



Coffee Management System

10(0.6,4.85)

Use Cases



0.2(11,4.45)

Authors

4(8.8,8.4)

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0.6(5.1,14)

Contents

1 User Login

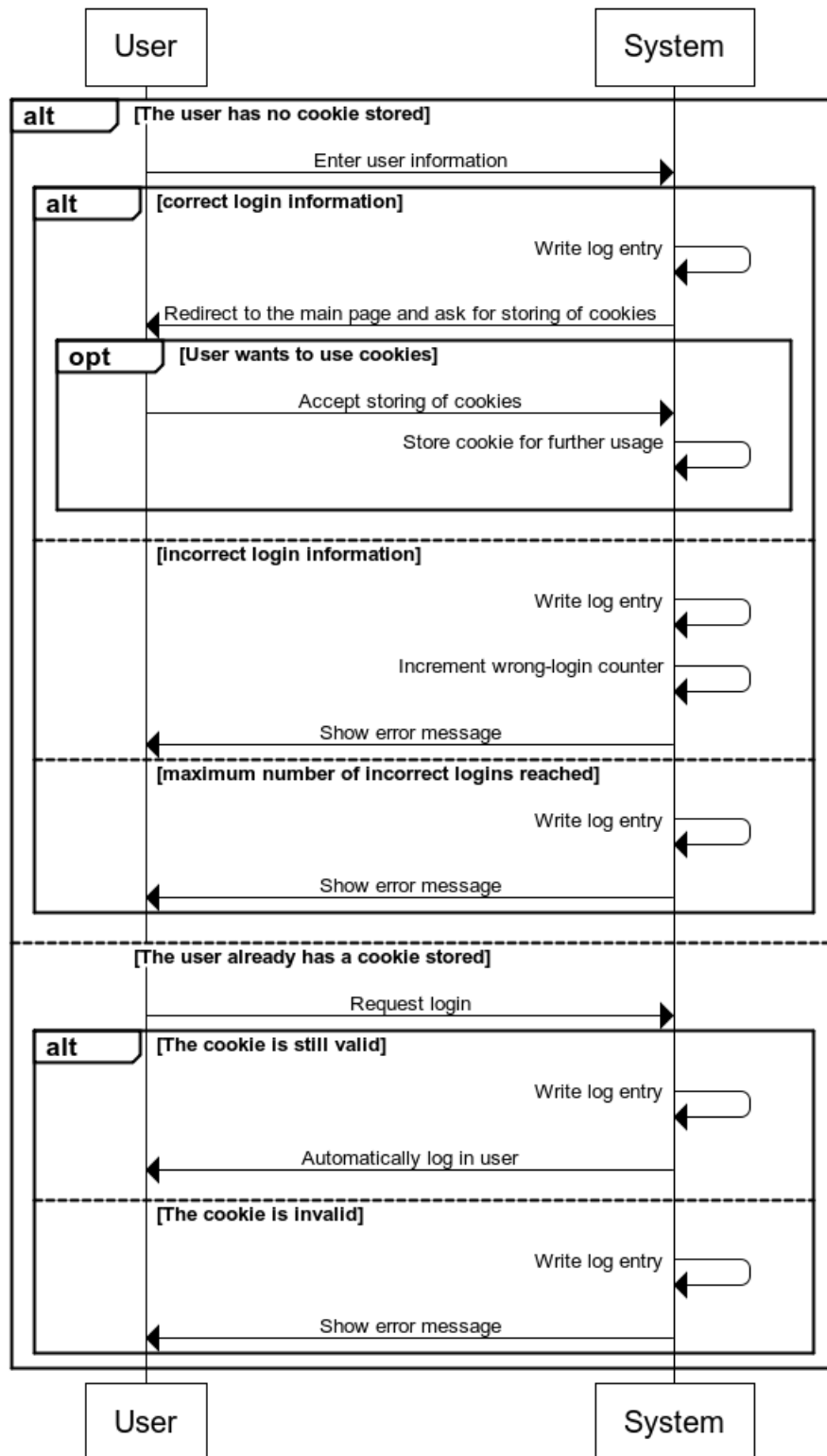
Description	The users go through this use case whenever they want to access any of the user interfaces. After logging in the user should be redirected to the main page of the application.
Actors	User
Preconditions	The application is started
Basic Flow	<p>leftmirgin=* The user types in the username and password.</p> <p>leftmiirgiin=* The system logs in the user.</p> <p>leftmiiirgiin=* The system writes a log entry for the activity of the user with the current time and date.</p> <p>leftmivrgivn=* The system checks if a cookie exists for the user.</p> <p>leftmvrgvn=* The system asks if the user wants to store a cookie.</p> <p>leftmivrgvin=* The user accepts and a cookie is stored for further usage.</p>
Alternate Flows	<p>1 a) The user already has a cookie in store.</p> <p>libel=0., leftmirgin=* The system checks that the cookie is still valid.</p> <p>liibel=0., leftmiirgiin=* The system logs in the user automatically.</p> <p>5 a) The user declined the storage of a cookie.</p> <p>libel=0., leftmirgin=* The system does not store a cookie for further usage.</p>
Exception Flows	<p>2 a) The entered username does not exist.</p> <p>libel=0., leftmirgin=* The system shows an error message.</p> <p>liibel=0., leftmiirgiin=* The use case is terminated.</p> <p>2 b) The entered password is incorrect.</p> <p>libel=0., leftmirgin=* The system shows an error message.</p> <p>liibel=0., leftmiirgiin=* The use case is terminated.</p> <p>2 c) The maximum number of wrong password entries has been reached.</p> <p>libel=0., leftmirgin=* The system shows an error message.</p> <p>liibel=0., leftmiirgiin=* The use case is terminated.</p> <p>4 a) The cookie is invalid or expired.</p>

libel=0., leftmirgin=* The system notifies the user that the cookie is invalid.

liibel=0., leftmiirgiin=* The user is sent to the login page and needs to enter the username and password to continue.

Postconditions The user is redirected to the correct page.

User Login



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2 User Login via Smartphone

Description	When the user wishes to login via his or her smartphone. Very similar to the regular User Login use case.
Actors	User
Preconditions	<p>leftmirgin=* User's smartphone is on.</p> <p>leftmiirgiin=* User's smartphone views the installed apps.</p>
Basic Flow	<p>leftmirgin=* The user taps on the icon that corresponds to the coffee machine application.</p> <p>leftmiirgiin=* The system presents the user with the login page.</p> <p>leftmiiirgiin=* The user taps on the username text field.</p> <p>leftmivrgivn=* The user types in his or her username.</p> <p>leftmvrgvn=* The user taps on the password field.</p> <p>leftmivrgvin=* The user types in his or her password.</p> <p>leftmviirgviin=* The user taps the login button.</p> <p>leftmviiirgviiin=* The system logs in the user.</p> <p>leftmixrgixn=* The system makes an entry in the log file about the login from the smartphone.</p> <p>leftmxrgxn=* The system presents the user with the default post-login page.</p>
Alternate Flows	<p>5 a) The user taps on the "next field" key on the keyboard.</p> <p>libel=0., leftmirgin=* The basic flow continues from step 6.</p> <p>7 a) The user taps the enter key on the keyboard.</p> <p>libel=0., leftmirgin=* The basic flow continues from step 8.</p>
Exception Flows	<p>8 a) The user has typed in a bad username or password.</p> <p>libel=0., leftmirgin=* The system notifies the user that he or she is not logged in.</p> <p>8 b) The maximum number of bad tries has been reached.</p> <p>libel=0., leftmirgin=* The system notifies the user that the maximum number of bad tries has been reached.</p> <p>liibel=0., leftmiirgiin=* The system disables the user's account.</p> <p>liiibel=0., leftmiiirgiin=* The use case exits.</p>

Postcondition User is logged in.

3 User Logout

Description The user can request logout through the interface at any time. When a logout is requested the user goes through this use case.

Actors User

Preconditions The application is started and the user is logged in.

Basic Flow

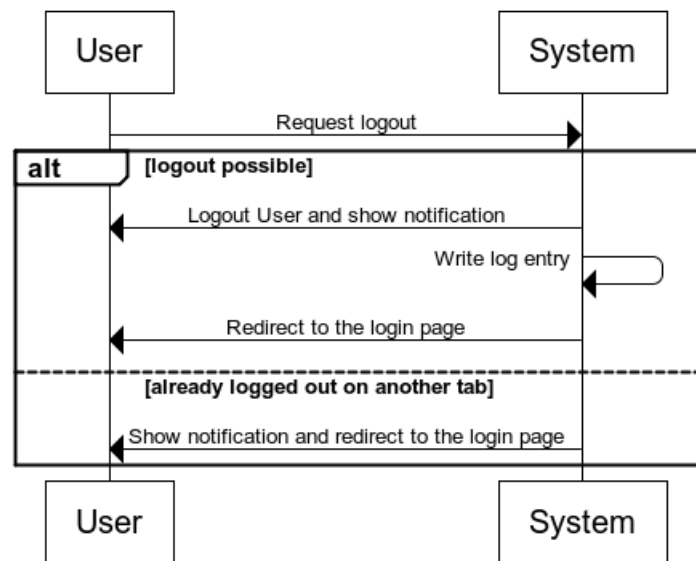
- leftmirgin=* The user requests logout
- leftmiirgiin=* The system logs out the user and sends a notification.
- leftmiiirgiin=* The system writes a log entry for the activity of the user with the current time and date.
- leftmivrgivn=* The system sends the user to the log in page.

Alternate Flows

- 2 a) The user has already been logged out in a different tab.
 - libel=0., leftmirgin=* The system notifies the user.
 - liibel=0., leftmiirgiin=* The system sends the user to the log in page.

Postconditions The user is logged out and redirected to the login page.

User logout



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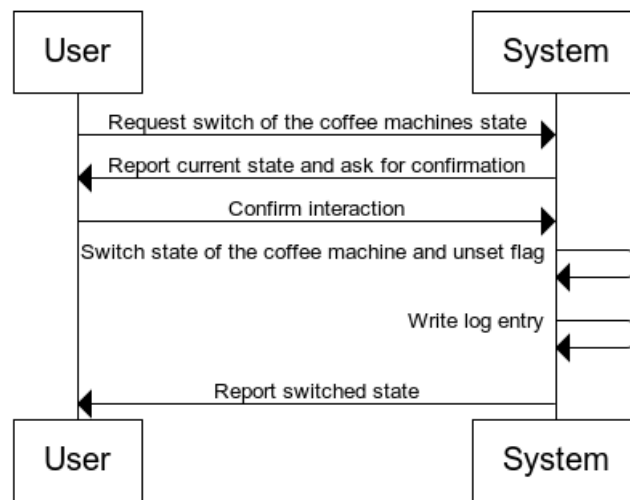
4 User Logout via Smartphone

Description	When the user wishes to logout from the session via his or her smartphone. Very similar to the regular User Logout Use Case. The mobile application session, and the website session are independent - if the user logs out from the website, the user may still be logged in from the application.
Actors	User
Preconditions	leftmirgin=* The user's smartphone's display is on. leftmiirgiin=* The user is logged in to the application.
Basic Flow	leftmirgin=* The user taps on the logout link inside the application. leftmiirgiin=* The system logs the user out. leftmiiirgiin=* The system presents the user with the login view.
Postconditions	The user is logged out and has been sent to the login page.

5 Switching the State of the Coffee Machine

Description	The user goes through this use case whenever they request activation or deactivation of the coffee machine through the interface.
Actors	User
Preconditions	The application is started and the user is logged in. The user is currently on the page for switching the state of the coffee machine.
Basic Flow	<div>leftmirgin=* The user requests switch of the coffee machines state through the user interface.</div> <div>leftmiirgiin=* The system writes a log entry for the activity of the user with the current time and date.</div> <div>leftmiiirgiin=* The system notifies the modified state of the coffee machine through the interface.</div> <div>leftmivrgivn=* The system notifies the modified state of the coffee machine via the LED light.</div>
Postconditions	The flag indicating if the machine is filled located on the main page is not set anymore, and the system notifies the user of the state switch.

Switching the Coffee Machines State

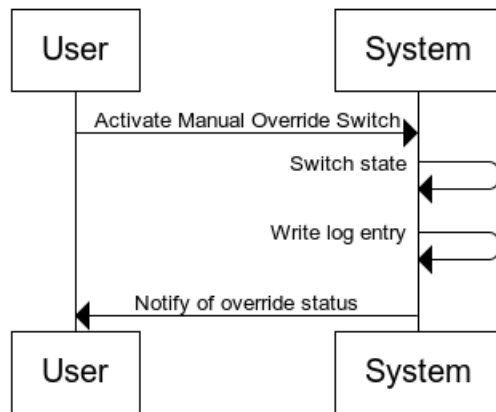


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6 Manual Override

Description	In case the user wants to go around the system and turn the coffee machine on or off this use case is used.
Actors	User
Preconditions	The user is physically close to the machine.
Basic Flow	<div>leftmirgin=* The user activates the manual override switch.</div> <div>leftmiirgiin=* The system switches the state of the coffee machine</div> <div>leftmiiirgiin=* The system writes a log entry for the activity of the user with the current time and date.</div> <div>leftmivrgivn=* The system notifies other users that the system is in manual override mode.</div>
Postconditions	All users are notified of override state.

Manual Override

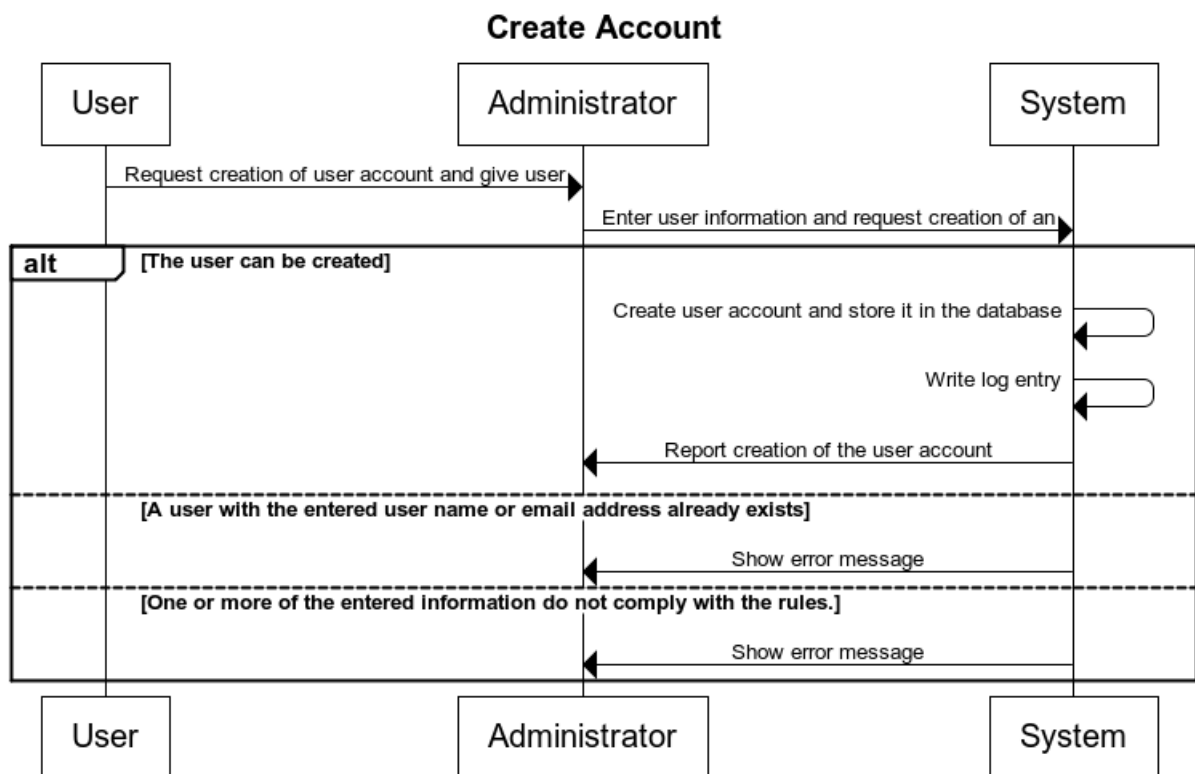


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7 Create Account

Description	The administrator creates accounts for all users. When a new user should be created they give their information to the administrator, who then creates the account. The information a user needs to create an account is the email, desired user name and desired password of the user. The rules for user names and passwords have not yet been defined.
Actors	User, Administrator
Preconditions	<p>leftmirgin=* A user has requested a new account.</p> <p>leftmiirgiin=* The same user has given his or her information to the administrator.</p> <p>leftmiiirgiin=* The system is already setup and an administrator exists.</p> <p>leftmivrgivn=* The administrator is logged in to the system.</p>
Basic Flow	<p>leftmirgin=* The administrator accesses the user creation page.</p> <p>leftmiirgiin=* The administrator enters the users data and requests creation of the new account.</p> <p>leftmiiirgiin=* The system saves the user data in the database.</p> <p>leftmivrgivn=* The system writes a log entry for the activity of the user with the current time and date.</p> <p>leftmvrgvn=* The system notifies the administrator that the account has been created.</p> <p>leftmivrgvin=* The system writes a log entry for the activity of the user with the current time and date.</p>
Exception Flows	<p>4 a) A user with the entered user name or email address already exists.</p> <p>libel=0., leftmirgin=* The system notifies the administrator.</p> <p>liibel=0., leftmiirgiin=* The administrator asks the user for different user information.</p> <p>liiibel=0., leftmiiirgiin=* The administrator returns to step 3.</p> <p>4 b) One or more of the entered information do not comply with the rules.</p> <p>libel=0., leftmirgin=* The system notifies the administrator.</p> <p>liibel=0., leftmiirgiin=* The administrator asks the user for different user information.</p> <p>liiibel=0., leftmiiirgiin=* The administrator returns to step 3.</p>

Postconditions A new user account with the users information has been created.

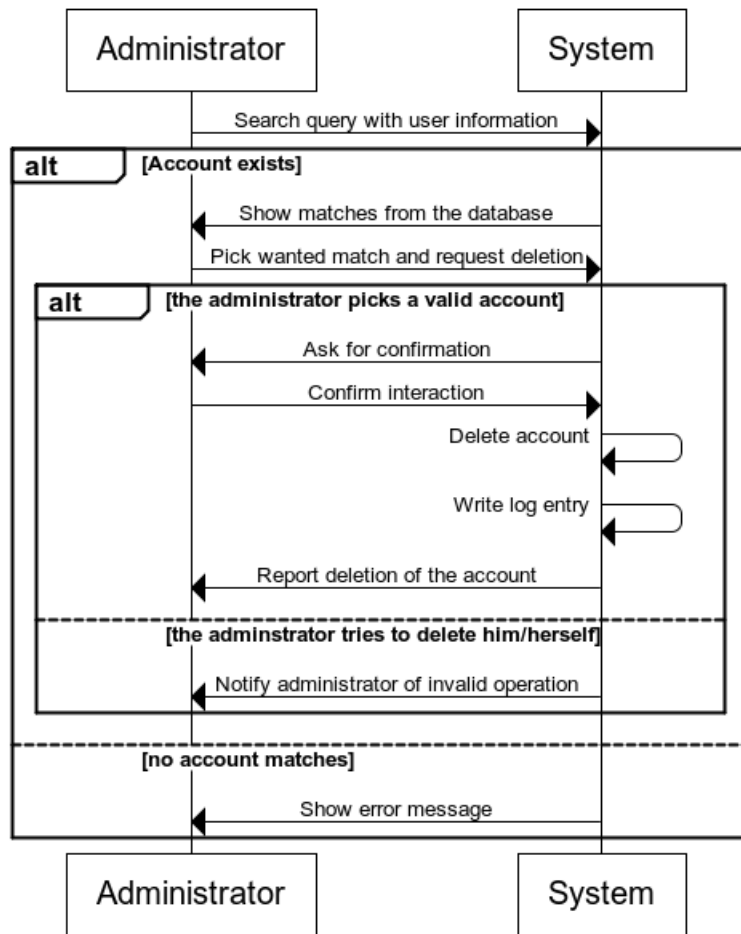


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8 Delete Account

Description	The administrator manages all user accounts including the deletion of accounts. The administrator can find a user by putting in either the user name or the email address.
Actors	Administrator
Preconditions	The system is already setup and an administrator exists. The administrator is logged in to the system.
Basic Flow	<ul style="list-style-type: none">leftmirgin=* The administrator searches for a user by putting in the users information.leftmiirgiin=* The system shows a list of users fitting the search criteria.leftmiiirgiin=* The administrator chooses the user he wants to delete and requests deletion.leftmivrgivn=* The system asks for confirmation.leftmvrgvn=* The administrator confirms.leftmvirgin=* The system notifies the administrator of the deletion of the users account.leftmviirgviin=* The system writes a log entry for the activity of the user with the current time and date.
Exception Flows	<ul style="list-style-type: none">4 a) No user with the entered user information can be found.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the administrator.liibel=0., leftmiirgiin=* The use case is exited.4 b) The administrator tries to delete him-/herself.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the administrator that an administrator cannot delete him-/herself.liibel=0., leftmiirgiin=* The administrator is routed back to the administrator page.
Postconditions	The user account has been deleted.

Delete Account



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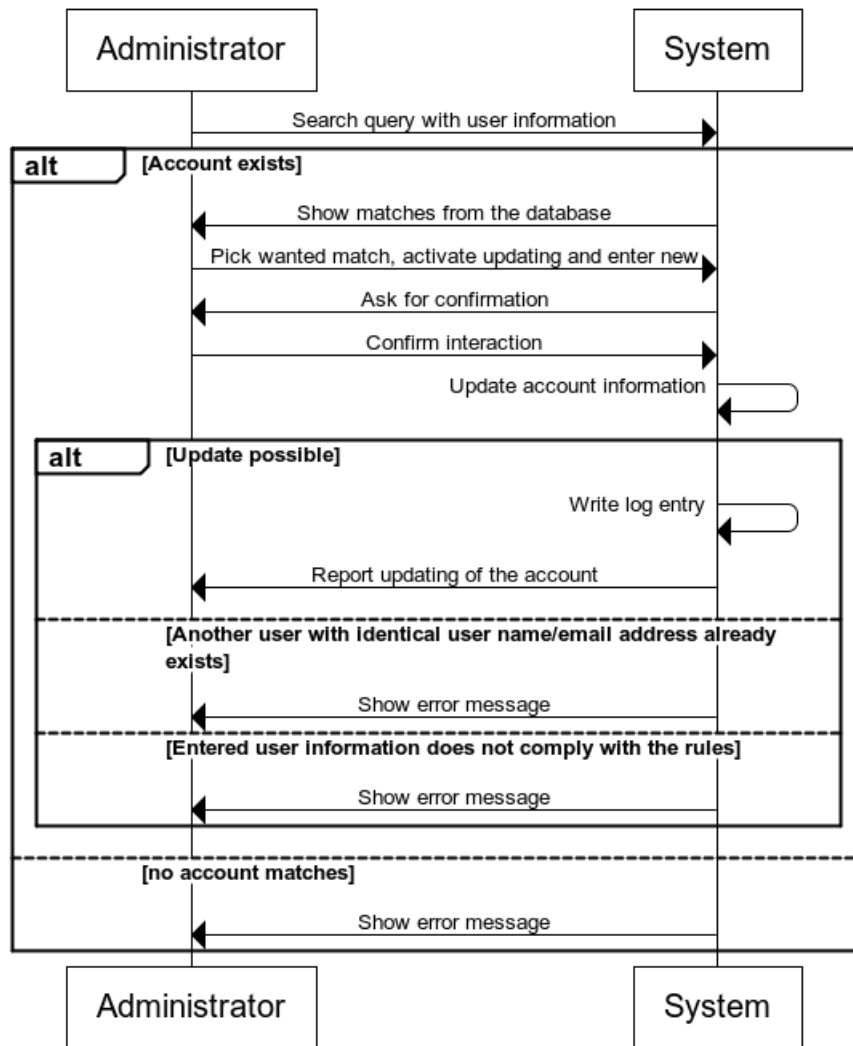
9 Deactivate Account

Description	The administrator manages all user accounts including the deactivation of accounts. The administrator can find a user by putting in either the user name or the email address. A deactivated user will still show up in the statistics but is not able to log in to the system.
Actors	Administrator
Preconditions	The system is already setup and an administrator exists. The administrator is logged in to the system.
Basic Flow	<div>leftmirgin=* The administrator searches for a user by putting in the users information.</div> <div>leftmiirgiin=* The system shows a list of users fitting the search criteria.</div> <div>leftmiiirgiin=* The administrator chooses the user he wants to deactivate and requests deactivation.</div> <div>leftmivrgivn=* The system asks for confirmation.</div> <div>leftmvrgvn=* The administrator confirms.</div> <div>leftmvirgin=* The system notifies the administrator of the deactivation of the users account.</div> <div>leftmviirgviin=* The system writes a log entry for the activity of the user with the current time and date.</div>
Exception Flows	<div>4 a) Alternate flow.</div> <div>libel=0., leftmirgin=* The system notifies the administrator.</div> <div>liibel=0., leftmiirgiin=* The use case is exited.</div> <div>4 b) Alternate flow.</div> <div>libel=0., leftmirgin=* The system notifies the administrator that an administrator cannot deactivate him-/herself.</div> <div>liibel=0., leftmiirgiin=* The administrator is routed back to the administrator page.</div>
Postconditions	The user account has been deactivated.

10 Update Account

Description	The administrator manages all user accounts including the updating of accounts. The administrator can find a user by putting in either the user name or the email address.
Actors	Administrator
Preconditions	The system is already setup and an administrator exists. The administrator is logged in to the system.
Basic Flow	<ul style="list-style-type: none">leftmirgin=* The administrator searches for a user by putting in the users information.leftmiirgiin=* The system shows a list of users fitting the search criteria.leftmiiirgiin=* The administrator chooses the user he wants to update and activates updating.leftmivrgivn=* The administrator enters updated user information.leftmvrgvn=* The system asks for confirmation.leftmvirgvin=* The administrator confirms.leftmviirgviiin=* The system notifies the administrator of the deletion of the users account.leftmviiirgviiin=* The system writes a log entry for the activity of the user with the current time and date.
Exception Flows	<ul style="list-style-type: none">4 a) No user with the entered user information can be found.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the administrator.liibel=0., leftmiirgiin=* The use case is exited.7 a) A user with the entered user name or email address already exists.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the administrator.liibel=0., leftmiirgiin=* The use case is exited.7 b) One or more of the entered information do not comply with the rules.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the administrator.liibel=0., leftmiirgiin=* The use case is exited.
Postconditions	The user accounts information has been updated.

Update Account

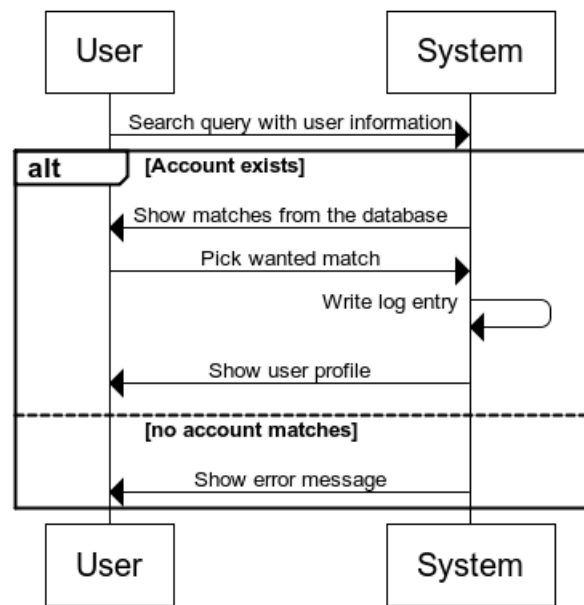


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11 Search for User

Description	The administrator has to search for users to be able to perform actions such as updating, deletion and deactivation on them. All users must be able to find a specific user to be able to view their statistics. Users should be able to be found by entering their user names or part of their user names.
Actors	Administrator, User
Preconditions	The user is logged in.
Basic Flow	<div>leftmirgin=* The user enters information in the search field</div> <div>leftmiirgiin=* The system shows a list of users fitting the search criteria.</div> <div>leftmiiirgiin=* The user chooses the desired user from the list.</div> <div>leftmivrgivn=* The system writes a log entry for the activity of the user with the current time and date.</div>
Exception Flows	<div>4 a) No user with the entered user information can be found.</div> <div>libel=0., leftmirgin=* The system notifies the user.</div> <div>liibel=0., leftmiirgiin=* The use case is exited.</div>
Postconditions	The user is redirected to the users page.

Search for User

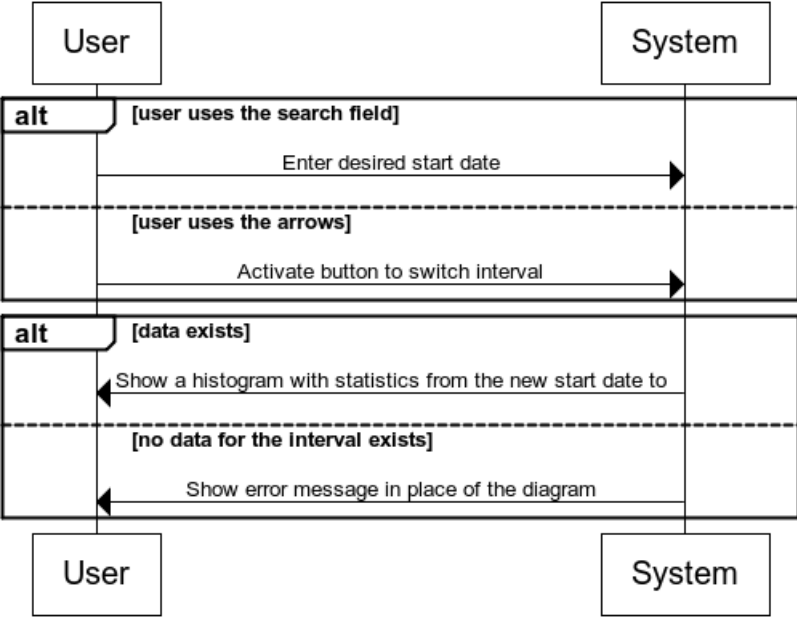


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12 Change Statistics Viewing Interval

Description	When statistics for a activity are already shown the interval to view can be changed either by selecting a date directly or by clicking the plus or minus buttons on days, weeks or years.
Actors	User
Preconditions	The user is logged in to the system and is currently on the page for viewing statistics. A activity to be viewed has already been chosen.
Basic Flow	<p>leftmirgin=* The user selects the start field provided on the statistics page and enters the desired date.</p> <p>leftmiirgiin=* The system updates the viewed statistics.</p> <p>leftmiiirgiin=* The system writes a log entry for the activity of the user with the current time and date.</p>
Alternate Flows	<p>1 a) The user chooses to change the time using the buttons.</p> <p>libel=0., leftmirgin=* The system updates the viewed statistics every time a button is activated to change the interval.</p>
Exception Flows	<p>4 a) No data for the chosen interval exists.</p> <p>libel=0., leftmirgin=* The system displays a message instead of the histogram.</p> <p>liibel=0., leftmiirgiin=* The use case is exited.</p>

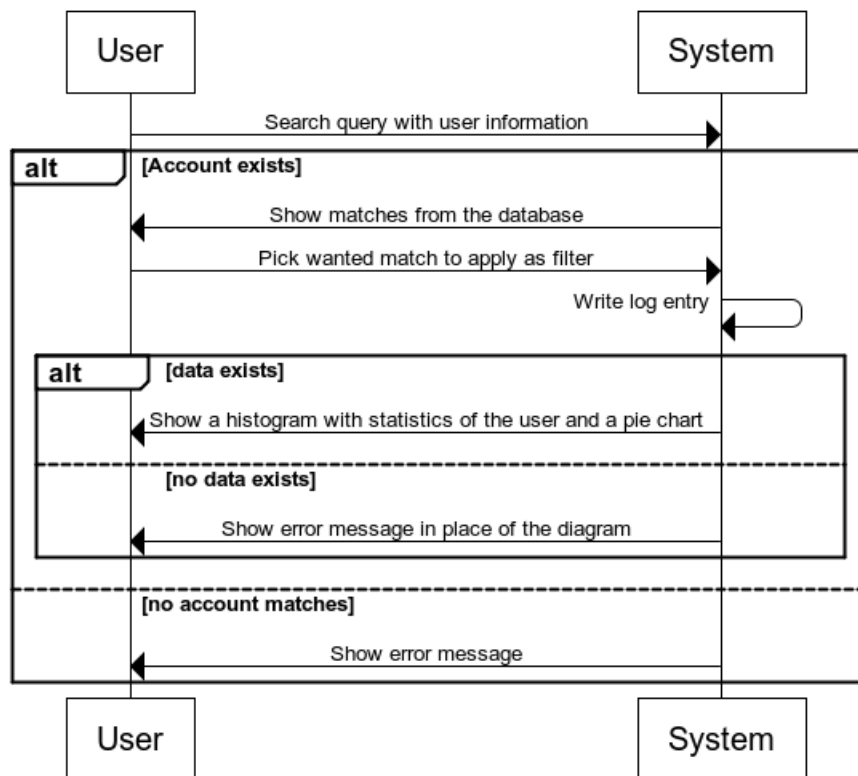
Change Statistics Viewing Interval



13 Change Statistics Viewing Filter

Description	When statistics for an activity are already viewed the user can add user through the search field to filter the viewed statistics.
Actors	User
Preconditions	The user is logged in to the system and is currently on the page for viewing statistics. An activity to be viewed has already been chosen.
Basic Flow	<div><div>leftmirgin=* The user enters the user-name of another user in the search-field provided on the page.</div><div>leftmiirgiin=* The system provides a list of users that fit with the provided search term.</div><div>leftmiiirgiin=* The user chooses the user they want to enter to the view as filter.</div><div>leftmivrgivn=* The system shows the histogram for only the selected users' activities and a pie chart showing the percentage of each users contribution to the activity.</div><div>leftmvrgvn=* The system writes a log entry for the activity of the user with the current time and date.</div></div>
Exception Flows	<div><div>4 a) No data for the chosen activity and user exists.<div><div>libel=0., leftmirgin=* The system displays a message instead of the histogram.</div><div>liibel=0., leftmiirgiin=* The use case is exited.</div></div></div></div>

Change Statistics Viewing Filter

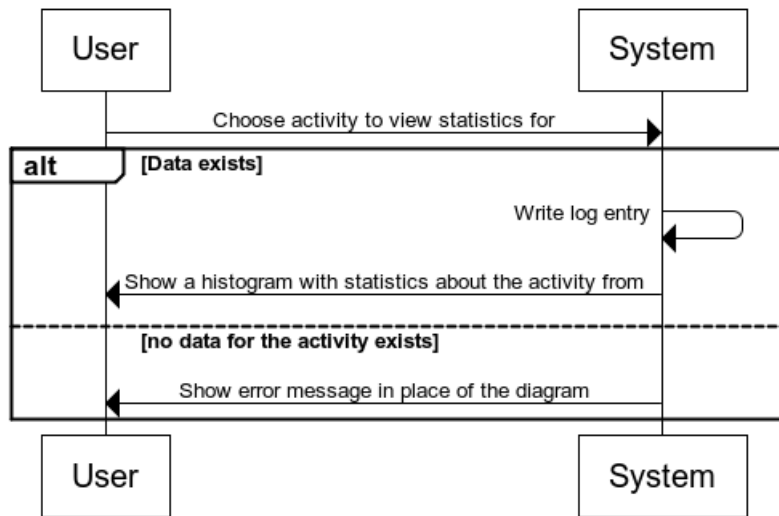


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14 View Statistics

Description	All users, including the administrator, should be able to view the statistics of the coffee machine sorted by activity. The statistics should be shown within a time span with the smallest increment of days. In addition to viewing overall statistics users can be specified to show the statistics for (as in how many times did those people do this...)
Actors	User
Preconditions	The user is logged in to the system and is currently on the page for viewing statistics.
Basic Flow	<ul style="list-style-type: none">leftmirgin=* The user chooses a activity from the list of activities to view.leftmiirgiin=* The system shows a histogram of the data about the selected activity from the beginning of data collection to the current day.leftmiiirgiin=* The system writes a log entry for the activity of the user with the current time and date.
Exception Flows	<ul style="list-style-type: none">2 a) No data for the chosen activity exists.<ul style="list-style-type: none">libel=0., leftmirgin=* The system displays a message instead of the histogram.liibel=0., leftmiirgiin=* The use case is exited.

View Statistics



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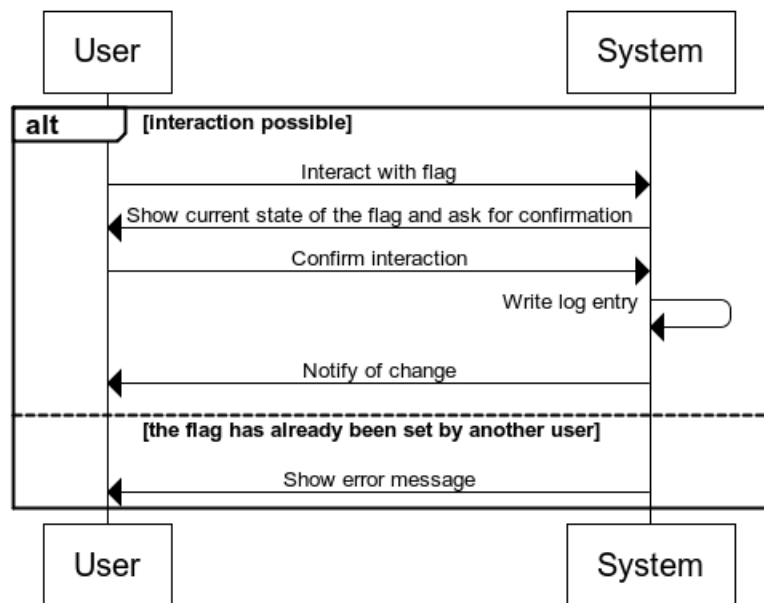
15 Set Automatic Activation Feature

Description	The automatic activation feature should be activatable and deactivatable in case the customers decide that they find the feature annoying and would rather have control over it themselves. The box for to activate this feature should be located on the main page on a mobile interface.
Actors	User
Preconditions	The user is logged in to the system on a mobile device and is currently on the main page.
Basic Flow	<ul style="list-style-type: none">leftmirgin=* The user selects the automatic activation feature box.leftmiirgiin=* The system displays an information message about the function and asks the user for confirmation.leftmiiirgiin=* The user confirms his choice.leftmivrgivn=* The system notifies that the feature has been activated.leftmvrgvn=* The system writes a log entry for the activity of the user with the current time and date.
Postconditions	The user has changed the status of the automatic activation feature.

16 Set Flag

Description	On the main page a flag should be settable by the user to show if the coffee machine is filled with water and coffee beans.
Actors	User
Preconditions	The user is logged in to the system and is currently on the main page.
Basic Flow	<div>leftmirgin=* The user selects a flag to set by pressing on its button.</div> <div>leftmiirgiin=* The system asks the user if he wants to set the flag.</div> <div>leftmiiirgiin=* The user confirms his choice.</div> <div>leftmivrgivn=* The system notifies the user of the change in the state of the flag by changing the button for setting the flag.</div> <div>leftmvrgvn=* The system notifies the user of the change in the state of the flag by letting the LED blink.</div> <div>leftmvirgin=* The system writes a log entry for the activity of the user with the current time and date.</div>
Exception Flows	<div>4 a) The flag has already been set to the desired state by another user</div> <div>libel=0., leftmirgin=* The system displays a error message.</div> <div>liibel=0., leftmiirgiin=* The use case is exited.</div>

Set Flag

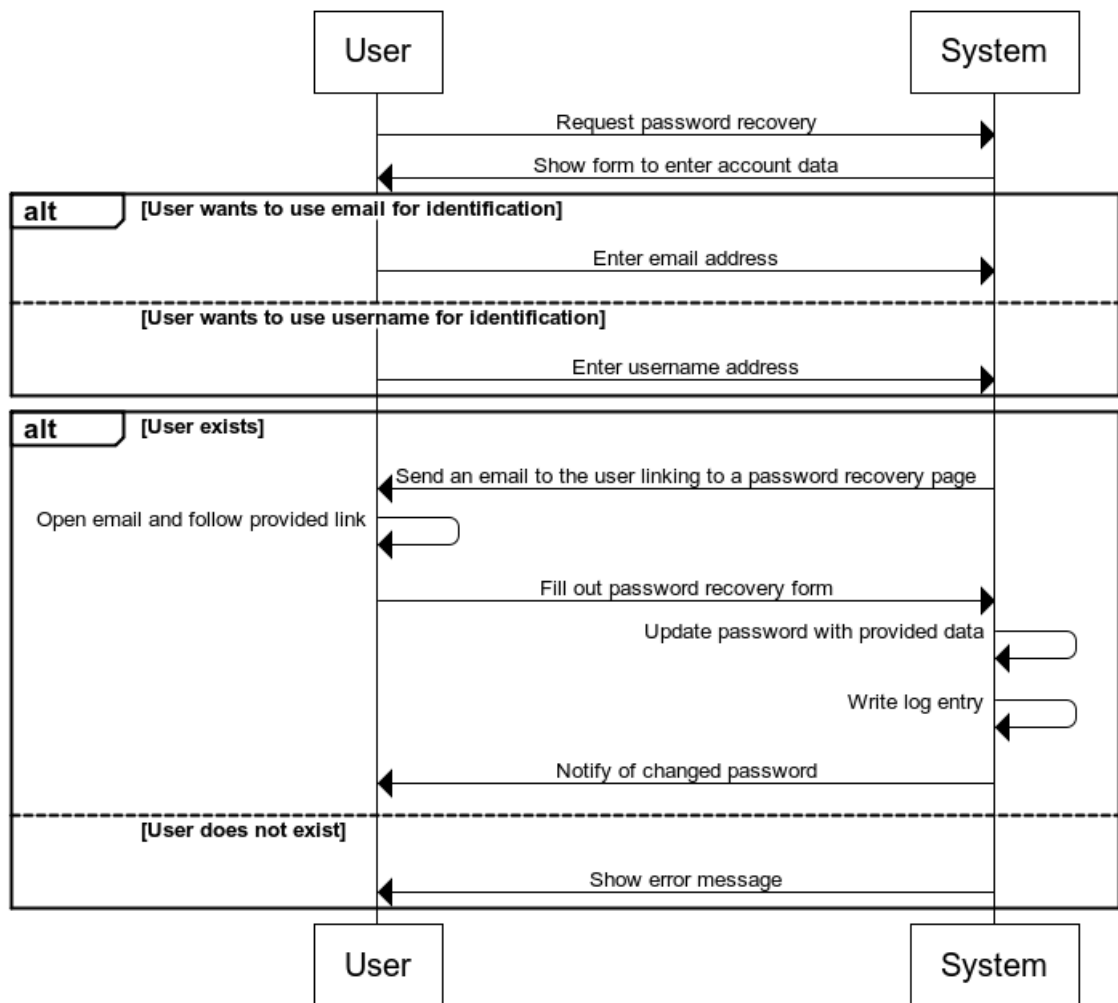


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17 Password Recovery

Description	The user has the option to recover his password during login in case he does not remember the password, which makes it impossible for him to login.
Actors	User
Preconditions	The application is started and the user is on the login page.
Basic Flow	<p>leftmirgin=* The user requests password recovery.</p> <p>leftmiirgiin=* The system requests account data from the user.</p> <p>leftmiiirgiin=* The user enters his username.</p> <p>leftmivrgivn=* The system verifies that the username exists.</p> <p>leftmvrgvn=* The system sends an email to registered mail address for the user with a link to a page which allows the user to choose a new password.</p> <p>leftmvirgin=* The user follows the link and fills out the form.</p> <p>leftmviirgviin=* The user sends the form to the system.</p> <p>leftmviiirgviiin=* The system verifies that the new password fulfills the set criteria.</p> <p>leftmixrgixn=* The system updates the password of the user with the data from the form.</p> <p>leftmxrgxn=* The system writes a log entry for the activity of the user with the current time and date.</p>
Exception Flows	<p>4 a) The entered data does not exist.</p> <p>libel=0., leftmirgin=* The system shows an error message.</p> <p>liibel=0., leftmiirgiin=* The use case is exited.</p> <p>9 a) The entered password does not fulfill the criteria.</p> <p>libel=0., leftmirgin=* The system show an message that the password did not fulfill the criteria and reminds the user of what the criteria for passwords are.</p>
Postconditions	The user's password is updated.

Password Recovery

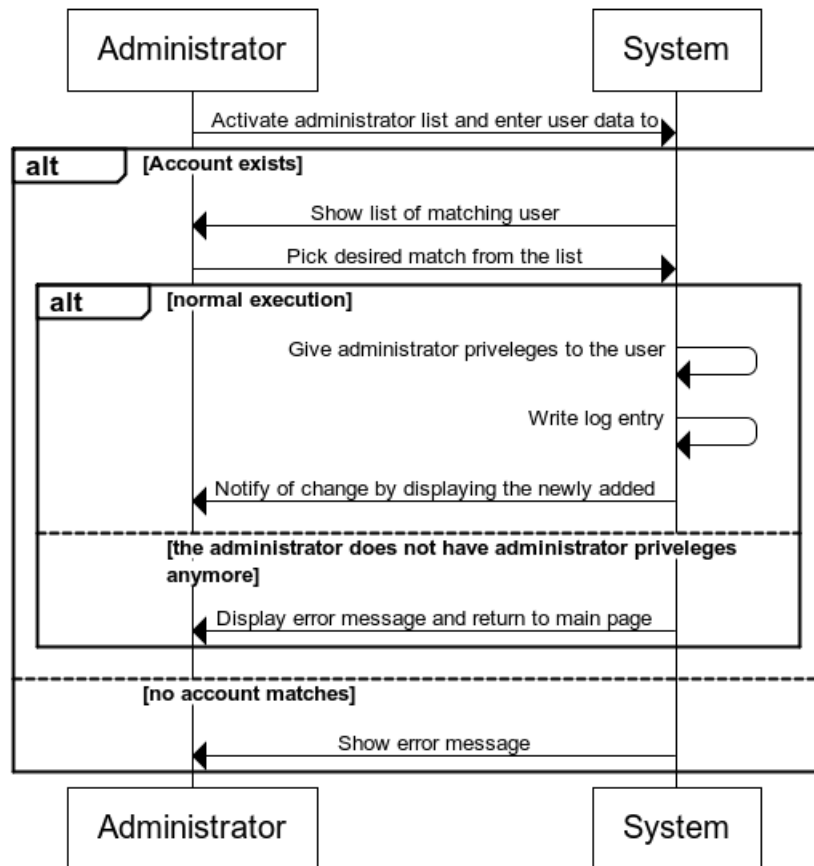


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18 Add Administrator Rights To User

Description	In case a new administrator needs to be assigned, when e.g. the current administrator leaves the company, the administrator needs to give permissions to any of the users of the system.
Actors	Administrator
Preconditions	The administrator is logged in to the system and is currently on the administrator page.
Basic Flow	<div>leftmirgin=* The administrator activates the administrator list and searches for a user.</div> <div>leftmiirgiin=* The system gives a list of users that match the search conditions.</div> <div>leftmiiirgiin=* The administrator picks a user from the list.</div> <div>leftmivrgivn=* The system gives administrator privileges to the user.</div> <div>leftmvrgrvn=* The system writes a log entry for the activity of the user with the current time and date.</div> <div>leftmvirgin=* The system notifies the administrator of the change by displaying the user in the list of administrators.</div>
Exception Flows	<div>2 a) No user with the entered user information can be found.<div>libel=0., leftmirgin=* Display error message.</div><div>liibel=0., leftmiirgiin=* The use case is exited.</div></div> <div>4 a) The administrator does no longer have administrator privileges.<div>libel=0., leftmirgin=* Display error message.</div><div>liibel=0., leftmiirgiin=* Return to the main page.</div></div>
Postconditions	The user is added to the list of administrators and has administrator privileges.

Add administrator rights to user

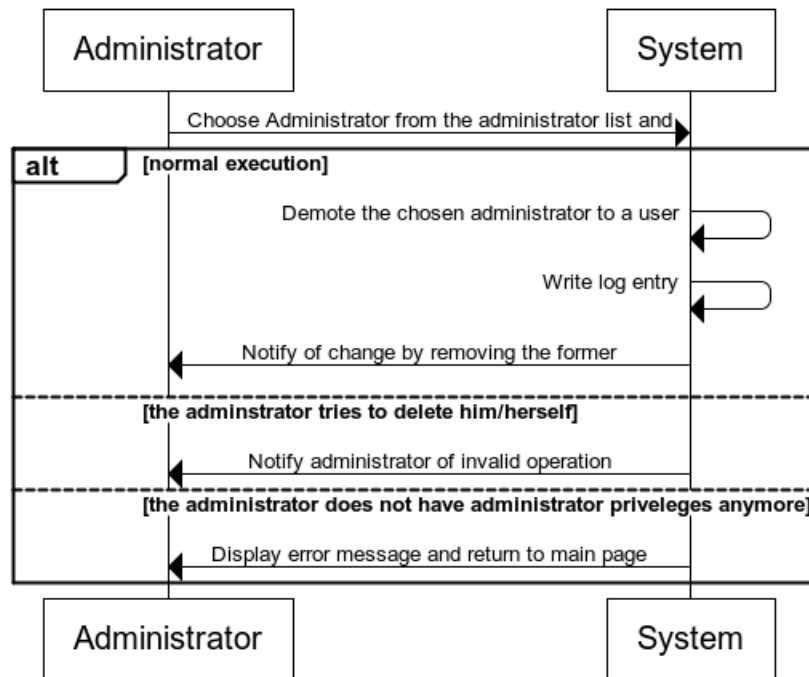


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19 Revoke Administrator Rights from User

Description	If a user that has administrator rights leaves the company, or in any other way makes it unnecessary for them to have administrator rights, then these rights should be revoked.
Actors	Two administrators
Preconditions	The administrator is logged into the system and is currently on the administrator page.
Basic Flow	<div>leftmirgin=* The administrator finds the other administrator in the administrator list.</div> <div>leftmiirgiin=* The administrator removes the other administrator from the list.</div> <div>leftmiiirgiin=* The system notifies the administrator by removing the other administrator from the list.</div> <div>leftmivrgivn=* The system writes a log entry for the activity of the user with the current time and date.</div>
Exception Flows	<div>2 a) The administrator tries to remove him-/herself.<div>libel=0., leftmirgin=* The system notifies the administrator that an admin cannot remove him-/herself.</div></div> <div>2 b) The (former) administrator no longer has administrator rights.<div>libel=0., leftmirgin=* The system notifies the (former) administrator that he/she is missing elevated rights.</div></div>
Postconditions	The user that got the administrator rights revoked is no longer an administrator.

Revoke administrator rights to user



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20 Geofence: Perimeter Breach

Description	Geofence is the virtual perimeter for a real-world geographic area, according to Wikipedia. In this context, the geofence is the virtual perimeter for when the automatic turn-on feature will be triggered.
Actors	User
Preconditions	<p>leftmirgin=* The user has activated the geofence function in his or her smartphone.</p> <p>leftmiirgiin=* The smartphone's GPS hardware is activated.</p> <p>leftmiiirgiin=* The application is running, either in foreground or background.</p> <p>leftmivrgivn=* The user is logged in to the application.</p>
Basic Flow	<p>leftmirgin=* The user closes in to the virtual perimeter.</p> <p>leftmiirgiin=* The smartphone detects the breach of the virtual perimeter.</p> <p>leftmiiirgiin=* The smartphone sends a request to the system to turn on the coffee machine.</p> <p>leftmivrgivn=* The system sends a notification to the smartphone that the coffee machine has been turned on.</p> <p>leftmivrgvn=* The system writes a log entry for the activity of the user with the current time and date.</p> <p>leftmivrgvin=* The smartphone notifies the user that the coffee machine has been turned on.</p>
Alternative Flows	<p>1 a) The user is already inside the geofence perimeter.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The basic flow continues at step 3.</p> <p>4 a) The system sends a notification that the coffee machine already is on.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The use case ends without any other action.</p> <p>4 b) The system sends a notification that the functionality is disabled in the server.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The application notifies the user that the notification is disabled on the server.</p> <p style="padding-left: 40px;">liibel=0., leftmiirgiin=* The application turns the geofence functionality off inside the smartphone.</p>
Postconditions	The coffee machine is on.

21 Geofence Settings: Enable/Disable

Description	Because the geofence functionality will drain the battery quite a lot, it is important to let the user have the ability to disable and enable all of the functionalities whenever he or she wants.
Actors	User
Preconditions	<p>leftmirgin=* The smartphone application is in the foreground.</p> <p>leftmiirgiin=* The user is logged in to his or her account.</p> <p>leftmiiirgiin=* The geofence functionality is enabled.</p>
Basic Flow	<p>leftmirgin=* The user taps on the settings icon.</p> <p>leftmiirgiin=* The smartphone presents the user with the settings view.</p> <p>leftmiiirgiin=* The user taps on the enable/disable switch, disabling the functionality.</p> <p>leftmivrgivn=* The smartphone application saves the setting.</p> <p>leftmvrgvn=* The smartphone disables the geofence functionality.</p>
Alternate Flows	<p>5 a) The geofence functionality is already disabled.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The smartphone enables the geofence functionality.</p> <p>5 b) The geofence functionality is already disabled, and the GPS hardware is off.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The smartphone notifies the user that the GPS hardware, required for the geofence functionality to work, is disabled.</p> <p style="padding-left: 40px;">liibel=0., leftmiirgiin=* The smartphone asks the user if he or she wants to enable the GPS hardware.</p> <p style="padding-left: 40px;">liiibel=0., leftmiiirgiin=* The user agrees.</p> <p style="padding-left: 40px;">livbel=0., leftmivrgivn=* The smartphone enables the GPS hardware.</p> <p style="padding-left: 40px;">lvbel=0., leftmvrgvn=* The smartphone enables the geofence functionality.</p> <p>3 a) The user declines.</p> <p style="padding-left: 40px;">libel=0., leftmirgin=* The use case is terminated.</p>
Postconditions	All the geofence related functionality is disabled.

22 Geofence Settings: Edit High-Frequency Time Span

Description	Decide which time of the day when the smartphone should check for a perimeter breach more often than otherwise, which obviously is around the time when the user usually clocks in to the office.
Actors	User
Preconditions	<code>leftmirgin=*</code> The smartphone application is in the foreground. <code>leftmiirgiin=*</code> The user is logged in to the application.
Basic Flow	<code>leftmirgin=*</code> The user taps on the settings icon. <code>leftmiirgiin=*</code> The smartphone presents the user with the settings view. <code>leftmiiirgiin=*</code> The user locates the slider corresponding the hours of the day, with two arrows corresponding the span. <code>leftmivrgivn=*</code> The user slides the arrows to get the preferred time span. <code>leftmivrgvn=*</code> The smartphone saves the setting.
Exception Flows	4 a) The user slides the left arrow to the right of the right arrow. <code>libel=0., leftmirgin=*</code> The smartphone stops the left arrow from sliding over the right arrow, resulting in a time span of 0 minutes. 4 b) The user slides the right arrow to the left of the left arrow. <code>libel=0., leftmirgin=*</code> The smartphone stops the right arrow from sliding over the left arrow, resulting in a time span of 0 minutes.
Postconditions	The user's preferred time span for the higher frequency is set and saved in the smartphone.

23 Geofence Settings: High Frequency

Description	Different users have different concerns about battery drainage. Therefore the users should be able to set how often the application will compare its current position with the geofence perimeter depending on their needs.
Actors	User
Preconditions	<p>leftmirgin=* The smartphone application is in the foreground.</p> <p>leftmiirgiin=* The user is logged into the application.</p>
Basic Flow	<p>leftmirgin=* The user taps on the settings icon.</p> <p>leftmiirgiin=* The smartphone presents the user with the settings view.</p> <p>leftmiiirgiin=* The user changes the frequency of the "beams" inside of the time span.</p> <p>leftmivrgivn=* The smartphone saves the frequency.</p>
Exception Flows	<p>3 a) The user changes the frequency to a number higher than the application allows.</p> <p>libel=0., leftmirgin=* The application notifies the user that the set frequency is above the limit.</p> <p>liibel=0., leftmiirgiin=* The application sets the frequency to the maximum number allowed.</p> <p>liiibel=0., leftmiiirgiin=* The application saves the frequency.</p> <p>3 b) The user changes the frequency to a negative number.</p> <p>libel=0., leftmirgin=* The application notifies the user that the frequency cannot be negative.</p> <p>liibel=0., leftmiirgiin=* The application sets the frequency to 0.</p> <p>liiibel=0., leftmiiirgiin=* The application saves the frequency.</p>
Postconditions	The user's desired frequency is set and saved in the smartphone.

24 Geofence Settings: High Frequency

Description	Different users have different concerns about battery drainage. Therefore the users should be able to set how often the application will compare its current position with the geofence perimeter depending on their needs.
Actors	User
Preconditions	<p>leftmirgin=* The smartphone application is in the foreground.</p> <p>leftmiirgiin=* The user is logged into the application.</p>
Basic Flow	<p>leftmirgin=* The user taps on the settings icon.</p> <p>leftmiirgiin=* The smartphone presents the user with the settings view.</p> <p>leftmiiirgiin=* The user changes the frequency of the "beams" outside of the time span.</p> <p>leftmivrgivn=* The smartphone saves the frequency.</p>
Exception Flows	<p>3 a) The user changes the frequency to a number higher than the application allows.</p> <p>libel=0., leftmirgin=* The application notifies the user that the set frequency is above the limit.</p> <p>liibel=0., leftmiirgiin=* The application sets the frequency to the maximum number allowed.</p> <p>liiibel=0., leftmiiirgiin=* The application saves the frequency.</p> <p>3 b) The user changes the frequency to a negative number.</p> <p>libel=0., leftmirgin=* The application notifies the user that the frequency cannot be negative.</p> <p>liibel=0., leftmiirgiin=* The application sets the frequency to 0.</p> <p>liiibel=0., leftmiiirgiin=* The application saves the frequency.</p>
Postconditions	The user's desired frequency is set and saved in the smartphone.

25 Geofence Settings: Relative/Static Frequency Switch

Description	<p>There will be a functionality in the smartphone application where the frequency of which the smartphone will compare its position with the geofence perimeter in either a static frequency or a relative frequency.</p> <p>The static frequency is when the "beams" are constant with a set time between each "beam", regardless of the distance to the perimeter. If the user often is close to the perimeter without breaching it, then this option will probably drain the battery the least.</p> <p>The relative frequency is when the "beams" are more frequent the closer to the perimeter the smartphone gets. This way is more "real-time-oriented" than the static frequency and may put less stress on the battery if the user is far away from the office most of the time. If the user on the other hand is close to the perimeter most of the time, the battery drainage will go through the roof.</p>
Actors	User
Preconditions	<p>leftmirgin=* The smartphone application is in the foreground.</p> <p>leftmiirgiin=* The user is logged in to the application.</p>
Basic Flow	<p>leftmirgin=* The user taps on the settings icon.</p> <p>leftmiirgiin=* The application presents the settings view.</p> <p>leftmiiirgiin=* The user taps the relative/static switch.</p> <p>leftmivrgivn=* The smartphone saves the setting.</p> <p>leftmvrgvn=* The smartphone sets the new conditions in the application.</p>
Postconditions	If the setting was set to relative it is now set to static, and vice versa.

26 Geofence Settings: Disable On Server

Description	The server should be able to ignore automatic geofence state-switch requests from smartphones.
Actors	Administrator
Preconditions	<ul style="list-style-type: none">leftmirgin=* The server is up.leftmiirgiin=* The geofence functionality is enabled in the server.leftmiiirgiin=* The administrator is logged in and is in the view where the geofence switch is located.
Basic Flow	<ul style="list-style-type: none">leftmirgin=* The administrator clicks on the enable/disable switch to disable the functionality.leftmiirgiin=* The system disables the geofence functionality.leftmiiirgiin=* The system notifies the administrator that geofence functionality is disabled.
Alternate Flows	<ul style="list-style-type: none">1 a) The functionality is already disabled.<ul style="list-style-type: none">libel=0., leftmirgin=* The system enables the geofence functionality.liibel=0., leftmiirgiin=* The system notifies the user that the geofence functionality is enabled.
Exception Flows	<ul style="list-style-type: none">1 a) The administrator has lost its elevated rights.<ul style="list-style-type: none">libel=0., leftmirgin=* The system notifies the former administrator about the missing rights.liibel=0., leftmiirgiin=* The system notifies the user that the state-switch failed.
Postconditions	The geofence functionality is disabled in the server.

27 Use Case Diagram

