Testing Of Team Broadsword Access User

Team longsword Access

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Team Lisp

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1.1.1 Authenticate user

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Status	String	"guest" "admin" "user"	Satisfies value specification	Does not satisfy value specification	Empty string, Null

Test case generation/use case based test:

Test case	Username	Valid	Expected result	Actual result
1	"guest"	Valid	Proceed to requested page as guest	Proceed to requested page as guest
2	"admin"	Valid	Proceed to requested page as admin	Proceed to requested page as admin
3	"user"	Valid	Proceed to requested page as user	Proceed to requested page as user
4	""	Invalid	Show error message	Proceed to requested page as guest
5	"randomString"	Invalid	Show error message	Proceed to requested page as guest

1.1.2 Login

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Username	String	Non-empty string With length of 9. A registered username.	Satisfies value specification	Does not satisfy value specification or is not a registered username	Usernames with special characters or spaces
Password	String	Non-empty string. Match password for given username.	Satisfies value specification	Does not satisfy value specification or is does not match password for username	Empty string, invalid characters.

Test case generation/Use case based test:

Test case	Username	Valid username	Password	Valid password	Expected result	Actual result
1	"u15099999"	Valid	"123"	Valid	Proceed to requested page	Proceed to home page
2	"u15099999"	Valid	"invalid password"	Invalid	Show error message	Show error message
3	"u15099999"	Valid	""	Invalid	Show error message	Highlights empty input field
4	""	Invalid	"123"	Valid	Show error message	Highlights empty input field
5	""	Invalid	""	Valid	Show error message	Highlights empty input field
6	"x15099999" (not registered)	Invalid	"123"	Invalid	Show error message	Show error message
7	"u150999999000000"	Invalid	"123"	Invalid	Show error message	Show error message

1.1.3 Register

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
First name	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Surname	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Student Number / EMPLID	String	Non-empty string With length of 9. A non-registered username.	Satisfies value specification	Does not satisfy value specification or is a registered username	Usernames with special characters or spaces
Email	String	Non-empty string. Contains "@" and a valid domain.	Satisfies value specification	Does not contain "@" or a valid domain	Invalid special characters.
Phone number	String	Valid RSA phone number of length 10 numerical digits.	Registered RSA number of length 10	Does not satisfy value specification	Non RSA phone numbers.
Password	String	Non-empty string.	Satisfies value specification	Does not satisfy value specification or is does not match password for username	Empty string, invalid characters.
Confirm password	String	Non-empty string, matches 'Password'	Satisfies value specification and matches 'Password'	Does not match 'Password'	None

Test case generation:

First name	Surname	Student Number / EMPLID	Email	Phone number	Password	Confirm password	Expected output
Valid	Valid	Valid	Valid	Valid	Valid	Valid	Show message for successful registration and proceeds to home page
Invalid	Invalid	Valid	Valid	Valid	Valid	Valid	Highlight invalid field
Valid	Valid	Invalid	Valid	Valid	Valid	Valid	Highlight invalid field
Valid	Valid	Valid	Invalid	Valid	Valid	Valid	Highlight invalid field
Valid	Valid	Valid	Valid	Invalid	Valid	Valid	Highlight invalid field
Valid	Valid	Valid	Valid	Valid	Invalid	Valid	Highlight invalid field
Valid	Valid	Valid	Valid	Valid	Valid	Invalid	Highlight invalid field
Valid	Valid	Valid	Valid	Valid	Invalid	Invalid	Highlight invalid fields
Valid	Valid	Invalid	Invalid	Valid	Valid	Valid	Highlight invalid fields
Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Highlight invalid fields

Use case based tests

Test case	First name	Surname	Student Number / EMPLID	Email	Phone number	Password	Confirm password	Expected result	Actual result
1	"Jannie"	"Koos"	"u150999999"	"Email @example.com"	"0825226667"	"123"	"123"	Show message for successful registration and proceeds to home page	Show message for successful registration and proceeds to login page
2	""	""	"u150999999"	"Email @example.com"	"0825226667"	"123"	"123"	Highlight invalid field	Highlight invalid field
3	"Jannie"	"Koos"	""	"Email @example.com"	"0825226667"	"123"	"123"	Highlight invalid field	Highlight invalid field
4	"Jannie"	"Koos"	"u150999999 000000"	"Email @example.com"	"0825226667"	"123"	"123"	Highlight invalid field	None
5	"Jannie"	"Koos"	"u150999999"	""	"0825226667"	"123"	"123"	Highlight invalid field	Highlight invalid field
6	"Jannie"	"Koos"	"u150999999"	"email"	"0825226667"	"123"	"123"	Highlight invalid field	Disables register button
7	"Jannie"	"Koos"	"u150999999"	"Email @example.com"	""	"123"	"123"	Highlight invalid field	Highlight invalid field
8	"Jannie"	"Koos"	"u150999999"	"Email @example.com"	"eeeeeeeeee"	"123"	"123"	Highlight invalid field	Disables register button
9	"Jannie"	"Koos"	"u150999999"	"Email @example.com"	"0825226667"	""	""	Highlight invalid field	Highlight invalid field
10	"Jannie"	"Koos"	"u150999999"	"Email @example.com"	"0825226667"	"123"	"456"	Highlight invalid field	Show error message for password comparison

1.1.4 View user profile

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Student Number / EMPLID	String	Non-empty string With length of 9 and is a registered user.	Satisfies value specification	Does not satisfy value specification.	Usernames with special characters or spaces

Test case generation/ Use case based tests:

Test case	Student Number / EMPLID	Valid	Expected result	Actual result
1	"u15099999"	Valid	Show user information	Show user information
2	""	Invalid	Show error	Show error
3	"u1509999900000"	Invalid	Show error	Show error

1.1.5 Update user information

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
First name	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Surname	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Student Number / EMPLID	String	Non-empty string With length of 9 and is a registered user.	Satisfies value specification	Does not satisfy value specification.	Usernames with special characters or spaces
Email	String	Non-empty string. Contains "@" and a valid domain.	Satisfies value specification	Does not contain "@" or a valid domain	Invalid special characters.
Password	String	Non-empty string.	Satisfies value specification	Does not satisfy value specification or is does not match password for username	Empty string, invalid characters.

Test case	First name	Surname	Student Number / EMPLID	Email	Phone number	Password	Expected result	Actual result
1	"Jannie"	"Koos"	"u150999999"	"Email@example.com"	"0825226667"	"123"	Show confirmation message	Update user information, show confirmation message and navigate to home page
2	""	""	"u150999999"	"Email@example.com"	"0825226667"	"123"	Highlight invalid field	Update user information, show confirmation message and navigate to home page
3	"Jannie"	"Koos"	""	"Email@example.com"	"0825226667"	"123"	Show error message	Show error message
4	"Jannie"	"Koos"	"u150999999000000"	"Email@example.com"	"0825226667"	"123"	Show error message	Show error message
5	"Jannie"	"Koos"	"u150999999"	""	"0825226667"	"123"	Highlight invalid field	Update user information, show confirmation message and navigate to home page
6	"Jannie"	"Koos"	"u150999999"	"email"	"0825226667"	"123"	Highlight invalid field	Update user information, show confirmation message and navigate to home page
7	"Jannie"	"Koos"	"u150999999"	"Email@example.com"	""	"123"	Highlight invalid field	Update user information, show confirmation message and navigate to home page
8	"Jannie"	"Koos"	"u150999999"	"Email@example.com"	"eeeeeeeeee"	"123"	Highlight invalid field	Update user information, show confirmation message and navigate to home page
9	"Jannie"	"Koos"	"u150999999"	"Email@example.com"	"0825226667"	""	Highlight invalid field	Update user information, show confirmation message and navigate to home page

Test case generation:

First name	Surname	Student Number / EMPLID	Email	Password	Expected output
Valid	Valid	Valid	Valid	Valid	Show message for successful registration and proceeds to home page
Invalid	Invalid	Valid	Valid	Valid	Highlight invalid field
Valid	Valid	Invalid	Valid	Valid	Highlight invalid field
Valid	Valid	Valid	Invalid	Valid	Highlight invalid field
Valid	Valid	Valid	Valid	Invalid	Highlight invalid field
Valid	Valid	Invalid	Invalid	Valid	Highlight invalid fields
Invalid	Invalid	Invalid	Invalid	Invalid	Highlight invalid fields

1.1.6   Delete user profile

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Student Number / EMPLID	String	Non-empty string With length of 9 and is a registered user.	Satisfies value specification	Does not satisfy value specification.	Usernames with special characters or spaces

Test case generation/ Use case based tests:

Test case	Student Number / EMPLID	Valid	Expected result	Actual result
1	"u15099999"	Valid	Show user information	Show user information
2	""	Invalid	Show error	Show error
3	"u1509999900000"	Invalid	Show error	Show error

1.1.7 Manage user information

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Status	String	"admin"	Satisfies value specification	Does not satisfy value specification.	Special characters and other status
Student Number / EMPLID of Admin	String	Non-empty string With length of 9 and is a registered admin user.	Satisfies value specification	Does not satisfy value specification.	Usernames with special characters or spaces
Student Number / EMPLID of searched student	String	Non-empty string With length of 9 and is a registered user.	Satisfies value specification	Does not satisfy value specification.	Usernames with special characters or spaces

Test case generation/ Use case based tests:

Test case	Student Number / EMPLID of Admin	Valid admin number	Student Number / EMPLID of searched student	Valid student number	Status	Valid status	Expected result	Actual result
1	"u15099999"	Valid	"u15088888"	Valid	"admin"	Valid	Editing permissions granted	Editing permissions granted, but no further functionality supported
2	""	Invalid	"u15088888"	Valid	"admin"	Valid	Show error	Editing permissions granted, but no further functionality supported
3	"!@$@$"	Invalid	"u15088888"	Valid	"admin"	Valid	Show error	Editing permissions granted, but no further functionality supported
4	"u15099999"	Invalid	"u15088888"	Invalid	""	Valid	Show error	Editing permissions granted, but no further functionality supported
5	"u15099999"	Valid	"u15088888"	Valid	"guest"	Invalid	Show error	Editing permissions granted, but no further functionality supported
6	"u15099999"	Valid	"u15088888"	Valid	"jipper"	Invalid	Show error	Editing permissions granted, but no further functionality supported
7	"u15099999"	Valid	""	Invalid	"admin"	Valid	Show error	Editing permissions granted, but no further functionality supported

Functionality	Mark(10)
Authenticate user	5
Login	6
Register	6
View user profile	8
Update user information	5
Delete user information	7
Manage user information	3

Figure 1: Marks

- Authenticate barely functioned and there were far too many security loopholes on the access side when a user needed to be authenticated

- Login functioned as needed and only when trying to break the system do these errors reveal themselves

- Register functioned as needed, but was not very clear on certain errors or the way they handled errors wasn't very user friendly

- View user profile was the best out of the service contracts it did what it needed to do, but we felt that there could have been done more visually and functionally

- Update user profile functioned, but it also allowed the user to potential break or corrupt their own profile by entering nonsensical data

- Delete functioned as needed, but again there wasn't too much to it and they could have improved on it visually

- Manage user information, despite being able to grant yourself admin rights by hacking the authenticate function, there is also almost no real functionality coded onto the page other than simplistic visuals.

1.2 Non-functional requirements

1. Security
2. User interface
3. Performance

1.2.1 Security

- It is possible to change your user privileges to admin by changing the status of the user in the URL to 'admin' at any page.
  Once changing status to admin the users can officially give admin rights to themselves and other users.

- Users can edit their user information to be empty strings especially for the password.
  A password is not required to change the password or any other user information.

- Users can login as other users by changing the user field in the URL to any valid user name.

1.2.2 User interface

Features are hidden based on user status i.e. manage users tab is hidden to guest users, but is visible to admin users

1.2.3 Performance

Functionality	Time to load (ms)
Login	8
Register	12
Profile	9
Manage users	8
Average	9.25

Performance-wise the pages were relatively fast and had nearly no noticeable loading time.

2 Notifications

2.1 Service Contracts

1. Send Notification

2.1.1   Send Notification

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
First name	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Surname	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Student Number / EMPLID	String	Non-empty string With length of 9. A non-registered username.	Satisfies value specification	Does not satisfy value specification or is a registered username	Usernames with special characters or spaces
Email	String	Non-empty string. Contains "@" and a valid domain.	Satisfies value specification	Does not contain "@" or a valid domain	Invalid special characters.
Phone number	String	Valid RSA phone number of length 10 numerical digits.	Registered RSA number of length 10	Does not satisfy value specification	Non RSA phone numbers.
Password	String	Non-empty string.	Satisfies value specification	Does not satisfy value specification or is does not match password for username	Empty string, invalid characters.
Confirm password	String	Non-empty string, matches 'Password'	Satisfies value specification and matches 'Password'	Does not match 'Password'	None

Test case generation:

First name	Surname	Student Number / EMPID	Email	Phone number	Password	Confirm password	Expected output	Actual output
Valid	Valid	Valid	Valid	Valid	Valid	Valid	Email gets sent to email address provided and/or sms gets sent to number provided, along with feedback saying successful registration.	No email was received, no sms was received but feedback was received saying successful registration.
Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	Feedback saying data is incorrect. No email, no sms.	Feedback was received saying data is incorrect and no sms or email was sent.

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3 GIS

3.1 Service Contracts

1. Service GIS request
a. Get XYZ coordinates of a named location
2. Add GIS information
a. Add a location with coordinates to the system
3. Modify GIS information
4. Remove GIS information
5. Update GIS Map
6. Modify GIS Map

3.1.1 Service GIS request

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Location	string	Non-empty string	Satisfies value specification	Does not satisfy value specification	None

Test case generation/use case based test:

Test case	Location	Valid	Expected result	Actual result
1	Get Current Location	Valid	Receive coordinates of current location	Receive default coordinates
2	EMB	Valid	Receive coordinates of EMB building	Receive coordinates of EMB building
3	IT Building	Valid	Receive coordinates of IT building	Receive coordinates in path in front of IT building, inaccurate coordinates.
4	Amphitheatre	Valid	Receive coordinates of Amphitheatre	Receive coordinates in path in front of Amphitheatre, inaccurate coordinates.
5	Chapel	Valid	Receive coordinates of Chapel building	Receive coordinates in path in front of Chapel building, inaccurate coordinates.
6	Engineering1	Valid	Receive coordinates of Engineering1 building	Receive coordinates in path in front of Engineering1 building, inaccurate coordinates.

- There is no method to only access a location. In order to see where the EMB building is for example, one has to navigate there from the current position or another location.
- The coordinates given are not accurate. One expects the coordinates of a building to represent the centre of that building not the area in front of it.

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Location Name	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Coordinates	integer	X and Y coordinates of the location separated by a ,	Satisfies value specification	Does not satisfy value specification	None

Test case generation/use case based test:

Test case	Name	Valid	Coordinates	Valid	Expected result	Actual result
1	UP Arts Building	Valid	-25.755730, 28.227820	Valid	Message that the location has been added to the GIS database	Message that the location has been added to the GIS database
2	Merissa's Location	Valid	0,0	Valid	Message that the location has been added to the GIS database	Message that the location has been added to the GIS database
3	1234567	Invalid	0,1	Valid	Message that warns about the invalid name of the location	Message that the location has been added to the GIS database
4	""	Invalid	1,1	Valid	Message that warns about the invalid name of the location	Message that warns about the invalid name of the location
5	Test	Valid	"Sdsxss"	Invalid	Message that warns about the invalid coordinates	Message that warns about the invalid name of the location
6	""	Invalid	""	Invalid	Message that asks for input in both fields	Message that warns about the invalid name of the location

- There is no data validation in this section. The GIS objects are saved but they can be null and contain nonsensical data. Thus making the GIS objects that are persisted essentially useless.

3.1.2   Add GIS information

3.1.3   Modify GIS information

Input values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Location Name	String	Non-empty string	Satisfies value specification	Does not satisfy value specification	None
Coordinates	integer	X and Y coordinates of the location separated by a ,	Satisfies value specification	Does not satisfy value specification	None

Test case generation/use case based test:

Test case	Name	Valid	Coordinates	Valid	Expected result	Actual result
1 Change IT Building information to:	UP Arts Building	Valid	-25.755730, 28.227820	Valid	Message that says the information was changed. The show the changed information.	Nothing Happens
2 Change EMS Building information to:	Merissa's Location	Valid	0,0	Valid	Message that says the information was changed. The show the changed information.	Nothing Happens
3 Change Amphitheatre information to:	1234567	Invalid	0,1	Valid	Message that warns about the invalid name and prompts the user to enter a new name	Nothing Happens
4 Change chapel information to:	""	Invalid	1,1	Valid	Message that prompts the user to enter a name	Nothing Happens
5 Change IT Building information	Test	Valid	"Sdsxss"	Invalid	Message that warns the user about the invalid coordinates and prompts the user to enter valid coordinates	Nothing Happens

3.1.4 Remove GIS information

Input Element	Type
Click delete button	Button Click

Test case generation/use case based test:

Test case	Button Click	Valid	Expected result	Actual result
1	yes	Valid	Display confirmation of delete message and redirect to list of locations page to show deleted content	Display confirmation of delete message and redirect to list of locations page to show deleted content
2	no	Valid	Redirect back to list of locations page	Redirect back to list of locations page

3.1.5 Update GIS Map

Input values:

Input Element	Type
User interaction with map	Mouse

Test case generation/use case based test:

Test case	Username	Valid	Expected result	Actual result
1	Click and drag map around	Valid	Map updates to new locations that it has been dragged to	Map updates to new locations that it has been dragged to
2	Click the + and – signs on the map	Valid	Map zooms in and out	Map zooms in and out
3	Walk around	Valid	Map updates the current location	Nothing happens

3.1.6 Modify GIS Map

There is no functionality to modify the given map.

3.2   Non-functional requirements

Non-Functional Requirements	Mark (10)
User Interface	6
Performance	8

3.2.1   User interface

- The interface for adding GIS information is confusing. After saving the required information into the database, the information stays open and you cannot enter a new object until you refresh the page.

- There is no limit on how far the user can zoom in and out. This leaves the user fully able to see the entire world map and view other locations, which should not be able to happen in the NavUp application.

- The map can be dragged outside the boundaries of campus. This is not in the scope of the application.

- The interface for GIS data modification is confusing. The labels do not guide the user in what he or she is doing in any way.

4   Points of interest

4.1   Service Contracts

1. Search Location
2. Save Location
3. Get Current Location
4. Add Location
5. Modify Location
6. Remove Location

4.1.1   Functional Requirement Rating

Functional Requirement Report:

Functional Requirements	Mark (10)	Comment Index
Search Location	0	1
Save Location	4	2
Get Current Location	3	3
Add Location	0	4
Modify Location	0	5
Remove Location	0	6

4.1.2 Comment Index

Comments:

1. This functional requirement couldn't be tested as there was an error in the searchLocation method. Also there was no server interaction to persist the searched location. See figure 1.

2. This functional requirement managed to save the location locally, and notify the user, however the saved location was not persisted to the server and saved on the database. As a result, once the page is refreshed all changes are lost. See figure 2.

3. This functional requirement managed to display the "current location", and I place emphasis on current, mainly because this location is hardcoded and not in anyway dynamic. There is no evidence of dynamic calculation of the user's current location. See figure 2 and 3.

4. This functional requirement could not be tested as the functionality did not work due to an error in the source code relating to the searchLocation method. See figure 4.

5. Same as the case above.
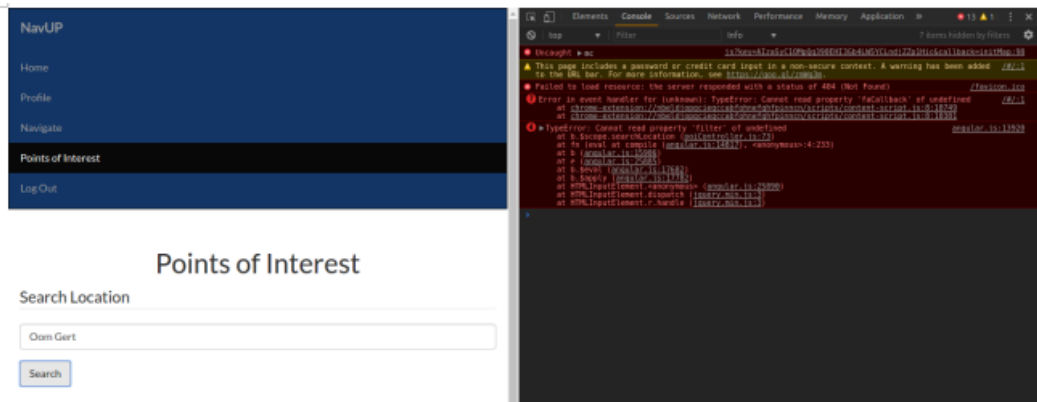
6. Same as the case above.

4.1.3   Figures

Figure 1. Failed use case of searching for a location. See the developer console on the right.
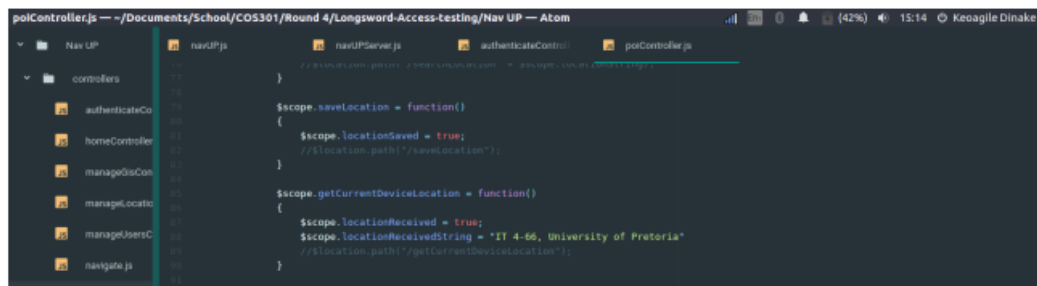

Figure 2. Snippet of the saveLocation method and the getCurrentDeviceLocation.
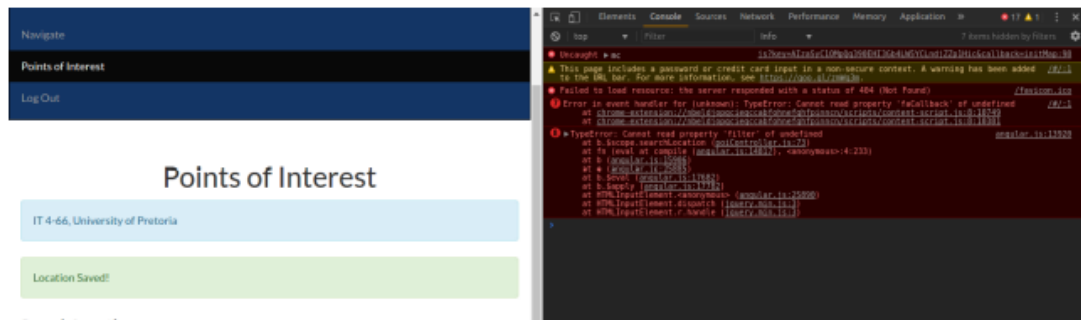
Figure 3. Notification of saved location (green) and the current location (blue)

Figure 4. Snippet of the admin related use cases, namely add location, modify location and remove location.

4.1.4 Conclusion

Conclusion:

It is clear that the point of interest sub section was not completed and rather disappointing, some non functional requirements such as usability were not taken into consideration. This is seen with the stack of notifications that are not cleared from the screen, and do not have options to be cleared by the user. Most user input validation was set to default html input types, and not even use of the required attribute. All point of interest methods, that were bound to a functional requirement and several use cases, did not interact with the backend.

There was a lack of effort from this side of the Broadsword Access team.

5 Navigation

5.1 Service Contracts

1. Specify current location
2. Specify destination
3. Select route preference option

5.1.1 Specify current location

- The âĂĲCurrent LocationâĂİ option does not locate the user but is hard-coded

- The list of buildings is not comprehensive âĂŞ It only has a handful of buildings

Input Values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
From Location	String	"Current Location" "IT Building" "EMB" "Client Service Center" "Chapel" "Merenskey Library" "Ampitheather" "Engineering 1"	An option is selected	None	None

5.1.2   Specify destination

Input Values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Destination	String	"Current Location" "IT Building" "EMB" "Client Service Center" "Chapel" "Merenskey Library" "Ampitheather" "Engineering 1"	An option is selected	None	None

- âĂIJCurrent LocationâĂİ is a redundant option

- The location selected in the From Location should be removed as a possible option in the Destination list

5.1.3   Select route preference option

Input Values:

Input Element	Type	Value Specification	Valid	Invalid	Exceptional Cases
Route Preference	String	"Calculate Shortest Route" "Calculate Simplest Route"	An option is selected	None	None

- In many cases there is no distinction between the two routes âĂŞ The difference, such as difference in distance, should be shown to the user

5.2   Non-functional requirements

5.2.1   User interface

- Layout is responsive and is still usable on small screens such as mobile phones

- The map is difficult to work with and does not portray the route in a clear manner