# Functional requirements:

# User:

# Service contracts:

1. Service GIS request
2. Get XYZ coordinates of a named location
3. Add GIS information
4. Add a location with coordinates to the system
5. Modify GIS information
6. Remove GIS information
7. Update GIS Map
8. Verify GIS Map
9. Defects in the look and feel of the user interface
10. Defects in data entry and output display
11. Defects in the actor-system interaction behaviour
12. Defects in error handling
13. Defects in documentation and help facility

# Case 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.

# Case 2: Add 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 | 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.
* 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.

# Case 3: Modify GIS information

# Input values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input Element | Type | Value Specification | Valid | Invalid | Exceptional Cases |
|  |  |  |  |  |  |

## Test case generation/use case based test:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test case | Username | Valid | Expected result | Actual result |
| 1 |  | Valid |  |  |
| 2 |  | Valid |  |  |
| 3 |  | Valid |  |  |
| 4 |  | Invalid |  |  |
| 5 |  | Invalid |  |  |

# Case 4: Remove GIS information

# Input values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input Element | Type | Value Specification | Valid | Invalid | Exceptional Cases |
|  |  |  |  |  |  |

## Test case generation/use case based test:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test case | Username | Valid | Expected result | Actual result |
| 1 |  | Valid |  |  |
| 2 |  | Valid |  |  |
| 3 |  | Valid |  |  |
| 4 |  | Invalid |  |  |
| 5 |  | Invalid |  |  |

# Case 5: Update GIS Map

# Input values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input Element | Type | Value Specification | Valid | Invalid | Exceptional Cases |
|  |  |  |  |  |  |

## Test case generation/use case based test:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test case | Username | Valid | Expected result | Actual result |
| 1 |  | Valid |  |  |
| 2 |  | Valid |  |  |
| 3 |  | Valid |  |  |
| 4 |  | Invalid |  |  |
| 5 |  | Invalid |  |  |

# Case 6: Verify GIS Map

# Input values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Input Element | Type | Value Specification | Valid | Invalid | Exceptional Cases |
|  |  |  |  |  |  |

## Test case generation/use case based test:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test case | Username | Valid | Expected result | Actual result |
| 1 |  | Valid |  |  |
| 2 |  | Valid |  |  |
| 3 |  | Valid |  |  |
| 4 |  | Invalid |  |  |
| 5 |  | Invalid |  |  |

# Non-functional requirements: