



# Test Report

## Chalmers On The Go – the Complete Chalmers Experience

This document describes the different user stories, their associated acceptance tests and the unit tests made when developing the ChalmersOnTheGo Android application.

For ChalmersOnTheGo 1.0, Jelly Bean 4.1.

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# Test Report

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## 1 User stories

Below you will find a complete list of user stories, used while developing the ChalmersOnTheGo application. Their presented order is not an internal prioritising between the stories. Please note that some user stories are generally formulated, for an example “I want to see all rooms”. These are tested only with a limited amount of data, not the data for *all* the rooms there are in the Chalmers, due to time limitations regarding collection of data. As long as more data is added in the correct way described in the [Developer Manual](#), those user stories are probable to be correct. Please also note that user stories marked with an asterisk (\*) have not been implemented. For more information on these, see section 3.3. Design decisions in document [Software Development Document.docx](#).

### General

- As a user, I should be able to exit the application at any time from inside the application<sup>1</sup>
- As a user, I want to be able to reverse my actions with a back-button<sup>2</sup>

### Map

- As a user, I should only be able to see and navigate inside the Chalmers area<sup>3</sup>
- As a user opening the application, I want to see a fixed view of the Chalmers area, which always has the same starting coordinates<sup>4</sup>
- As a user opening the application, I want to see my current position on the map<sup>23</sup>
- As a user, I want to be able to click on a marked location, generating a popup window informing me about the name and floor of the location<sup>5</sup>
- As a user, I want to be able to erase all marked locations on the map<sup>24</sup>
- As a user, I want to be able to see possible shortcuts between or through buildings. \*

### Navigation

- As a user having gotten a location marked on the map, I want to be able to get the shortest path from my current location to the wanted location, by clicking the locations information window<sup>6</sup>
- As a user, I want to be able to get the map centred at my current location<sup>7</sup>
- As a user navigating to a certain location, I want to know how long time it will take me to get there<sup>29</sup>
- As a user navigating to a certain location, I want to know the distance between my current location and the wanted location<sup>30</sup>
- As a user, I want to be able to search for the shortest path between two separate locations, without needing to be currently positioned on any of them<sup>31</sup>
- As a user, I want to be able to touch mark a location on the map, without needing to search for it<sup>32</sup>

**Searching**

- As a user typing in a search for some item, I want a dropdown menu to appear with word-completed suggestions<sup>8</sup>
- As a user searching and getting suggestions, I want to be able to click any suggestion and get the location I clicked marked on the map<sup>9</sup>
- As a user, I want to be able to search for building and get the closest entry to the building marked on the map<sup>10</sup>
- As a user, I want to be able to search for a building and get all the rooms in the building marked on the map<sup>11</sup>
- As a user, I should be able to search for different room types, and get all the rooms of the specific type as suggestions<sup>12</sup>

**Layer function**

- As a user, I want to be able to have a checkbox-regulated layer function where I can choose between location types<sup>13</sup>
- As a user checking any layer, I want to be able to see all the locations concerned by the specific layer<sup>14</sup>
- As a user, I want to have layers with computer rooms, lecture halls, group rooms, floors and pubs<sup>15</sup>

**Different application modes**

- As a user, I should be able to switch between night and day mode at any point or time in the application \*
- As a user currently in night mode, I want to see the buildings coloured according to their associated section's colour \*
- As a user currently in day mode, I want to see the buildings coloured neutrally \*

**Non-navigational features**

- As a user, I want features not only concerned with the map and navigation
- As a user, I want to see how many steps I have taken<sup>25</sup>
- As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider<sup>26</sup>
- As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink<sup>27</sup>
- As a user, I want to be able to synchronise my Time Edit schedule with the map to see where my lectures are \*

**Design, appearance and user support**

- As a user, I want a nice looking application icon<sup>16</sup>
- As a user, I want to be able to reach all the application's functions from a menu system similar to Google maps<sup>17</sup>
- As a user searching for items, I want to see an icon symbolising the type of room, building or pub for each suggestion I get<sup>18</sup>
- As a user checking the "pub layer", I want to be able to see the buildings where the pubs are painted with the colour of the respective pub's sections<sup>19</sup>
- As a user opening the application, I want to be prompted to activate the GPS if it is not already enabled<sup>20</sup>
- As a user, I want the GUI to have an appealing appearance<sup>21</sup>
- As a user, I want the application to perform wanted actions reasonably fast<sup>22</sup>
- As a user, I should be able to switch orientation mode between vertical and horizontal without losing my choices<sup>28</sup>

## 2 Testing

In the texts below you will find a complete list acceptance tests and unit tests, as well as their associated user stories, ran while developing the application ChalmersOnTheGo.

### 2.1 Acceptance tests

All user stories have been manually acceptance tested. The user stories are tested mainly to pass, but also to fail, and the tests have reasonable branch coverage. The validity in the tests is assured by their tight connection to user stories. The tests are made to verify the implementation.

<b>What is tested</b>	Exit-functionality
<b>How it is tested</b>	From each view, the exit-function in the menu is tried out
<b>Expected result</b>	Exit should happen whenever the exit-button is pressed
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I should be able to exit the application at any time from inside the application <sup>1</sup>

<b>What is tested</b>	Back/reverse-functionality
<b>How it is tested</b>	From each view, the back-function is tried.
<b>Expected result</b>	Previously taken step should reverse whenever the back-button is pressed.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to reverse my actions with a back-button <sup>2</sup>

<b>What is tested</b>	Zoom-out limit
<b>How it is tested</b>	Repeatedly zoom out in map.
<b>Expected result</b>	The map should only show the Chalmers area, not more.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I should only be able to see and navigate inside the Chalmers area <sup>3</sup>

<b>What is tested</b>	Map boundaries
<b>How it is tested</b>	Repeatedly scrolling outside of the map.
<b>Expected result</b>	The map should get stuck on the boundaries.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I should only be able to see and navigate inside the Chalmers area <sup>3</sup>

<b>What is tested</b>	Navigation fail outside Chalmers
<b>How it is tested</b>	The user stands outside the map boundaries and tries to navigate with the application.
<b>Expected result</b>	The map should show fixed coordinates of the map; centre of campus
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I should only be able to see and navigate inside the Chalmers area <sup>3</sup>

<b>What is tested</b>	Limited data on Chalmers area
<b>How it is tested</b>	Data, not in the database, is searched for
<b>Expected result</b>	No suggestions should present themselves
<b>Actual result</b>	Expected result

Associated user story	As a user, I should only be able to see and navigate inside the Chalmers area <sup>3</sup>
What is tested	Fixed starting coordinates and current position
How it is tested	Repeatedly opening the application and visual control.
Expected result	The map view should show the intended coordinates and position.
Actual result	Expected result
Associated user story	As a user opening the application, I want to see a fixed view of the Chalmers area, which always has the same starting coordinates <sup>4</sup>
What is tested	Information (and navigation) window
How it is tested	Arbitrary locations are searched and marked on the map. The marker is clicked.
Expected result	When clicking the marker, it should trigger the popup window containing room name, floor and a "Navigate to here"-text.
Actual result	Expected result
Associated user story	As a user, I want to be able to click on a marked location, generating a popup window informing me about the name and floor of the location <sup>5</sup>
What is tested	(Information and) navigation window
How it is tested	Arbitrary locations are searched and marked on the map. The marker is clicked. The information popup window is clicked.
Expected result	When clicking the popup window, the shortest path from the user's current location to the marked location should be drawn on the map.
Actual result	Expected result
Associated user story	As a user having gotten a location marked on the map, I want to be able to get the shortest path from my current location to the wanted location, by clicking the locations information window <sup>6</sup>
What is tested	Target function
How it is tested	The user moves to different places inside the map boundaries and presses the target button
Expected result	The map should centre on the user's position
Actual result	Expected result
Associated user story	As a user, I want to be able to get the map centered at my current location <sup>7</sup>
What is tested	Target function when opening application
How it is tested	The user stands inside the map boundaries and opens the application
Expected result	The map should centre on the user's position
Actual result	Expected result
Associated user story	As a user opening the application, I want to see my current position on the map <sup>23</sup>
What is tested	Search field
How it is tested	The search icon is clicked
Expected result	A writeable search field will show up with a marker in it
Actual result	Expected result

Associated user story	As a user typing in a search for some item, I want a dropdown menu to appear with word-completed suggestions <sup>8</sup>
What is tested	Suggestions in search field
How it is tested	Arbitrary letters are written in the field
Expected result	Word-completed suggestions should show in a dropdown menu
Actual result	Expected result
Associated user story	As a user typing in a search for some item, I want a dropdown menu to appear with word-completed suggestions <sup>8</sup>
What is tested	Coverage in search field suggestions
How it is tested	Suggestions are generated with arbitrary letters and the suggestions are checked manually against the database content
Expected result	The suggestions should represent all the correlating data in the database
Actual result	Expected result
Associated user story	As a user typing in a search for some item, I want a dropdown menu to appear with word-completed suggestions <sup>8</sup>
What is tested	Mark searched location
How it is tested	Arbitrary locations are sought and clicked on in suggestions menu
Expected result	Locations should be marked on the map
Actual result	Expected result
Associated user story	As a user searching and getting suggestions, I want to be able to click any suggestion and get the location I clicked marked on the map <sup>9</sup> As a user, I want to be able to search for a building and get all the rooms in the building marked on the map <sup>11</sup>
What is tested	Closest entry function
How it is tested	A search suggestion for a building will be clicked
Expected result	The closest entry should be marked on the map
Actual result	Expected result
Associated user story	As a user, I want to be able to search for building and get the closest entry to the building marked on the map <sup>10</sup>
What is tested	Generic rooms search
How it is tested	Each room type (group room, lecture hall, gym etc.) is searched for
Expected result	They should show up as suggestions
Actual result	Expected result
Associated user story	As a user, I should be able to search for different room types, and get all the rooms of the specific type as suggestions <sup>12</sup>
What is tested	Generic rooms search and navigation
How it is tested	Each room type (group room, lecture hall and computer room) is searched for, suggested and clicked
Expected result	All rooms of the specific type are marked on the map
Actual result	Expected result
Associated user story	As a user, I should be able to search for different room types, and get all the rooms of the specific type as suggestions <sup>12</sup>

<b>What is tested</b>	Layer menu
<b>How it is tested</b>	The layer-button is clicked
<b>Expected result</b>	The layer menu should appear
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to have a checkbox-regulated layer function where I can choose between location types <sup>13</sup>

<b>What is tested</b>	Layer menu checkbox alternatives
<b>How it is tested</b>	The layer menu is opened and visually controlled.
<b>Expected result</b>	Alternatives should be computer rooms, lecture halls, group rooms and pubs.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to have layers with computer rooms, lecture halls, group rooms, floors and pubs <sup>15</sup>

<b>What is tested</b>	Layer menu checkboxes
<b>How it is tested</b>	Arbitrary check-boxes are marked and the menu is closed
<b>Expected result</b>	The chosen location layers should show on the map
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user checking any layer, I want to be able to see all the rooms concerned by the specific layer <sup>14</sup>

<b>What is tested</b>	Layer menu checkboxes
<b>How it is tested</b>	Arbitrary check-boxes are marked and the menu is closed. The menu is opened and the check-boxes are unmarked. Close.
<b>Expected result</b>	The unchosen location layers should disappear from the map.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user checking any layer, I want to be able to see all the rooms concerned by the specific layer <sup>14</sup>

<b>What is tested</b>	Layer with floor options
<b>How it is tested</b>	Arbitrary check-boxes are marked
<b>Expected result</b>	Floor options should turn up
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to have layers with computer rooms, lecture halls, group rooms, floors and pubs <sup>15</sup>

<b>What is tested</b>	Layer with floor options
<b>How it is tested</b>	Arbitrary check-boxes are marked and floor options are marked
<b>Expected result</b>	The chosen locations and chosen floors should show in the map
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to have layers with computer rooms, lecture halls, group rooms, floors and pubs <sup>15</sup>

<b>What is tested</b>	Attractiveness in application icon
<b>How it is tested</b>	Visual control and discussion among team members.
<b>Expected result</b>	Consensus in that it is appealing.



<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want a nice looking application icon <sup>16</sup>
<b>What is tested</b>	Menu similarity to Google maps
<b>How it is tested</b>	The application's menu system is compared to that of Google maps'
<b>Expected result</b>	The system should be quite similar
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to reach all the application's functions from a menu system similar to Google maps <sup>17</sup>
<b>What is tested</b>	Icons in search suggestions
<b>How it is tested</b>	All different search item types are tried (pubs, buildings, computer room, lecture hall, group room)
<b>Expected result</b>	The suggestions should show correlating icons to the items
<b>Actual result</b>	Not all types had their own icons
<b>Fix</b>	No. Too big re-implementation of databse. Left to show potential in application.
<b>New result</b>	-
<b>Associated user story</b>	As a user searching for items, I want to see an icon symbolising the type of room, building or pub for each suggestion I get <sup>18</sup>
<b>What is tested</b>	Building colours for pubs
<b>How it is tested</b>	The pub layer is marked
<b>Expected result</b>	The buildings with pubs should be painted in their section colour respectively
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user checking the "pub layer", I want to be able to see the buildings where the pubs are painted with the colour of the respective pub's sections <sup>19</sup>
<b>Note</b>	Removed feature. Not considered as adding much value, instead cluttering map.
<b>What is tested</b>	GPS prompt
<b>How it is tested</b>	The GPS function is deactivated. Then the application is opened.
<b>Expected result</b>	A window should prompt the user to enable the GPS function.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user opening the application, I want to be prompted to activate the GPS if it is not already enabled <sup>20</sup>
<b>What is tested</b>	Attractiveness in GUI
<b>How it is tested</b>	Visual control and discussion among team members.
<b>Expected result</b>	Consensus in that it is appealing.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want the GUI to have an appealing appearance <sup>21</sup>
<b>What is tested</b>	Application performance
<b>How it is tested</b>	Arbitrary functions are clicked and the time they take to react is measured with timer



<b>Expected result</b>	Each carried-out action should take at the most 1 second
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want the application to perform wanted actions reasonably fast <sup>22</sup>

<b>What is tested</b>	Empty map function
<b>How it is tested</b>	Arbitrary locations and layers are added to the map, and then the empty map-button clicked
<b>Expected result</b>	The map should be become clean
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to erase all marked locations on the map <sup>24</sup>

<b>What is tested</b>	Activation and deactivation of step counter
<b>How it is tested</b>	The StepCounter will be activated, arbitrary functions carried out, then the StepCounter will be deactivated
<b>Expected result</b>	The StepCounter should activate and deactivate when ordered to
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to se how many steps I have taken <sup>25</sup>

<b>What is tested</b>	Activate/Deactivate message
<b>How it is tested</b>	The StepCounter will be activated, arbitrary functions carried out, then the StepCounter deactivation windows will be visually controlled
<b>Expected result</b>	The StepCounter option should show “Deactivate StepCounter”
<b>Actual result</b>	The StepCounter option shows “Activate StepCounter” even though it is activated if phone orientation is changed
<b>Fix</b>	Activate/Deactivate message saved as variable and fetched when orientation changed
<b>New result</b>	Expected result
<b>Associated user story</b>	As a user, I want to se how many steps I have taken <sup>25</sup>

<b>What is tested</b>	Counting steps
<b>How it is tested</b>	The StepCounter will be activated and the user will walk and manually count her steps, comparing them to those in the StepCounter.
<b>Expected result</b>	The number of steps manually counted and those counted by the StepCounter should correlate.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to se how many steps I have taken <sup>25</sup>

<b>What is tested</b>	Counting steps in sleep mode
<b>How it is tested</b>	The StepCounter will be activated and sleep mode will be engaged. The user will walk and manually count her steps, then waking up the application, comparing the counted steps to those in the StepCounter.
<b>Expected result</b>	The number of steps manually counted and those counted by the StepCounter should correlate.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to se how many steps I have taken <sup>25</sup>

<b>What is tested</b>	Counting steps when application is minimised
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<b>How it is tested</b>	The StepCounter will be activated and the application will be minimised. The user will walk and manually count her steps, then opening the application, comparing the counted steps to those in the StepCounter.
<b>Expected result</b>	The number of steps manually counted and those counted by the StepCounter should correlate.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to see how many steps I have taken <sup>25</sup>
<b>What is tested</b>	Counted steps saved if StepCounter deactivated
<b>How it is tested</b>	The StepCounter will be activated and the user will walk. The number of steps will be controlled, then the StepCounter will be deactivated, then activated again.
<b>Expected result</b>	The number of steps in the StepCounter should still show on the calorie counter progress window.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to see how many steps I have taken <sup>25</sup>
<b>What is tested</b>	Stop counting steps
<b>How it is tested</b>	The StepCounter will be activated and the user will walk, then deactivate the StepCounter.
<b>Expected result</b>	The StepCounter should stop counting when being turned off.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to see how many steps I have taken <sup>25</sup>
<b>What is tested</b>	Not saving counted steps when exiting application
<b>How it is tested</b>	The StepCounter will be activated and the user will walk, then the application will be exited, and then opened again.
<b>Expected result</b>	The StepCounter should be restarted from 0.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to see how many steps I have taken <sup>25</sup>
<b>What is tested</b>	Calorie counting window
<b>How it is tested</b>	The calorie counting window is clicked in the menu.
<b>Expected result</b>	The wanted window should show up.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider <sup>26</sup>
<b>What is tested</b>	Calorie counting progress bars existing
<b>How it is tested</b>	Visual control of calorie counting window.
<b>Expected result</b>	Progress bars for wine, beer, shots, water and cider should show in the windows.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider <sup>26</sup>
<b>What is tested</b>	Calorie counting progress bars working 1
<b>How it is tested</b>	Visual control of progress bars while walking a few steps.

<b>Expected result</b>	Progress in all bars with taken number of steps.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider <sup>26</sup>
<b>What is tested</b>	Calorie counting progress bars working 2
<b>How it is tested</b>	Visual control of progress bars while walking the desired amount of steps per each drink type.
<b>Expected result</b>	Progress in all bars and reaching desired amount of steps per drink, resulting in that, if the user takes a drink, no “warning”-message will appear.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider <sup>26</sup>
<b>What is tested</b>	Drink! functionality
<b>How it is tested</b>	Clicking on each Drink!-button.
<b>Expected result</b>	Number of had drinks should show an increase accordingly, and the progress bars should start counting for a new drink.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to see when I have burnt enough calories walking, to drink either a glass of wine, beer, shot, or cider <sup>26</sup> As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink <sup>27</sup>
<b>What is tested</b>	Warning fat/pee/drunken/sick message
<b>How it is tested</b>	Clicking on Drink! without having reached desired amount of burnt calories.
<b>Expected result</b>	Number of had drinks should increase accordingly, and the progress bars should start counting for a new drink. Additionally, a message warning the user of becoming fat/drunken/sick or needing to pee appears.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink <sup>27</sup>
<b>What is tested</b>	Saving progress when in sleep mode
<b>How it is tested</b>	The StepCounter will be activated and sleep mode will be engaged. The user will walk and manually count her steps, then waking up the application, comparing the counted steps to those in the calorie counting progress bars.
<b>Expected result</b>	The number of steps manually counted and those shown in the calorie counting progress bars should correlate.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink <sup>27</sup>
<b>What is tested</b>	Saving progress when minimising the application
<b>How it is tested</b>	The StepCounter will be activated and the application will be

	minimised. The user will walk and manually count her steps, then waking up the application, comparing the counted steps to those in the calorie counting progress bars.
<b>Expected result</b>	The number of steps manually counted and those shown in the calorie counting progress bars should correlate.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink <sup>27</sup>
<b>What is tested</b>	Not saving counted steps when exiting application
<b>How it is tested</b>	The StepCounter will be activated and the user will walk, then the application will be exited, and then opened again.
<b>Expected result</b>	The calorie counter progress bars should be restarted from 0.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to notify the application that I have taken a drink so that the calorie burning start for a new drink <sup>27</sup>
<b>What is tested</b>	Switching orientation
<b>How it is tested</b>	Arbitrary functions will be activated, then the phone will be turned to switch modes.
<b>Expected result</b>	Any saved data should remain in every orientation mode.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I should be able to switch orientation mode between vertical and horizontal without losing my choices <sup>28</sup>
<b>What is tested</b>	Duration and distance between locations 1
<b>How it is tested</b>	Arbitrary locations are searched for with the Search-button and marked on the map. The marked location is clicked showing the information and navigation window. The window is clicked.
<b>Expected result</b>	The time and distance from the user's current position will be shown
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user navigating to a certain location, I want to know how long time it will take me to get there <sup>29</sup> As a user navigating to a certain location, I want to know the distance between my current location and the wanted location <sup>30</sup>
<b>What is tested</b>	Duration and distance between locations 2
<b>How it is tested</b>	Arbitrary locations are searched for with the Route-option and marked on the map. The marked location is clicked showing the information and navigation window. The window is clicked.
<b>Expected result</b>	The time and distance from the user's current position will be shown
<b>Actual result</b>	Time and distance set to 1 m and 1 minute always.
<b>Fix</b>	Easily seen to semantic mistake
<b>New result</b>	Expected result
<b>Associated user story</b>	As a user navigating to a certain location, I want to know how long time it will take me to get there <sup>29</sup> As a user navigating to a certain location, I want to know the distance between my current location and the wanted location <sup>30</sup>

<b>What is tested</b>	Path between separate locations
<b>How it is tested</b>	Two arbitrary locations are searched for and marked on the map.
<b>Expected result</b>	The path between them should be drawn.
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to search for the path between to separate location, without currently positioned on any of them <sup>31</sup>

  

<b>What is tested</b>	Location marking with touch
<b>How it is tested</b>	A finger is pressed and held against arbitrary places on the map
<b>Expected result</b>	The locations held against should be marked
<b>Actual result</b>	Expected result
<b>Associated user story</b>	As a user, I want to be able to touch mark a location on the map, without needing to search for it <sup>32</sup>

## 2.2 Unit tests

All database methods in the DAO (Data Access Object) class have been unit tested, using the public Assert class. The methods are mainly tested to pass and the tests have reasonable statement coverage. These tests were made to verify the implementation.

- **Insertion and getting in table 4 (buildings table), test case**
  - insertIntoTable4 and getAllFromTable4 were tested together:
    - A building name (String) was inserted into table 4 via insertIntoTable4 and fetched with getAllFromTable4
- **Insertion and getting in table 2 (room types table), test case**
  - insertIntoTable2 and getAllFromTable2 were tested together:
    - Three room types (String) were inserted into table 2 via insertIntoTable2 and fetched with getAllFromTable2
- **Insertion and getting in table 1 (coordinates and buildings table), test suite**
  - insertIntoTable1 and getClosestEntry were tested together:
    - A pair of coordinates (Double) and a building name (String) were inserted into table 1 via insertIntoTable1.
    - The coordinates (Double) were used to create an object (LatLng) containing latitude and longitude.
    - The object (LatLng) and the building name (String) served as input in getClosestEntry.
    - The result of getClosestEntry (LatLng) and the object (LatLng) containing the coordinates were compared and found to be equal.
    - Calculating the closest entry
  - insertIntoTable1 and getClosestEntry were tested together:
    - An object (LatLng) containing zero coordinates, the current coordinates, were created.
    - Five different coordinate pairs (Double) and a building name (String) were inserted into table 1 via insertIntoTable1.
    - The pair of coordinates (Double) closest to the zero coordinates, were in addition used to create an object (LatLng) containing latitude and longitude.
    - The zero coordinates object (LatLng) and the building name (String) served as input in getClosestEntry.
    - The result of getClosestEntry (LatLng) and the closest coordinate pair object (LatLng) were compared and found to be equal.

- Insertion and getting in table 3 (room name, coordinates, room type, building and floor table)
- insertIntoTable3 and getRoomCoordinates were tested together:
  - A pair of coordinates (Double) were used to create an object (LatLng) containing latitude and longitude.
  - A room type (String) was inserted into table 2 via insertIntoTable2.
  - A building name (String) was inserted into table 4 via insertIntoTable4.
  - The room name (String), the coordinates (Double), the room type (String), the building name (String) and a floor (String) were inserted into table 3 via insertIntoTable3.
  - The room name (String) served as input in getRoomCoordinates.
  - The result of getRoomCoordinates (LatLng) and the object (LatLng) containing the coordinates were compared and found to be equal.
  - Getting all rooms in a specific building
- insertIntoTable2, insertIntoTable3, insertIntoTable4 and getAllRoomsInBuilding were tested together:
  - A room type (String) was inserted into table 2 via insertIntoTable2.
  - A real building name (String) was inserted into table 4 via insertIntoTable4
  - A false building name (String) was inserted the same way.
  - Room name1 (String), coordinate pair1 (Double), the room type (String), the true building name (String) and floor1 (String) were inserted into table 3 via insertIntoTable3.
  - Room name2 (String), coordinate pair1 (Double), the room type (String), the true building name (String) and floor2 (String) were inserted into table 3 via insertIntoTable3.
  - A false room name (String), coordinate pair1 (Double), the room type (String), the false building name (String) and floor1 (String) were inserted into table 3 via insertIntoTable3.
  - The true building name (String) served as input in getAllRoomsInBuilding.
  - The result of getAllRoomsInBuilding (ArrayList<String>) was tested using methods size and contains, and found to be satisfactory.
  - Getting all rooms with a specific type
- insertIntoTable2, insertIntoTable3, insertIntoTable4 and getAllRoomsInBuilding were tested together:
  - A room type (String) was inserted into table 2 via insertIntoTable2.
  - A false room type (String) was inserted the same way.
  - A building name (String) was inserted into table 4 via insertIntoTable4
  - Room name1 (String), a coordinate pair1 (Double), the true room type (String), the building name (String) and floor1 (String) were inserted into table 3 via insertIntoTable3.
  - Room name2 (String), coordinate pair1 (Double), the true room type (String), the building name (String) and floor2 (String) were inserted into table 3 via insertIntoTable3.
  - A false room name (String), coordinate pair1 (Double), the false room type (String), the building name (String) and floor1 (String) were inserted into table 3 via insertIntoTable3.
  - The building name (String) served as input in getAllRoomsInBuilding.
  - The result of getAllRoomsInBuilding (ArrayList<String>) was tested using methods size and contains, and found to be satisfactory.
  - Getting suggestions

- insertIntoTable2, insertIntoTable3, insertIntoTable4 and suggestions were tested together:
  - A room type (String) was inserted into table 2 via insertIntoTable2.
  - A building name (String) was inserted into table 4 via insertIntoTable4
  - A room name (String), a coordinate pair (Double), the room type (String), the building name (String) and a floor (String) were inserted into table 3 via insertIntoTable3.
  - Different strings of letters matching the strings in table 3 served as input in suggestions.
  - The result of suggestions (ArrayList<String>) was tested using methods for size and null, and found to be satisfactory.
  - Getting room names
- insertIntoTable3 and getName were tested together:
  - A room name (String), a coordinate pair (Double), a room type (String), a building name (String) and a floor (String) were inserted into table 3 via insertIntoTable3.
  - The room name (String) served as input in getType.
  - The result of getName (String) and the room name were compared and found to be equal.
  - Getting room types
- insertIntoTable3 and getType were tested together:
  - A room name (String), a coordinate pair (Double), a room type (String), a building name (String) and a floor (String) were inserted into table 3 via insertIntoTable3.
  - The room name (String) served as input in getType.
  - The result of getType (String) and the room type were compared and found to be equal.
  - Getting floor
- insertIntoTable3 and getFloor were tested together:
  - A room name (String), a coordinate pair (Double), a room type (String), a building name (String) and a floor (String) were inserted into table 3 via insertIntoTable3.
  - The room name (String) served as input in getFloor.
  - The result of getFloor (String) and the floor were compared and found to be equal.