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Acceptance Test Plan	Date: 2012-12-27

# **LETS HELP BO project Acceptance Test Plan**

**Version 1.0**

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## Revision History

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
2012-12-09	0.1	Initial version	Robert Pofuk
2012-12-27	1.0	Updated version	Rasul Niyazimbetov

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## 1. Introduction

### 1.1. Purpose of this document

The purpose of this document is to verify the planned functionalities of the project are implemented and they are working correctly. This document demonstrates acceptance test results before delivering the final state of project. The implemented functions are validated by executing Test Case specifications which are included in this document. Test cases are required to verify and validate the implemented functions accept required specifications

### 1.2. Intended Audience

The Intended Audience:

- Project supervisor - to monitor the quality of the project at the current state.
- LHB team members - to overview the planned test cases and develop the product on these requests.
- DSD course staff - monitoring the project quality and work progress.

### 1.3 Scope

The document covers test plan, what functionalities needs to be tested, executed test cases and also describes the the requirements under the tests will be hold.

#### 1.4.1. Acronyms and abbreviations

Acronym or abbreviation	Definitions
DSD	Distributed software development
LHB	Lets Help Bo project

### 1.5. References

This document based on the LHB project of DSD course and its previously produced documentations such as:

- project description
- requirement definition
- design description.

Documents are available at [http://www.fer.unizg.hr/rasip/dsd/projects/lets\\_help\\_bo/documents](http://www.fer.unizg.hr/rasip/dsd/projects/lets_help_bo/documents)

## 2. Test-plan introduction

The test plan for LHB project is to assure all implemented functionalities are working properly. The tests held as for business logic layer and presentation layer as well verifying the correctness of implementation. Overall, tests needs to be execute to determine all functionalities are working properly for given roles of the LHB project:

- Machine operator
- Production supervisor
- Maintenance supervisor
- Mine control room operator
- System administrator

## 3. Test items

The test items are:

**Desktop application.** Application that developed to support the layout of desktop platforms

**Mobile application.** Application that developed to support the layout of mobile platforms.

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#### 4. Features to be tested

Features needs to be tested are:

- All business logic layer functionalities. Verify the functionalities are working properly and reaches expected results.
- The layout of presentation layer. Verify the layout is implemented as in planned mock ups and there is no grammar or typo mistakes.
- Usability. Verifying all the layout of presentation layer is effectively usable and contains less amount of clicks as much as possible.
- Security. Verify both, desktop and mobile applications are secure and cannot be accessed without required credentials.

#### 5. Features not to be tested

The behaving of the application on specific environments such as having no network access will not be tested. Since we have requirement the application will be in the environment where network always will be available. Also, the accuracy of data that contained in database will not be tested. The source of data provided by customers and we can assume they are accurate.

#### 6. Approach

Testing held with two parts. launching unit tests for business logic layer and manual testing on presentation layer. Unit tests executed to verify all implemented methods are working properly and reaching expected results. The manual testing held by providing test case scenarios where user of each assigned role makes his duty operations and verifying these operations reaches expected results.

Both approaches, held with two types of testing: positive and negative. Including vulnerability for accessing unauthorized user and stress testing in some points.

##### 6.1. Approach to configuration and installation

The system is installed locally. The database of the system accessed remotely through virtual machine provided by DSD course stuff. In case of impossibility accessing remote, database source changes from remote to the local by showing the database back up on SVN repository.

#### 7. Item pass/fail criteria

The test items considered as **pass** if all test cases for items reached the expected results. It will be considered **fail**, if at least one test case will not reach expected result.

The test case of each items considered **pass** if it reaches the expected result on launching the test case. It will be considered as **fail** if it will not reach expected result.

##### 7.1. Installation and Configuration

The installation and configuration does not affect on testing as long as environment for testing reaches requirement specifications. The tests hold separately from the LHB project implementation and it does not affect anyhow to the applications behavior or database source.

##### 7.2. Documentation problems

The acceptance test documentation is produced from previously delivered documentations such as project, design, requirement descriptions. Hence, changing each of the documentations can affect to the acceptance test documentations, since planned test cases can be failed. However, slightly changes on each of previously delivered documentations should have no impact on acceptance test documentation. As long as design decisions

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remain same and layout of presentation layer does not change, the change in the acceptance test plan is not expected.

## 8. Suspension criteria and resumption requirements

The testing in presentation layer can be suspended due to:

- bug that makes impossible to launch all parts of presentation layer.
- SVN fail. If svn connection is not possible and the database source version or project version in local machine has older one, there will no executing test cases before updating sources on svn to the newer version.
- temporary unavailability of all testing team members can make testing suspended. The testing will resume after participating at least of one the testing team members.
- The absence of implementation for the test case can make testing suspended. The test cases will be executed after implementation will be finished.
- The change of design decisions for some items during the implementation can pause the testing. After the required changes held the test cases for item can be changed or resume from the previous state.

## 9. Environmental needs

In order to execute test cases the application for desktop platform should be running on Desktop PC with connected database from the remotely Virtual machine or local copy from SVN. The Mobile platform application can be hold on most of the currently existing smartphone in the market. But in this case, the access to the internet is required, in order to have access to the remote database. There is also possibility to launch the mobile platform application on emulator of smartphones in the desktop PC. Hence, the testing for mobile platform application can be hold in Desktop PC or Laptops.

### 9.2. Hardware

- Fully functional Desktop PC/Laptop.
- optional connected to the internet to have access to the remote virtual machine.
- Fully functional smartphone
- mandatory availability of connection to the internet in order to have access to the remote database.

### 9.3. Software

For testing the desktop platform application and mobile platform with emulator required:

- Operating system (Windows XP, Windows 7, Windows 8)
- Visual studio 2010
- SQL MS server 2008 express
- Web browser (chrome, Firefox, IExplorer)
- Mobilizier (emulator of web browser of mobile device on Desktop/Laptop)

For testing the mobile platform application on smartphones required:

- Mobile Operating system (Android, iOS, Windows Mobile)
- Web browser (stock browser of Mobile Operating System)

### 9.4. Other

## 10. Test procedure

### 10.1 Test case specifications

#### 10.1.1. Anonymous user (not logged in) - ANONYM

##### 10.1.1.1. Accessing the Home Page on Desktop – ANONYM-001

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**Description:** An anonymous user should not be able to access the homepage of the web application.

**Test type:** Negative

**Preconditions:** No user account may be logged in.

**Input definition:** Type the correct website of the application in a web browser, and port number if needed.

**Output definition:** The user should be redirected to an "Unauthorized Access" page, pointing out to the user he has no privileges to access the system.

**Remarks:** None

### 10.1.1.2. Accessing the Home Page on Mobile – ANONYM-002

**Description:** An anonymous user should not be able to access the homepage of the web application.

**Test type:** Negative

**Preconditions:** No user account may be logged in.

**Input definition:** Type the correct website of the application in a web browser, and port number if needed.

**Output definition:** The user should be redirected to an "Unauthorized Access" page, pointing out to the user he has no privileges to access the system.

**Remarks:** None

### 10.1.2. Production Supervisor - PRDCTSUPER

#### 10.1.2.1. Accessing the Home page on Desktop/Mobile PRDCTSUPER-001

**Description:** The production supervisor gets access to the home page where he is able to see the sections that concerns only him.

**Test type:** Positive

**Preconditions:**

- No user account may be logged in.
- At least one account with "Production Supervisor" role must exist in the database.

**Input definition:**

1. Open the homepage of the application;
2. Click the Login;
3. Type the credentials of the Production Supervisor into the form;
4. Click the Login button.

**Output definition:**

The user should be redirected to the home page of the application, showing links to sections he can access: "Homepage", "Map", and "Workorder".

**Remarks:** None.

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#### 10.1.2.2. View the list of Work orders on Desktop – PRDCTSUPER-002

**Description:** View the list of existing work orders in the system.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as “Production Supervisor”.

**Input definition:**

1. From the homepage, select the “Workorder” option;
2. Click the “List work order” button.

**Output definition:**

The contents area should display two lists: one with work orders in progress, displayed first; and another with the finished work orders at the bottom. For both lists, work orders should be sorted first by date/time, then by priority. Work orders with the nearest deadline will always show first. Work orders with similar deadlines and marked as high priority are always listed first as well.

**Remarks:** None.

#### 10.1.2.3. View the list of Work orders on Mobile – PRDCTSUPER-003

**Description:** View the list of existing work orders in the system.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as “Production Supervisor”.

**Input definition:**

3. From the homepage, select the “Workorder” option;

**Output definition:**

The content area should be displayed in two parts. First is not finished work orders, second is finished work orders. Clicking each work order should display the details of this work order.

**Remarks:** None.

#### 10.1.2.4. Adding not urgent Work order on Desktop– PRDCTSUPER-004

**Description:** Adding a new work order into the system, to be executed by a Machine Operator.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as “Production Supervisor”.

**Input definition:**

1. From the homepage, select the “Workorder” option;
2. Click the “Add work order” button;
3. Type in the name of the work order;
4. Leave the urgent box unchecked;
5. Select from the combobox the Machine Operator that will execute it;



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6. Fill in the details box;
7. Select the starting time/date;
8. Select the finishing time/date;
9. Select a hotspot by clicking on the corresponding button (optional);
10. Click the "Create" button.

**Output definition:**

The new work order should be added to the system and appear in the appropriate position, with respect to its priority and date/time. For a group of work orders to be executed in a certain day and the new work order is to also be executed at that time, it will show up at the bottom of the list.

**Remarks:** If no hotspot was selected for the created work order, then the option "View on Map" in the details of the work order won't be active. However, it is possible to add the hotspot later by editing the work order.

**10.1.2.5. Adding not urgent Work order on Mobile - PRDCTSUPER-005**

**Description:** Adding a new work order into the system, to be executed by a Machine Operator.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as "Production Supervisor".

**Input definition:**

1. From the homepage, select the "Workorder" option;
2. Click the "Add work order" button;
3. Type in the name of the work order;
4. Leave the urgent box unchecked;
5. Select a hotspot by clicking on the corresponding button (optional);
6. Select the starting time/date;
7. Select the finishing time/date;
8. Click next
9. Select date;
10. Click next;
11. Click the "Save" button.

**Output definition:**

The added work order will be displayed as a result.

**Remarks:** If no hotspot was selected for the created work order, then the option "View on Map" in the details of the work order won't be active. However, it is possible to add the hotspot later by editing the work order.

**10.1.2.6. Adding urgent Work order on Desktop – PRDCTSUPER-006**

**Description:** Adding a new work order into the system, to be executed by a Machine Operator.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as "Production Supervisor".

**Input definition:**

1. From the homepage, select the "Workorder" option;
2. Click the "Add work order" button;
3. Type in the name of the work order;

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4. Check the urgent box;
5. Select from the combo box the Machine Operator that will execute it;
6. Fill in the details box;
7. Select the starting time/date;
8. Select the finishing time/date;
9. Select a hotspot by clicking on the corresponding button (optional);
10. Click the "Create" button.

**Output definition:**

The new work order should be added to the system and appear in the appropriate position, with respect to its priority and date/time. For a group of work orders to be executed in a certain day, the new work order is to also be executed at that time and is marked high priority, it will show up at the top of the list.

**Remarks:** If no hotspot was selected for the created work order, then the option "View on Map" in the details of the work order won't be active. However, it is possible to add the hotspot later by editing the work order.

**10.1.2.7. Adding urgent Work order on Mobile - PRDCTSUPER-007**

**Description:** Adding a new work order into the system, to be executed by a Machine Operator.

**Test type:** Positive

**Preconditions:** The user must be logged into the system as "Production Supervisor".

**Input definition:**

1. From the homepage, select the "Workorder" option;
2. Click the "Add work order" button;
3. Type in the name of the work order;
4. Check the urgent box;
5. Select a hotspot by clicking on the corresponding button (optional);
6. Select the starting time/date;
7. Select the finishing time/date;
8. Click next
9. Select date;
10. Click next;
11. Click the "Save" button.

**Output definition:**

The added urgent work order will be displayed as a result.

**Remarks:** If no hotspot was selected for the created work order, then the option "View on Map" in the details of the work order won't be active. However, it is possible to add the hotspot later by editing the work order.

**10.1.2.8. Editing a Work order successfully on Desktop – PRDCTSUPER-008**

**Description:** Editing an existing work order.

**Test type:** Positive

**Preconditions:**

- The user must be logged into the system as "Production Supervisor".
- At least one non-finished work order must exist in the system.

**Input definition:**

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1. From the homepage, select the "Workorder" option;
2. Click the "List work order" button;
3. Select an existing work order that has not been finished yet, and click "Edit";
4. Modify some properties - text fields must not be left empty;
5. Press the update button.

**Output definition:**

The modified work order should have the new updated values in the list. In case the priority and/or the date-time is changed, the work order should change its position inside the list of work orders.

**Remarks:** In this scenario, it's not possible to remove the hotspot associated to the work order.

**10.1.2.9. Editing a Work order successfully on Mobile – PRDCTSUPER-009**

**Description:** Editing an existing work order.

**Test type:** Positive

**Preconditions:**

- The user must be logged into the system as "Production Supervisor".
- At least one work order must exist in the system.

**Input definition:**

2. From the homepage, select the "Workorder" option;
6. Click the "List work order" button;
7. Click on chosen work order;
8. Click Edit;
9. Modify some properties - text fields must not be left empty;
10. Click save button;

**Output definition:**

The edited work order should be displayed as a result page. In case the priority and/or the date-time is changed, the work order should change its position inside the list of work orders.

**Remarks:** In this scenario, it's not possible to remove the hotspot associated to the work order.

**10.1.2.10. Failing to edit a Work order on Desktop – PRDCTSUPER-010**

**Description:** Trying to edit an existing Work order, but failing to do so.

**Test type:** Negative

**Preconditions:**

- The user must be logged into the system as "Production Supervisor".
- At least one non-finished work order must exist in the system.

**Input definition:**

1. From the homepage, select the "Workorder" option;
2. Click the "List work order" button;
3. Select an existing work order that has not been finished yet, and click "Edit";
4. Modify some properties - make sure at least one text field is empty;
5. Press the update button.

**Output definition:**

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The update operation should fail, and the user will still be in the same form. A message pointing out why the update operation failed should be displayed.

**Remarks:** None

### 10.1.2.11. Failing to edit a Work order on Mobile – PRDCTSUPER-011

**Description:** Editing an existing work order.

**Test type:** Negative.

**Preconditions:**

- The user must be logged into the system as “Production Supervisor”.
- At least one work order must exist in the system.

**Input definition:**

1. From the homepage, select the “Workorder” option;
2. Click the “List work order” button;
3. Select work order
4. click “Edit”;
5. Modify some properties - make sure at least one text field is empty;
6. Click save button;.

**Output definition:**

The result page should display a message the Edit has been made incorrectly.

**Remarks:** None.

### 10.1.3. Machine operator - MACHOPER

#### 10.1.3.1. Accessing the Home Page on Desktop/Mobile – MACHOPER-001

**Description:** The Machine operator gets access to the home page where he is able to see the sections that concerns only him.

**Test type:** Positive

**Preconditions:**

- No user account may be logged in.
- At least one account with “Machine Operator” role must exist in the system.

**Input definition:**

1. Open the homepage of the application;
2. Click the Login button;
3. Type the credentials of the Machine Operator into the form;
4. Click the Login button next to the form.

**Output definition:**

The user should be redirected to the home page of the application, showing links to sections he can access: “Homepage”, “Inventory”, “Bookings”, “Map” and “Workorder”.

**Remarks:** None

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### 10.1.3.2. Make booking on Desktop– MACHOPER-002

**Description:** Machine operator should be able to make booking

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one available item in warehouse.

**Input definition:**

1. Click on inventory
2. Browse to the item, search for item, user ordering
3. Choose options next to desired item
4. Enter amount, or go back
5. Click make booking

**Output definition:**

After booking all booked items should be shown in list.

**Remarks:** None

### 10.1.3.3. Make booking on Mobile – MACHOPER-003

**Description:** Machine operator should be able to make booking

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one available item in warehouse.

**Input definition:**

1. Click on inventory
2. Click View All.
3. Click on chosen Item
4. Enter amount
5. Click make booking
6. Select warehouse
7. Click create booking.

**Output definition:**

After booking all booked items should be shown in list. The booked Item should be given as a work order for machine operator.

**Remarks:** The browsing should be possible with several variations such as: View all, search item. parts of current vehicle.

### 10.1.3.4. View bookings on Desktop– MACHOPER-004

**Description:** Machine operator should be able to see all his bookings

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one booked item.

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**Input definition:**

1. Click on bookings
2. Explore bookings, and find desired booking
3. Click show on map
4. Click detailed View
5. Click up arrow
6. Click back

**Output definition:**

After booking all booked items should be shown in list.

**Remarks:** None

**10.1.3.5. View bookings on Mobile – MACHOPER-005**

**Description:** Machine operator should be able to see all his bookings

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one booked item.

**Input definition:**

1. Click on bookings
2. Active bookings
3. Click on chosen booking
4. Click show on map
5. Click detailed View
6. Click up arrow
7. Click back

**Output definition:**

After booking all booked items should be shown in list.

**Remarks:** None

**10.1.3.6. View work order on Desktop - MACHOPER-006**

**Description:** Machine operator should be able to view work order details and shortest path to work order

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one work order.

**Input definition:**

1. Click on Workorder
2. Explore workorders
3. Click edit on chosen work order
4. Click show map
5. Click detailed view
6. Click up arrow

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7. Click down arrow
8. Click on back

**Output definition:**

The details of work order should be displayed. The shortest path to the work order should be displayed. The path in each level should be displayed.

**Remarks:** None

**10.1.3.7. View work order on Mobile - MACHOPER-007**

**Description:** Machine operator should be able to view work order details and shortest path to work order

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one work order.

**Input definition:**

1. Click on Workorder
2. Explore workorders
3. Click On chosen work order
4. Click show map
5. Click detailed view
6. Click up arrow
7. Click down arrow
8. Click on back

**Output definition:**

The details of work order should be displayed. The shortest path to the work order should be displayed. The path in each level should be displayed.

**Remarks:** None

**10.1.3.8. Mark work order as finished on Desktop - MACHOPER-008**

**Description:** Machine operator should be able to mark work order as finished

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one not finished work order.

**Input definition:**

1. Click on Workorder
2. Explore workorders
3. Click edit on chosen work order
4. Check Finished checkbox
5. Click update
6. Click back

**Output definition:**

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Work order should be displayed in list of finished work orders

**Remarks:** none.

### 10.1.3.9. Mark work order as finished on Mobile - MACHOPER-009

**Description:** Machine operator should be able to mark work order as finished

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one Not finished work order.

**Input definition:**

1. Click on Workorder
2. Click on Not finished.chosen Work order
3. check the "Finish" check box.
4. Click save

**Output definition:**

Work order should be displayed in list of finished work orders

**Remarks:** none.

### 10.1.3.10. Mark work order as not finished on Desktop - MACHOPER-0010

**Description:** Machine operator should be able to mark work order as not finished

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one finished work order.

**Input definition:**

1. Click on Workorder
2. Explore workorders
3. Click edit on chosen finished work order
4. Uncheck Finished checkbox
5. Click update
6. Click back

**Output definition:**

Work order should be displayed in list of unfinished work orders

**Remarks:** None

### 10.1.3.11. Mark work order as finished on Mobile - MACHOPER-011

**Description:** Machine operator should be able to mark work order as finished

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. There must be at least one Not finished work order.



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**Input definition:**

1. Click on Workorder
2. Click on finished.chosen Work order
3. uncheck the "Finish" check box.
4. Click save

**Output definition:**

Work order should be displayed in list of not finished work orders

**Remarks:** none.

**10.1.3.12. View Notification panel on Desktop - MACHOPER-012**

**Description:** Machine operator should be able to see added/updated work orders from notification panel

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. New work order must be added to the machine operators work order list but it should not be viewed yet. The notification icon should indicate how many work orders has been added/updated.

**Input definition:**

1. Click Notification icon
2. Explore list of work orders
3. Click chosen work order
4. Click back

**Output definition:**

Work order Details page should be displayed. The added/updated work order indicators on Notification icon should decrease for one unit.

**Remarks:** After work order has been seen from Notification Panel, the work order will disappear from the Notification Panel list and change the status of work order to the "not finished"

**10.1.3.13. View Notification panel on Mobile - MACHOPER-013**

**Description:** Machine operator should be able to see added/updated work orders from notification panel

**Test type:** Positive

**Preconditions:** Machine operator should be logged in. User should be on homepage. New work order must be added to the machine operators work order list but it should not be viewed yet. The notification icon should indicate how many work orders has been added/updated.

**Input definition:**

1. Click Notification icon
2. Explore list of work orders
3. Click chosen work order
4. Click back

**Output definition:**

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Work order Details page should be displayed. The added/updated work order indicators on Notification icon should decrease for one unit.

**Remarks:** After work order has been seen from Notification Panel, the work order will disappear from the Notification Panel list and change the status of work order to the “not finished”

#### 10.1.4. Maintenance supervisor - MAINTSUPER

##### 10.1.4.1. Accessing the Home Page on Desktop/Mobile - MAINTSUPER-001

**Description:** The Maintenance supervisor gets access to the home page where he is able to see the sections that concerns only him.

**Test type:** Positive

**Preconditions:**

- No user account may be logged in.
- At least one account with “Maintenance supervisor” role must exist in the system.

**Input definition:**

5. Open the homepage of the application;
6. Click the Login button;
7. Type the credentials of the Maintenance supervisor into the form;
8. Click the Login button next to the form.

**Output definition:**

The user should be redirected to the home page of the application, showing links to sections he can access: “Homepage”, “Inventory”, “Bookings” and “Map”.

**Remarks:** None

##### 10.1.4.2. Add inventory product on Desktop - MAINTSUPER-002

**Description:** Maintenance operator should be able to add inventory products

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click Inventory
2. At bottom of page, fill information
3. Click clear
4. Fill information
5. Click insert

**Output definition:**

After clear, fields should be empty. New item should appear in inventory list.

**Remarks:** None

##### 10.1.4.3. Add inventory product on Mobile - MAINTSUPER-002

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**Description:** Maintenance operator should be able to add inventory products

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click Inventory
2. Click Create new product
3. Fill information
4. Click Create

**Output definition:**

The new product should be added to the database. The item can be shown as a for this product.

**Remarks:** None

**10.1.4.3. Edit/Delete inventory item on Desktop - MAINTSUPER-003**

**Description:** Maintenance operator should be able to edit and delete inventory items

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click inventory
2. Browse items
3. Click edit
4. Enter new values
5. Click save
6. Click delete

**Output definition:**

After edit new values should appear in list. After delete, item should no longer exist in list.

**10.1.4.4. Edit/Delete inventory item on Mobile - MAINTSUPER-004**

**Description:** Maintenance operator should be able to edit and delete inventory items

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click inventory
2. Click View all
3. Click Edit
4. Enter new values
5. Click update
6. Click delete

**Output definition:**

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After edit new values should appear in list. After delete, item should no longer exist in list.

**Remarks:** none.

#### **10.1.4.5. Add inventory item to warehouse on Desktop - MAINTSUPER-005**

**Description:** Maintenance operator should be able to add inventoy items to warehouse

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click inventory
2. Browse items
3. Click Options
4. Click back
5. Click options
6. Click "Add item to warehouse"
7. Enter values
8. Click add

**Output definition:**

A message should be displayed confirming the success of the operation

**Remarks:** None

#### **10.1.4.6. Add inventory item to warehouse on Mobile - MAINTSUPER-006**

**Description:** Maintenance operator should be able to add inventory items

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage. At least one product should exist in database.

**Input definition:**

1. Click Inventory
2. Click View all.
3. Click on chosen product
4. Click add Item to warehouse
5. Fill information
6. Click create

**Output definition:**

New item should appear in inventory list.

**Remarks:** None

#### **10.1.4.7. View bookings on Desktop - MAINTSUPER-007**

**Description:** Maintenance operator should be able to view bookings

**Test type:** Positive

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**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click bookings
2. Explore bookings

**Output definition:**

No actions should be allowed on bookings

**Remarks:** None

#### 10.1.4.8. View bookings on Mobile - MAINTSUPER-008

**Description:** Maintenance operator should be able to view bookings

**Test type:** Positive

**Preconditions:** Maintenance operator should be logged in. User should be on homepage

**Input definition:**

1. Click bookings
2. Click Active bookings
3. Explore bookings
4. Click back
5. Click completed bookings

**Output definition:**

No actions should be allowed on bookings

**Remarks:** None

#### 10.1.5. Mine Control Room Operator - MNCTRLPR

##### 10.1.5.1. Accessing the Home page on Desktop/Mobile - MNCTRLPR-001

**Description:** The Mine Control Room Operator gets access to the home page where he is able to see the sections that concerns only him.

**Test type:** Positive

**Preconditions:**

- No user account may be logged in.
- At least one user with the Mine Control Room Operator role must exist in the database.

**Input definition:**

1. Open the homepage of the application;
2. Click the Login
3. Type the credentials of the Mine Control Room Operator into the form;
4. Click the Login button.

**Output definition:**

The user should be redirected to the home page of the application. The menu must only show the options "Homepage" and "Map".

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**Remarks:** None.

### 10.1.5.2. Create a Tunnel on Desktop - MNCTRLPR-002

**Description:** Creating a Tunnel on the Map.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- User must be at the homepage.
- At least two levels must exist in database.
- At least two hotspots must exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click the “Create Tunnel” tab;
3. Select “Start level”;
4. Select “End level”;
5. Select “Start point”;
6. Select “End point”;
7. Enter Distance;
8. Enter Degree;
9. Select “Status”;
10. Click Create

**Output definition:** The tunnel between selected levels will be created. The start and end points of hotspot will be start and end of the tunnel.

**Remarks:** None.

### 10.1.5.3. Create a Tunnel on Mobile - MNCTRLPR-003

**Description:** Creating a Tunnel on the Map.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- User must be at the homepage.
- At least two levels must exist in database.
- At least two hotspots must exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click Manage tunnels;
3. Click Create tunnel;
4. Select “Start level”;
5. Select “End level”;
6. Select “Start point”;
7. Select “End point”;
8. Enter Distance;
9. Enter Degree;

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10. Select "Status";
11. Click Create

**Output definition:** The tunnel between selected levels will be created. The start and end points of hotspot will be start and end of the tunnel.

**Remarks:** None.

#### 10.1.5.4. Edit a Tunnel on Desktop - MNCTRLPR-004

**Description:** Editing a Tunnel on the Map. The tunnel can be edited as it is closed or opened and change the tunnel name.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as "Mine Control Room Operator".
- At least one tunnel should exist in the database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click the "Select tunnels" tab;
3. Select Level;
4. Select Tunnel;
5. Click Edit;
6. Edit data;
7. Click "Apply changes";

**Output definition:** The new name, status of the tunnel updated in database. The message should be displayed confirming the success of the operation.

**Remarks:** This operation can be hold by all other Roles existing in database.

#### 10.1.5.5. Edit a Tunnel on Mobile - MNCTRLPR-005

**Description:** Editing a Tunnel on the Map. The tunnel can be edited as it is closed or opened and change the tunnel name.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as "Mine Control Room Operator".
- At least one tunnel should exist in the database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click "Manage tunnels"
3. Click the "Select tunnels";
4. Select Level;
5. Select Tunnel;
6. Click Edit;
7. Edit data;
8. Click "Apply changes";

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**Output definition:** The new name, status of the tunnel updated in database. The message should be displayed confirming the success of the operation.

**Remarks:** This operation can be hold by all other Roles existing in database.

#### 10.1.5.6. Create a Hotspot on Desktop - MNCTRLPR-006

**Description:** Creating a hotspot type as Room on the Map.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click the “Create hotspot” tab;
3. Click the option Create Hotspot;
4. Select a level;
5. Select a point;
6. Assign it a name;
7. Select the type;
8. Click “Create”.

**Output definition:**

A message should be displayed confirming the success of the operation.

**Remarks:** None.

#### 10.1.5.7. Create a Hotspot on Mobile - MNCTRLPR-007

**Description:** Creating a hotspot type as Room on the Map.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click “Manage hotspots”;
3. Click the “Create hotspot”;
4. Click the option Create Hotspot;
5. Select a level;
6. Select a point;
7. Assign it a name;
8. Select the type;
9. Click “Create”.

**Output definition:**



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A message should be displayed confirming the success of the operation.

**Remarks:** None.

#### 10.1.5.8. Editing a Hotspot on Desktop - MNCTRLOPR-008

**Description:** Edit an existing Hotspot.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click hotspot tab;
3. Select a level;
4. Select a type;
5. Select the Hotspot name;
6. Click “Edit”.
7. Change any of the text fields, the location or the floor;
8. Click “Apply”.

**Output definition:**

A message should be displayed confirming the success of the operation.

**Remarks:** The Hotspot type can't be changed after creation. The only way to achieve this would be to modify the hotspot directly in the database.

#### 10.1.5.9. Editing a Hotspot on Mobile - MNCTRLOPR-009

**Description:** Edit an existing Hotspot.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as “Mine Control Room Operator”.
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click Manage hotspots;
3. Click Select hotspot;
4. Select a level;
5. Select a type;
6. Select the Hotspot name;
7. Click “Edit”.
8. Change any of the text fields, the location or the floor;
9. Click “Apply”.

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**Output definition:**

A message should be displayed confirming the success of the operation.

**Remarks:** The Hotspot type can't be changed after creation. The only way to achieve this would be to modify the hotspot directly in the database.

**10.1.5.10. Deleting a Hotspot on Desktop - MNCTRLPR-010**

**Description:** Delete an existing Hotspot.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as "Mine Control Room Operator".
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

9. From the homepage, select the Map on the menu;
10. Click hotspot tab;
  1. Select a level;
  2. Select a type;
  3. Select the Hotspot name;
  4. Click "Delete";
  5. Confirm the deletion.

**Output definition:**

A message should be displayed confirming the success of the operation.

**Remarks:** None.

**10.1.5.11. Deleting a Hotspot on Mobile - MNCTRLPR-011**

**Description:** Delete an existing Hotspot.

**Test type:** Positive

**Preconditions:**

- User must be authenticated as "Mine Control Room Operator".
- At least one tunnel should exist in the database.
- At least one hotspot related to the tunnel should exist in database.

**Input definition:**

1. From the homepage, select the Map on the menu;
2. Click manage hotspots;
3. Click select hotspot;
4. Select a level;
5. Select a type;
6. Select the Hotspot name;
7. Click "Delete";
8. Confirm the deletion.

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**Output definition:**

A message should be displayed confirming the success of the operation.

**Remarks:** None.

**10.1.6. System administrator - SYSADMIN**

**10.1.6.1. Accessing the Home Page on Desktop/Mobile - SYSADMIN001**

**Description:** The System administrator gets access to the home page where he is able to see the sections that concerns only him.

**Test type:** Positive

**Preconditions:**

- No user account should be logged in.
- At least one account with "System administrator" role must exist in the system.

**Input definition:**

1. Open the homepage of the application;
2. Click the Login button;
3. Type the credentials of the System administrator into the form;
4. Click the Login button next to the form.

**Output definition:**

The user should be redirected to the home page of the application, showing links to sections he can access: "Homepage" and "User".

**Remarks:** None

**10.1.6.2. Add user on Desktop - SYSADMIN-002**

**Description:** *System administrator* should be able to add user

**Test type:** Positive

**Preconditions:** *System administrator* should be logged in. User should be on homepage

**Input definition:**

1. Click User
2. Click add new user
3. Enter data
4. Chose role
5. Click create

**Output definition:**

New user will be added to the database. The new user with its values will be shown in the user list.

**Remarks:** None.

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### 10.1.6.3. Add user on Mobile - SYSADMIN-003

**Description:** *System administrator* should be able to add user

**Test type:** Positive

**Preconditions:** *System administrator* should be logged in. User should be on homepage

**Input definition:**

1. Click User
2. Click add new user
3. Enter data
4. Chose role
5. Click create

**Output definition:**

New user will be added to the database. The System administrator will be redirected to the User menu page.

**Remarks:** None.

### 10.1.6.4. Add existing user on Desktop - SYSADMIN-004

**Description:** *Adding user* with with name that exist should show error

**Test type:** Negative

**Preconditions:** *System administrator* should be logged in. User should be on homepage

**Input definition:**

1. Click User
2. Click add new user
3. Enter data
4. Chose role
5. Click create

**Output definition:**

User exists error should be shown

**Remarks:** None.

### 10.1.6.5. Add existing user on Mobile - SYSADMIN-005

**Description:** *Adding user* with with name that exist should show error

**Test type:** Negative

**Preconditions:** *System administrator* should be logged in. User should be on homepage

**Input definition:**

1. Click User
2. Click add new user
3. Enter data
4. Chose role

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5. Click create

**Output definition:**

User exists error should be shown

**Remarks:** None.

**10.1.6.6. Search user on Desktop - SYSADMIN-006**

**Description:** *System administrator* should be able to search existing user in database.

**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on homepage;
- There must be at least one user in database;

**Input definition:**

1. Click User menu;
2. Enter data to "value";
3. Select type in "search by"
4. Click Search

**Output definition:**

The result of search will be displayed. The result is created by finding matching the value from selecting "search by"

**Remarks:** It is possible to search by name, role and userID.

**10.1.6.7. Search user on Mobile - SYSADMIN-007**

**Description:** *System administrator* should be able to search existing user in database.

**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on homepage;
- There must be at least one user in database;

**Input definition:**

1. Click User menu;
2. Click Search users
3. Enter data to "value"
4. Select type in "search by"
5. Click Search
6. Select user to view details

**Output definition:**

The result of search will be displayed. The result is created by finding matching the value from selecting "search by". By clicking on a user from the list the used details page is displayed.

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**Remarks:** It is possible to search by name, role and userID.

#### 10.1.6.8. Edit user on Desktop - SYSADMIN-008

**Description:** *System administrator* should be able to edit user information in database.

**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on homepage;
- There must be at least one user in database;

**Input definition:**

1. Click User menu;
2. Click Edit on chosen User;
3. Enter values;
4. Click update;

**Output definition:**

The updated user should be displayed with new values on the list.

**Remarks:** It should not be possible to edit the user ID and user hotspot ID.

#### 10.1.6.9. Edit user on Mobile - SYSADMIN-009

**Description:** *System administrator* should be able to edit user information in database.

**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on the user details page;
- There must be at least one user in database;

**Input definition:**

1. Click Edit on chosen User;
2. Enter values;
3. Click update;

**Output definition:**

The updated user should be displayed with new values on the list.

**Remarks:** It should not be possible to edit the user ID and user hotspot ID.

#### 10.1.6.10. Delete user on Desktop - SYSADMIN-010

**Description:** *System administrator* should be able to delete user information in database.

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**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on homepage;
- There must be at least one user in database;

**Input definition:**

1. Click User menu;
2. Click Delete on chosen User;
3. Click Ok on message box

**Output definition:**

The user is deleted from database.

**Remarks:** none

**10.1.6.11. Delete user on Mobile - SYSADMIN-011**

**Description:** *System administrator* should be able to delete user information in database.

**Test type:** Positive

**Preconditions:**

- *System administrator* should be logged in;
- User should be on user details page;
- There must be at least one user in database;

**Input definition:**

1. Click Delete on chosen User;
2. Click Ok on message box

**Output definition:**

The user is deleted from database.

**Remarks:** none

**10.1.7. All roles - ALLROLES**

**10.1.7.1. Accessing the Map on Desktop – ALLROLES - 001**

**Description:** Viewing the map of the mine, including details such as users, warehouse, production front and vehicle.

**Test type:** Positive

**Preconditions:** The user must be logged into the system with any kind of role.

**Input definition:**

1. From the homepage, select the “Map” option;
2. Choose a floor from the list;

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- Choose a type of hotspot from the list.

**Output definition:**

The LHB logo shown in the contents area should be replaced by a picture with the corresponding floor. It should also display the hotspots of the given type (marked as red points) and the name of the hotspot.

**Remarks:** None.

**10.1.7.2. Accessing the Map on Mobile – ALLROLES - 002**

**Description:** Viewing the map of the mine, including details such as users, warehouse, production front and vehicle.

**Test type:** Positive

**Preconditions:** The user must be logged into the system with any kind of role.

**Input definition:**

- From the homepage, select the “Map” option;
- Click View Map;
- Choose level;
- Choose type of hotspot;.

**Output definition:**

The picture with the corresponding floor will be shown. It should also display the hotspots of the given type (marked as red points) and the name of the hotspot.

**Remarks:** None.

**10.2. Test plan**

Testing business logic layer is assigned to all team members who are implementing this part. After implementation of each classes/methods team members should write unit tests and execute them with verifying each class/method works properly and shows expected results. In case of absence of test cases in business logic layer and the intensity of time for the delivery, one of volunteers from the acceptance test group writes unit tests for the missing test cases.

Testing presentation layer divided by user roles and platforms between acceptance test team members. Each assigned to create the test case and execute it to verify it reaches the expected results. In case of finding bugs and wrong results it should be reported on the documentation for bug/fixes with details of which platform, what page, the behavior of bug and responsible team member for the implementation. After fixing the implementation same test case should be executed again. The process will continue until the results of test cases will be same as expected.

**11. Responsibilities**

**11.1. Developers**

Developers are responsible to fix the bugs found during the testing procedure. The fixing the bug is assigned only to the team member who implemented the specific part of the project. The business logic layer part team member also assigned to write unit tests for their implemented methods/classes and fix the bugs if any found.



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## 11.2. User representative

**Project manager.** Responsible to create the test acceptance team and validate the quality of the project through the results of tests and determine any updates if needed.

## 11.3 Testers

Testers are assigned to execute planned test cases and report bugs by documenting the procedure. After fixing the bug by assigned team members tester should execute test cases. Testers are not allowed to modify any code of implementation which hasn't been held by them.

## 12. Risks and contingencies

Due to the large size of the project the major risk to complete all the test cases on time and report found bugs to the developers before the deliverable time. The risk was avoided by assigning tests for business logic layer for each of the members for this part. This helped to keep the project on planned faces. For the presentation layer there was created testers team whose main function was to execute test cases and report the bugs if any found during the implementation. Accurate distributing the work between testing team member considering their available time helped to finish testing on planned phase.

## 13. Approvals

Name	Title	Date yyyy-mm-dd	Signature