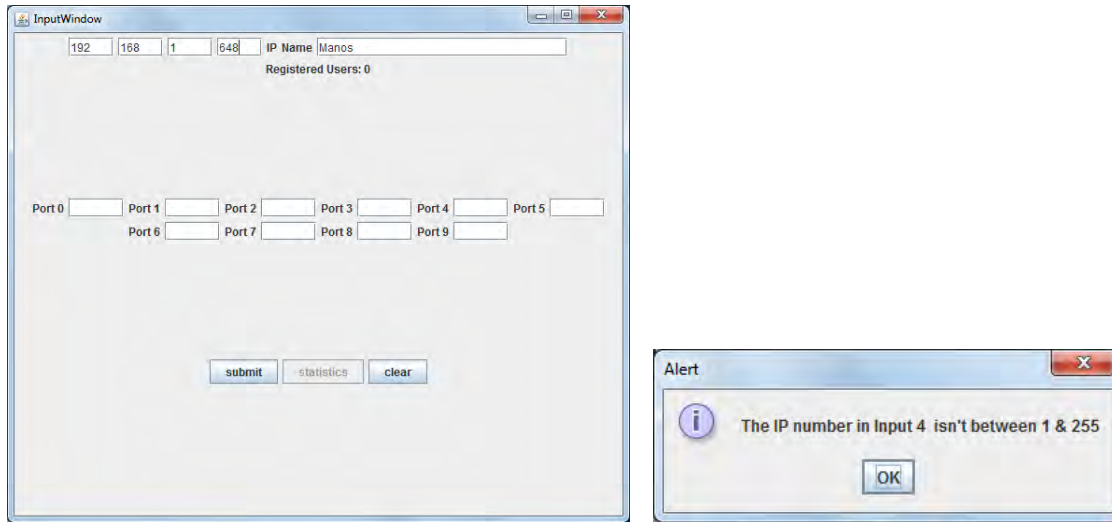


b. The user omits to submit a valid IP address by leaving an input field blank and is informed by the application

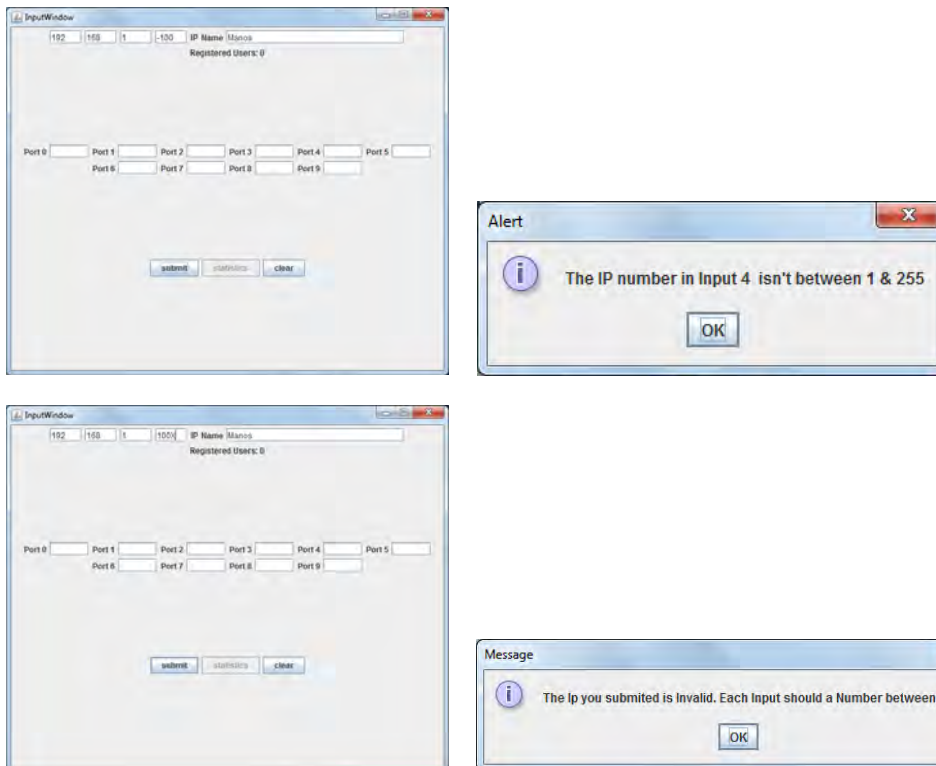
The screenshot shows the 'InputWindow' application. The first three input fields contain '192', '168', and '1'. The fourth input field is empty. The 'IP Name' text box contains the text 'Manos'. Below it, it says 'Registered Users: 0'. The port input fields and buttons are the same as in the previous screenshot.



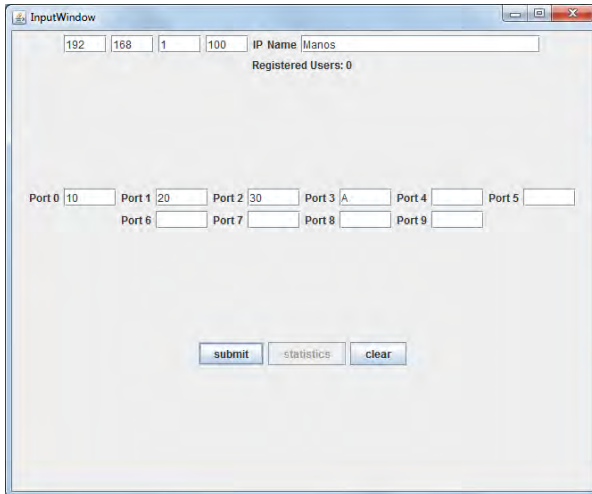
c. The user inputs an IP address that is invalid by submitting within an input field a number that is greater than the number 255 and alerted with the false action within a specific input that the conflict was traced



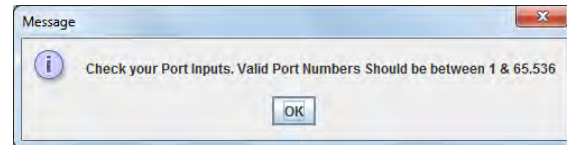
The same secure action is triggered when an appropriate character is submitted or a negative value is applied



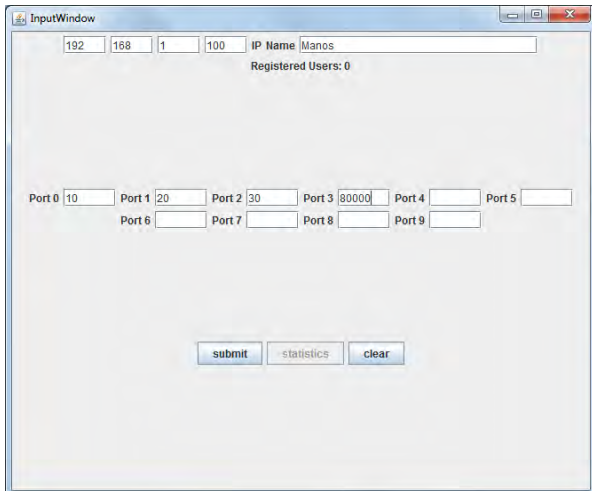
d. The user submits an invalid Port number placing an alphabetical character within a port field and is informed with the specifications of proper values, as also the section that the conflict was traced



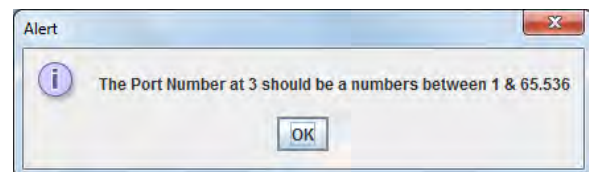
The screenshot shows a window titled "InputWindow". At the top, there are four input fields containing the values "192", "168", "1", and "100". To the right of these is a text field labeled "IP Name" containing the value "Manos". Below this, it says "Registered Users: 0". In the center, there are ten port input fields arranged in two rows. The first row contains "Port 0" (10), "Port 1" (20), "Port 2" (30), "Port 3" (A), "Port 4" (), "Port 5" (). The second row contains "Port 6" (), "Port 7" (), "Port 8" (), "Port 9" (). At the bottom, there are three buttons: "submit", "statistics", and "clear".



A similar action is performed when a user tries to input a port number that goes beyond the specific values allowed for this area and informed of the exact port label number the conflict emerged and instructions to overcome the conflict

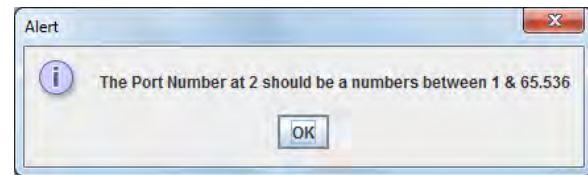


The screenshot shows the same "InputWindow" application. The port input fields are now: "Port 0" (10), "Port 1" (20), "Port 2" (30), "Port 3" (80000), "Port 4" (), "Port 5" (), "Port 6" (), "Port 7" (), "Port 8" (), "Port 9" (). The "submit", "statistics", and "clear" buttons are still at the bottom.



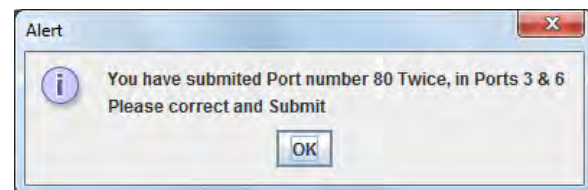
A Relevant action is triggered when negative values applied providing adequate instructions trace and handle the false activity efficient

The screenshot shows a window titled "InputWindow" with a standard Windows-style title bar. Inside, there are several input fields: three at the top (containing 192, 168, and 1), an "IP Name" field (containing "Manos"), and a "Registered Users: 0" label. Below these are ten "Port" input fields arranged in two rows of five. The first row contains Port 0 (10), Port 1 (20), Port 2 (-30), Port 3 (80), Port 4 (empty), and Port 5 (empty). The second row contains Port 6 (empty), Port 7 (empty), Port 8 (empty), Port 9 (empty), and Port 10 (empty). At the bottom, there are three buttons: "submit", "statistics", and "clear".



As also when duplicate port numbers where applied by users, the application displays a comprehensive message describing the false action complemented with the number that was submitted twice and the port label numbers that carries the duplicates

This screenshot is similar to the first one, but the input values are different. Port 2 now contains "120" and Port 6 contains "80". All other fields and buttons remain the same.



In contrast when all inputs are handled appropriate the application registers the user, cleans all inputs and update the sign of registered users to 1

The first screenshot shows the 'InputWindow' with the following state:

- IP Name: Manos
- Registered Users: 0
- Port 0: 10, Port 1: 20, Port 2: 120, Port 3: 80, Port 4: , Port 5: , Port 6: 268, Port 7: , Port 8: , Port 9:
- Buttons: submit, statistics, clear

The second screenshot shows the 'InputWindow' with the following state:

- IP Name:
- Registered Users: 1
- Port 0: , Port 1: , Port 2: , Port 3: , Port 4: , Port 5: , Port 6: , Port 7: , Port 8: , Port 9:
- Buttons: submit, statistics, clear

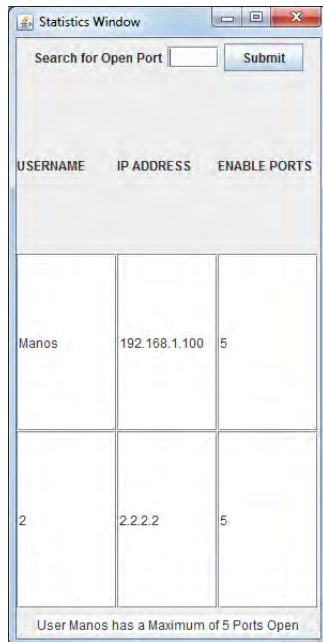
e. All users have successfully been registered. The application informs that no more users can be registered, disables the “submit” button and enables the “statistics” one

The screenshot shows the 'InputWindow' with the following state:

- IP Name:
- Can't Register More Users
- Port 0: , Port 1: , Port 2: , Port 3: , Port 4: , Port 5: , Port 6: , Port 7: , Port 8: , Port 9:
- Buttons: submit, statistics, clear

f. The button “statistics” is pressed. A new “Statistics Window” appears that displays records of registered users. At this example the users have been adjusted only to 2 but this is adjusted handily based on individual criteria. When the user asks for a certain port number a pop-up window displays the results.

i.



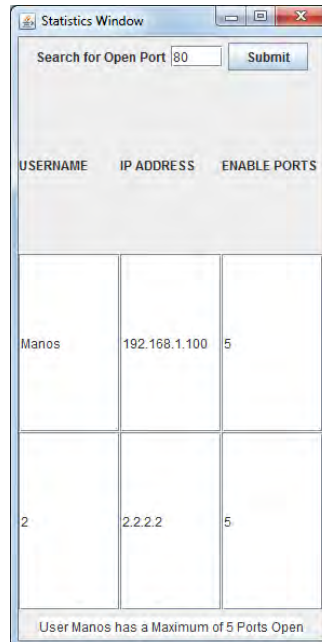
Statistics Window

Search for Open Port

USERNAME	IP ADDRESS	ENABLE PORTS
Manos	192.168.1.100	5
2	2.2.2.2	5

User Manos has a Maximum of 5 Ports Open

ii.



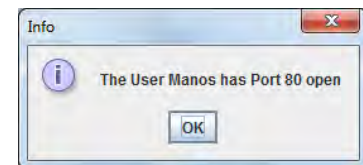
Statistics Window

Search for Open Port


USERNAME	IP ADDRESS	ENABLE PORTS
Manos	192.168.1.100	5
2	2.2.2.2	5

User Manos has a Maximum of 5 Ports Open

iii.



Info

 The User Manos has Port 80 open

* The methodology & function of the application is described in detail commenting every step in the Source Code provided in the appendix