

Appendix G - Black-box test cases

Manage accounts

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	Add a new account	1. Fill out necessary information (email, password, first name and last name) 2. Create the account	"test@mail.com" "password" "Test" "Person"	The system displays a success message "Account successfully added"	As expected	Pass
2	Add an account with an already-existing email address	1. Fill out necessary information (email, password, first name and last name) 2. Try to create the account	"test@mail.com" "password" "Test" "Person"	An error message is displayed "Email already exists"	As expected	Pass
3	Add an account with no first name	1. Fill out necessary information (email, password and last name) 2. Try to create the account	"test@gmail.com" "password" " "Person"	An error message is displayed "First name missing"	As expected	Pass
4	Add an account with no last name	1. Fill out necessary information (email, password and first name) 2. Try to create the account	"test@gmail.com" "password" "Test" "	An error message is displayed "Last name missing"	As expected	Pass
5	Add an account with an invalid email	1. Fill out necessary information (email, password, first name and last name) 2. Try to create the account	"testgmail.com" "password" "Test" "Person" "test@gmail" "password" "Test" "Person"	An error message is displayed "Email not valid"	As expected	Pass
6	Add an account with password less than 6 characters	1. Fill out necessary information (email, password, first name and last name) 2. Try to create the account	"test@gmail.com" "pass" "Test" "Person"	An error message is displayed "Enter a password with at least 6 characters"	As expected	Pass
7	Add an account with missing fields	1. Do not fill in the required fields 2. Try to create the account	" " " "	An error message is displayed "Please fill in all the required fields"	As expected	Pass

8	View all existing accounts	1. Choose the "View" options 2. Check if all the accounts are displayed		All the existing accounts are displayed	As expected	Pass
9	Remove an account	1. Choose an account to be removed 2. Remove the account		The system displays a success message "Account successfully removed"	As expected	Pass
10	Remove your own account	1. Choose your account to be removed 2. Remove the account		The system displays an error message "Cannot delete yourself"	As expected	Pass

Table 1 - "Manage accounts" test case scenarios

Login

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	Log in to an existing account	1. Enter email and password 2. Log in	"test@mail.com" "password"	The Employee is logged in to their account	As expected	Pass
2	Log in to an account with an invalid password	1. Enter email and password 2. Try to log in	"test@mail.com" "pass"	An error message is displayed "Invalid email/password combination"	As expected	Pass
3	Log in to an account with not registered email	1. Enter email and password 2. Try to log in	"testing@mail.com" "password"	An error message is displayed " Email not registered"	As expected	Pass
4	Log in to an account with missing email address	1. Enter password 2. Try log in	" "password"	An error message is displayed "Email field cannot be empty"	As expected	Pass
5	Log in to an	1. Enter email	"test@mail.com"	An error	As expected	Pass

	account with missing password	2. Try log in	“”	message is displayed “Please fill in all the required fields”		
6	Log out	1. Log out	“test@mail.com” “password”	The user is logged out and the login screen is shown	As expected	Pass

Table 2 - “Login” test case scenarios

View data analysis

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	View the latest temperature measurement	1. Choose temperature as a measurement category	VIA	The system displays the latest temperature measurement	As expected	Pass
2	View the latest humidity measurement	1. Choose humidity as a measurement category	VIA	The system displays the latest humidity measurement	As expected	Pass
3	View the latest CO2 measurement	1. Choose CO2 as a measurement category	VIA	The system displays the latest CO2 measurement	As expected	Pass
4	View the latest sound measurement	1. Choose sound as a measurement category	VIA	The system displays the latest sound measurement	As expected	Pass
5	View the historical temperature measurements	1. Choose temperature as a measurement category	VIA 20-05-2022	The system displays the historical temperature measurements	As expected	Pass
6	View the historical humidity measurements	1. Choose humidity as a measurement category	VIA 19-05-2022	The system displays the historical humidity measurements	As expected	Pass
7	View the historical CO2 measurements	1. Choose CO2 as a measurement category	VIA 19-05-2022	The system displays the historical CO2 measurements	As expected	Pass

8	View the historical sound measurements	1. Choose sound as a measurement category	VIA 19-05-2022	The system displays the historical sound measurements	As expected	Pass
9	Try to view the historical measurements but have no data for the specified date	1. Choose any measurement as a measurement category	VIA 19-05-2023	The system displays an error message "No data available"	As expected	Pass

Table 3 - "View data analysis" test case scenarios

Manage areas

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	Add area	1. Fill out necessary information barn name, area name, (optional) description, number of pigs, hardware id 2. Create the area	"Farmerama" "FirstArea" "The most beautiful area" "150" "0004A30B00ED6757"	The system displays a success message "Area successfully added"	As expected	Pass
2	Add area with an already-existing name in the same barn	1. Fill out necessary information barn name, area name, (optional) description, number of pigs, hardware id 2. Try to create the area	"Farmerama" "FirstArea" "The most beautiful area" "150" "0004A30B002528D3"	The system displays an error message "Area name already exists"	As expected	Pass
3	Add area with no area name	1. Fill out necessary information barn name, (optional) description, number of pigs, hardware id 2. Try to create the area	"Farmerama" "" "The most beautiful area" "150" "0004A30B002528D3"	The system displays an error message "Please fill in all the required fields"	As expected	Pass
5	Add area with no number of pigs	1. Fill out necessary information barn name, area name, (optional) description, hardware id 2. Try to create the area	"Farmerama" "SecondArea" "The most beautiful area" "" "0004A30B002528D3"	The system displays an error message "Please fill in all the required fields"	As expected	Pass

6	Add area with no hardware id	1. Fill out necessary information barn name, area name, (optional) description, number of pigs, hardware id 2. Try to create the area	"Farmerama" "SecondArea" "The most beautiful area" "150" ""	The system displays an error message "Please fill in all the required fields"	As expected	Pass
7	Add area with an already-existing hardware id	1. Fill out necessary information barn name, area name, (optional) description, number of pigs, hardware id 2. Try to create the area	"Farmerama" "SecondArea" "The most beautiful area" "150" "0004A30B00ED6757"	The system displays an error message "Hardware id already exists"	As expected	Pass
8	Select area as main display area	1. Select a main display area		The system displays a success message "Main display area successfully changed"	As expected	Pass
9	Edit an area	1. Fill out necessary information barn name, area name, (optional) description, number of pigs, hardware id 2. Edit the area	"SecondArea" "The second most beautiful area" "30" "0004A30B002528D3"	The system displays a success message "Area successfully updated"	As expected	Pass
10	Edit an area with an already-existing name of another area in the same barn	1. Change the area name 2. Try to edit the area	"SecondArea"	The system displays an error message "Area name already exists"	As expected	Pass
11	Edit area with no name	1. Change the area name 2. Try to edit the area	""	The system displays an error message "Please fill in all the required fields"	As expected	Pass
12	Edit area with no number of pigs	1. Change the number of pigs 2. Try to edit the area	""	The system displays an error message "Please fill in all the required fields"	As expected	Pass
13	Edit area with no hardware id	1. Change the hardware id 2. Try to edit the area	""	The system displays an error message "Please fill in	As expected	Pass

				all the required fields"		
14	Edit area with an already-existing hardware id	1. Change the hardware id 2. Try to edit the area	"0004A30B002528 D3"	The system displays an error message "Hardware id already exists"	As expected	Pass
15	View an area	1.Choose an area to be viewed 2.Specify the area		The system displays the details of the specified area	As expected	Pass
16	Remove an area As an owner	1. The user is logged in as an Owner 2. Choose an area to be removed 3. Try to remove the area		The system removes an area	As expected	Pass
17	Remove an area as an employee	1. The user is logged in as an Employee 2. The system prevents the user from removing the area		The system prevents the user from removing an area	As expected	Pass

Table 4 - "Manage areas" test case scenarios

Manage environments

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	View temperature thresholds	1. Choose temperature as the data type as well as the area		The system displays the thresholds for temperature	As expected	Pass
2	View humidity thresholds	1. Choose humidity as the data type as well as the area		The system displays the thresholds for humidity	As expected	Pass
3	View CO2 thresholds	1. Choose CO2 as the data type as well as the area		The system displays the thresholds for CO2	As expected	Pass
4	View sound threshold	1. Choose sound as the data type as well as the area		The system displays the threshold for sound	As expected	Pass
5	Edit temperature thresholds	1. Change the high and low temperature threshold of an area	"30" "10"	The system displays a success message "Thresholds successfully updated"	As expected	Pass
6	Edit high temperature threshold with value too high	1. Try to change the high temperature threshold (over "35") of a selected area	"70"	The system displays an error message "Temperature threshold is not valid!"	As expected	Pass
7	Edit low temperature threshold with value too low	1. Try to change the low temperature threshold (under "10") of a selected area	"1"	The system displays an error message "Temperature threshold is not valid!"	As expected	Pass
8	Edit high humidity threshold with value too high	1. Try to change the high humidity threshold (over "80") for the selected area	"101"	The system displays an error message "Humidity threshold is not valid!"	As expected	Pass
9	Edit low humidity threshold with value too low	1. Try to change the low humidity threshold (under "0") for the selected area	"-1"	The system displays an error message "Humidity threshold is not valid!"	As expected	Pass

10	Edit high CO2 threshold with value too high	1. Try to change the high CO2 threshold (over "2500") for the selected area	"2501"	The system displays an error message "CO2 threshold is not valid!"	As expected	Pass
11	Edit low CO2 threshold with value too low	1. Try to change the low CO2 threshold (under "150") for the selected area	"149"	The system displays an error message "CO2 threshold is not valid!"	As expected	Pass
12	Edit high sound threshold with value too high	1. Try to change the high sound threshold (over "140") for the selected area	"141"	The system displays an error message "Sound threshold not valid"	As expected	Pass
13	Edit low sound threshold with value too low	1. Try to change the low sound threshold (under "0") for the selected area	"-1"	The system displays an error message "Sound threshold not valid"	As expected	Pass
14	View temperature threshold changes	1. Change the thresholds of a selected area 2. View if the changes are displayed	"31.0" -> "32.0" "11.0" -> "14.0"	The system displays the upper and lower historical temperature threshold changes	As expected	Pass
15	View humidity threshold changes	1. Change the thresholds of a selected area 2. View if the changes are displayed	"45.0" -> "35.0" "0.00" -> "1.00"	The system displays the upper and lower historical humidity threshold changes	As expected	Pass
16	View CO2 threshold changes	1. Change the thresholds of a selected area 2. View if the changes are displayed	"2000.0" -> "2100.0" "200.0" -> "210.0"	The system displays the upper and lower historical CO2 threshold changes	As expected	Pass
17	View sound threshold changes	1. Change the thresholds of a selected area 2. View if the changes are displayed	"35.0" -> "32.0" "15.0" -> "12.0"	The system displays the historical sound threshold changes	As expected	Pass

18	View temperature warning log	1. Choose temperature as the data type of a selected area		The system displays the temperature logs for the selected day	As expected	Pass
19	View humidity warning log	1. Choose humidity as the data type of a selected area		The system displays the humidity logs for the selected day	As expected	Pass
20	View CO2 warning log	1. Choose CO2 as the data type of a selected area		The system displays the CO2 logs for the selected day	As expected	Pass
21	View sound warning log	1. Choose sound as the data type of a selected area		The system displays the sound logs for the selected day	As expected	Pass
22	Receive and view notification	1. Receive a notification when a measurement exceeds the threshold set		The system will display a notification when the threshold set is exceeding the limit set	As expected	Pass
23	Create temperature thresholds	1. Set the high and low temperature threshold of an area	"20" "10"	The system displays a success message "Thresholds created"	As expected	Pass
24	Create CO2 thresholds	1. Set the high and low CO2 threshold of an area	"600" "400"	The system displays a success message "Thresholds created"	As expected	Pass
25	Create sound thresholds	1. Set the high and low sound threshold of an area	"30" "25"	The system displays a success message "Thresholds created"	As expected	Pass
26	Create humidity thresholds	1. Set the high and low humidity threshold of an area	"60" "40"	The system displays a success message "Thresholds created"	As expected	Pass
27	Create a lower threshold higher than upper threshold	1. Change the high and low temperature threshold of an area	"14.0" "29.0"	The system displays an error message "Threshold	As expected	Pass

				maximum value must be bigger than the minimum"		
28	Create a lower threshold higher than upper threshold	1. Set the high and low CO2 threshold of an area	"2100.0" "21000.0"	The system displays an error message "Threshold maximum value must be bigger than the minimum"	As expected	Pass
29	Create a lower threshold higher than upper threshold	1. Set the high and low sound threshold of an area	"100.0" "1000.0"	The system displays an error message "Threshold maximum value must be bigger than the minimum"	As expected	Pass
30	Create a lower threshold higher than upper threshold	1. Set the high and low humidity threshold of an area	"49.0" "100.0"	The system displays an error message "Threshold maximum value must be bigger than the minimum"	As expected	Pass
31	Leave a field empty in threshold modification	1. Empty a field in temperature	"28.0" "	The system displays an error message "Cannot create threshold with no value"	As expected	Pass
32	Leave a field empty in threshold modification	2. Empty a field in humidity	" " "10.0"	The system displays an error message "Cannot create threshold with no value"	As expected	Pass
33	Leave a field empty in threshold modification	3. Empty a field in CO2	"2100.0" "	The system displays an error message "Cannot create threshold with no value"	As expected	Pass
34	Leave a field empty in threshold	4. Empty a field in sound	"100.0" "	The system displays an error	As expected	Pass

	modification			message "Cannot create threshold with no value"		
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Table 5 - "Manage environments" test case scenarios

Manage personal profile

Scenario	Test scenario	Test steps	Test data	Expected result	Actual result	Pass / Fail
1	View Personal Information	1. View your personal account		The system displays the email, name and password	As expected	Pass
2	Edit Personal Information	1. Edit the first name, email or password 2. Save the changes	First name: Mariaa Password: password12	The system displays a message success message and updates the profile data	As expected	Pass
3	Edit personal information with invalid email when editing account	1. Edit email with invalid email	Email: maria	System displays an error message "Email not valid"	As expected	Pass
4	Edit personal information with short password	1. Password with less than 6 characters	Password: pass	The system displays an error message "Enter a password with at least 6 characters"	As expected	Pass
5	Edit personal information with duplicate email	1. Email already existing	Email: Geanabanana@gmail.com	The system displays an error message "Email already exists"	As expected	Pass
6	Edit personal information with fields missing	1. Leave empty fields	Password:	The system displays an error message "Please fill in all the required fields"	As expected	Pass
7	Edit personal information	1. Edit account with invalid email	Email: miau	The system displays an error	As expected	Pass

				message “{information} not valid”		
8	Enable notifications	1. Choose to enable notifications		The system displays a notification “Exceeded {measuremen t type} in area {area name}”	As expected	Pass
9	Disable notifications	1. Choose to disable notifications		The user does not receive anymore notifications	As expected	Pass
10	Remove local storage	1. Choose to remove local storage 2. Confirm removing the local storage		Local storage is removed	As expected	Pass