CS29006 Software Engineering

Instructions

For

Factory Service Simulation Software

(FSSS)

- Group 12
  - Ayush Pattnayak(19CS10014)
  - Kamalesh Garnayak(19CS10074)
  - Sayantan Saha(19CS30041)

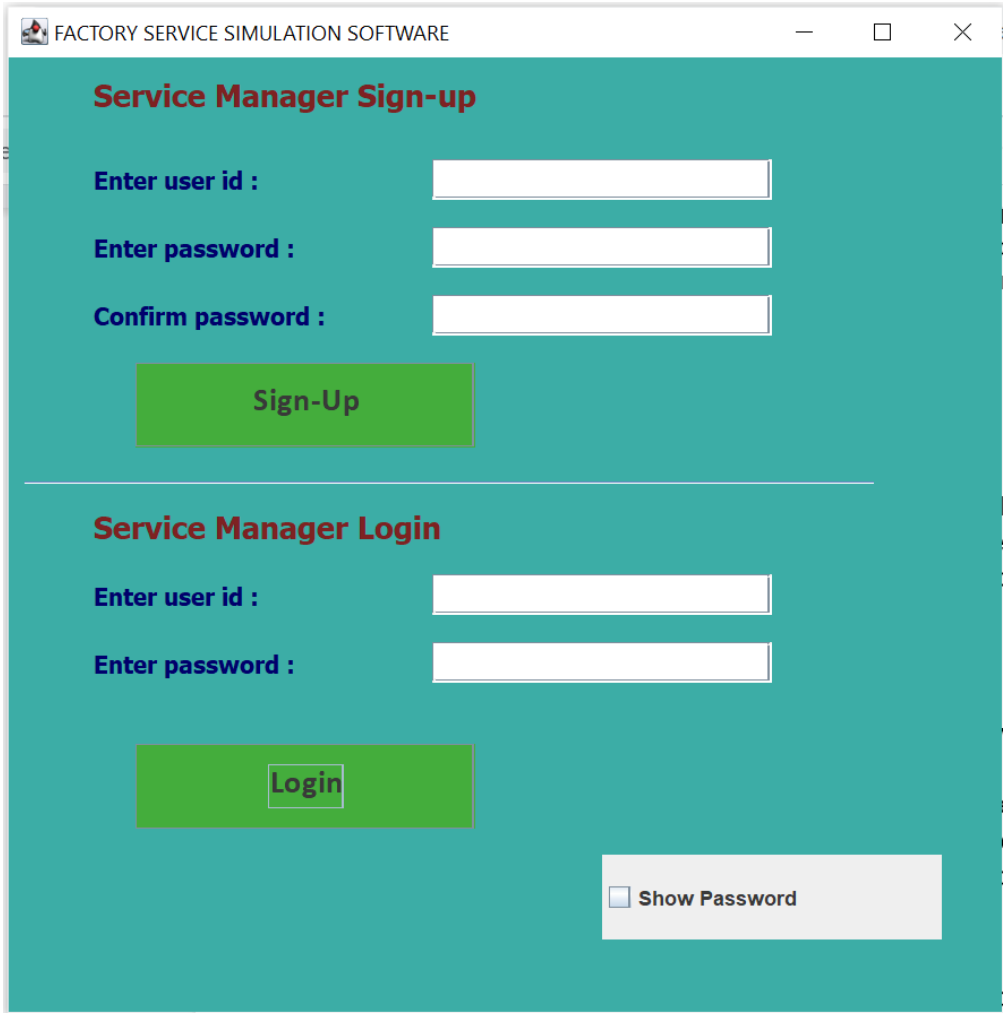
Purpose

This document intends to serve as a guidebook for any first time user. It may be referred to whenever there are any limitations in data input/output for FSSS or when some features are to be used in a better fashion. It acts as a bridge of communication between the developers and the users to bring their discussions regarding quality, requirements and features at an understandable level.

1.Login Page

The login page for the software is meant to authorize the user of being a Service Manager. The software is limited to the Service Manager’s use, He/she can create an account at the beginning and use it to login every time there is a necessity.

1.1. Service Manager Sign-Up



The Sign-Up section has 3 fields, ‘Enter UserID’, ‘Enter Password’ and ‘Confirm Password’. They need to be entered with alphanumerical strings.

It is to be noted that the password must contain at least one uppercase, one lowercase and one numeric character to be accepted.

Also, whenever a new account is created. all the previous data stored for the company in an old account gets deleted. So data should be stored whenever a new account is being made.

1.2. Service Manager Login

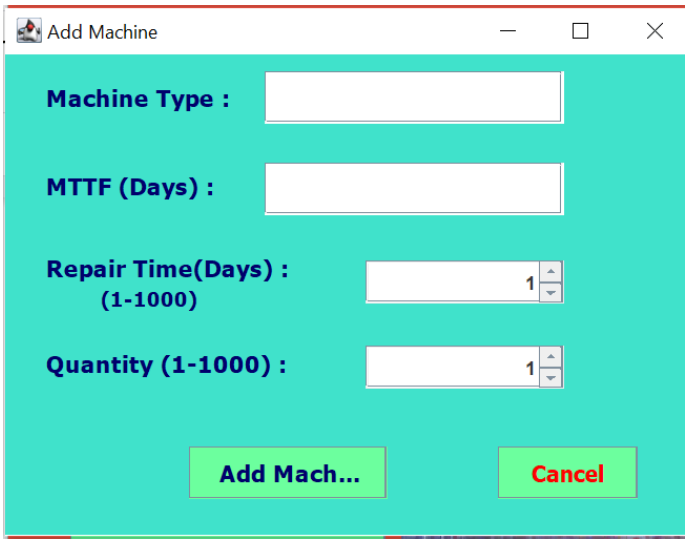
The user should enter the username and password used for account creation to log into the system.

1.3. Show Password

This checkbox can be selected if the user wishes to see the password being typed in the fields for both 1.1 and 1.2.

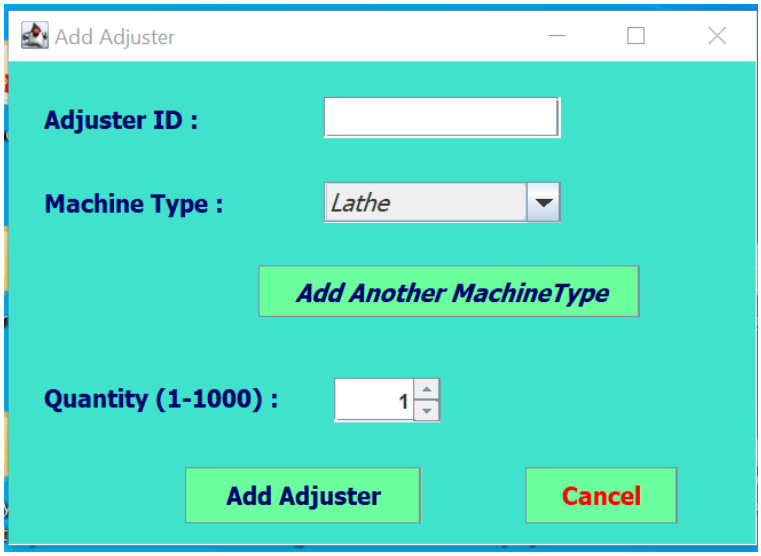
2.Simulate Database Page

1. ### 1.1.Add machine



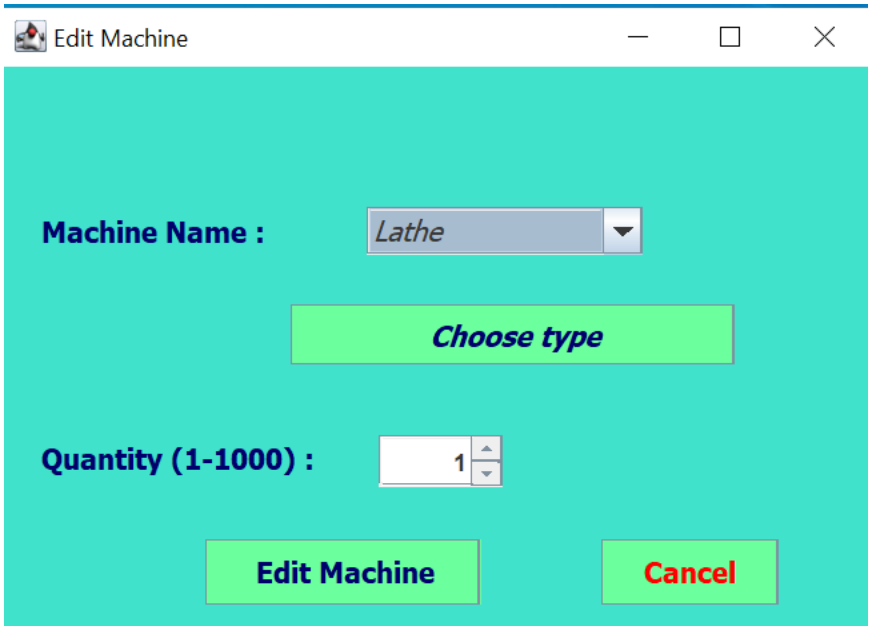
Here 4 fields have to be entered according to the machine details. The user should note that MTTF should be between 1 and 1000 (included). Repair time and quantity should also adhere to the range shown.

1.2. Add adjuster



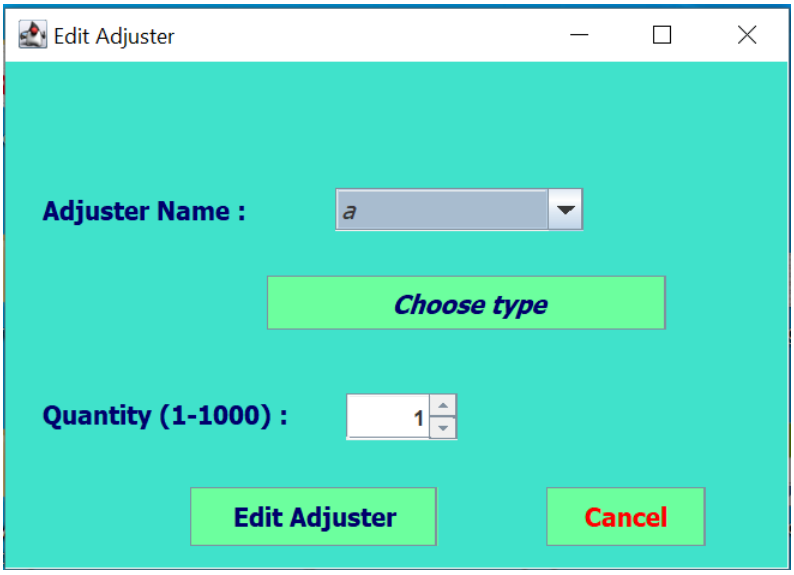
Here 3 fields have to be entered according to the adjuster details. If the user wants to assign ‘k’ machines to the adjuster, he/she should follow this sequence:
(i) Choose the first ‘k-1’ repairable machines from the drop down menu and select ‘Add another Machine Type’ (k-1 times) to register each one.
(ii) The user should then add a quantity of the no. of adjusters.Note that quantity should be between 1 and 1000 (included).
(iii) Finally the ‘k’th machine is selected in drop down and select ‘Add adjuster’.

1.3. Edit machine



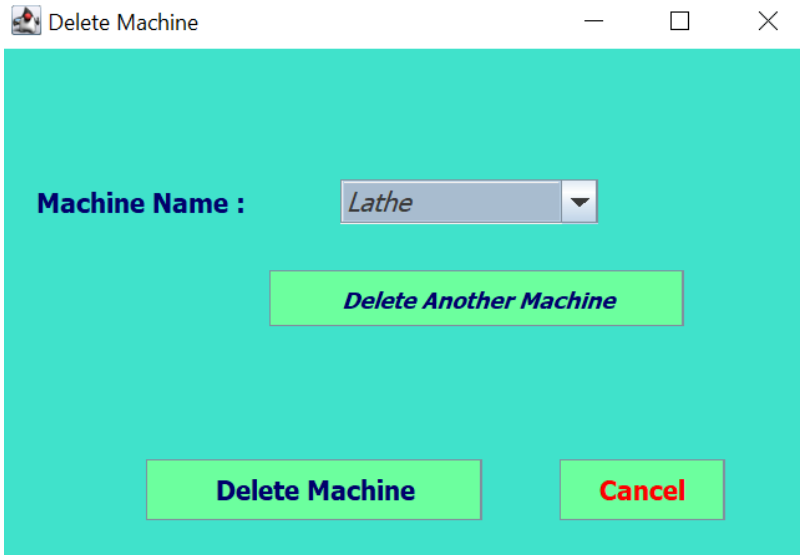
The quantity of a machine in the database can be edited here.
(i) The machine whose quantity is to be edited is first chosen from the drop-down menu. ‘Choose type’ is selected to confirm it.
(ii) Then the quantity (between 1 and 1000) is typed and ‘Edit Machine is selected to confirm the editing.

1.4. Edit adjuster



The quantity of an adjuster in the database can be edited here.
(i) The adjuster whose quantity is to be edited is first chosen from the drop-down menu. ‘Choose type’ is selected to confirm it.
(ii) Then the quantity (between 1 and 1000) is typed and ‘Edit Machine is selected to confirm the editing.

1.5. Delete machine

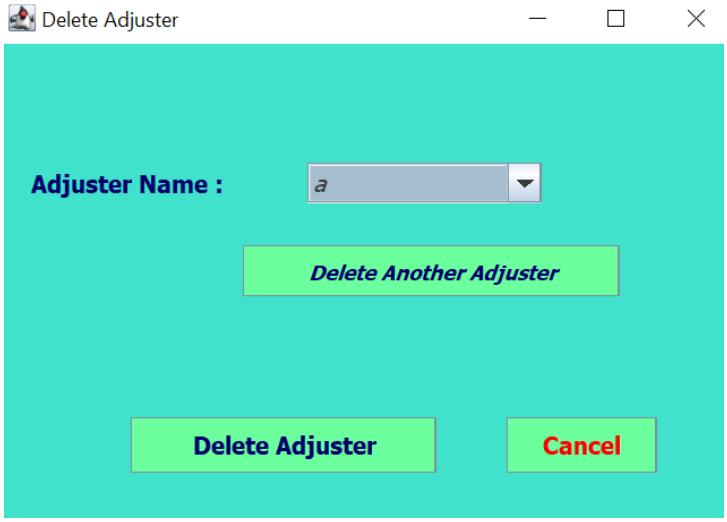


Multiple machines can be deleted from the database through this option. Suppose ‘k’ machines are being deleted at once.

(i) Choose the first ‘k-1’ to-be-deleted machines from the drop-down menu and select ‘Delete another Machine’ (k-1 times) to register each one.

(ii) The ‘k’ th machine is then selected in the drop-down menu and ‘Delete machine’ is selected to finish deletions.

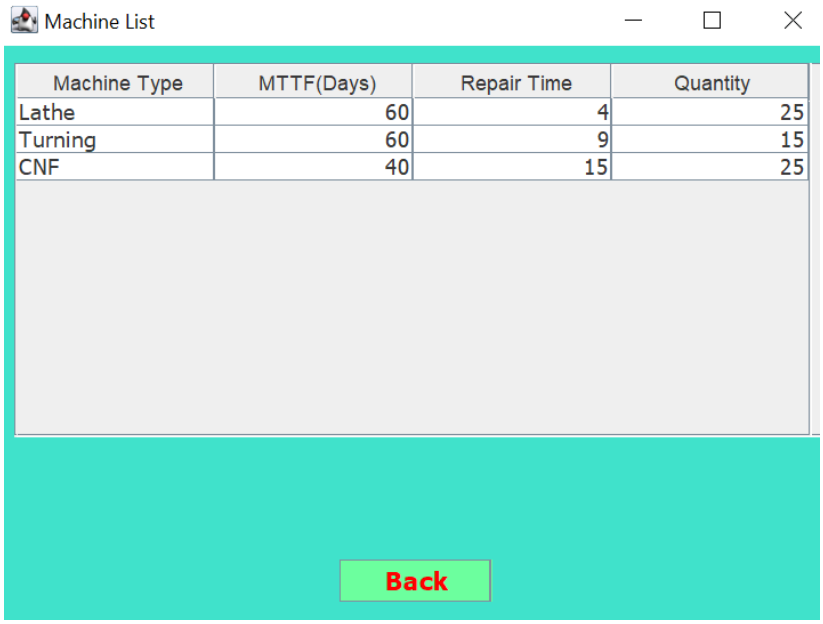
1.6. Delete adjuster



Multiple adjusters can be deleted from the database through this option. Suppose ‘k’ adjusters are being deleted at once.

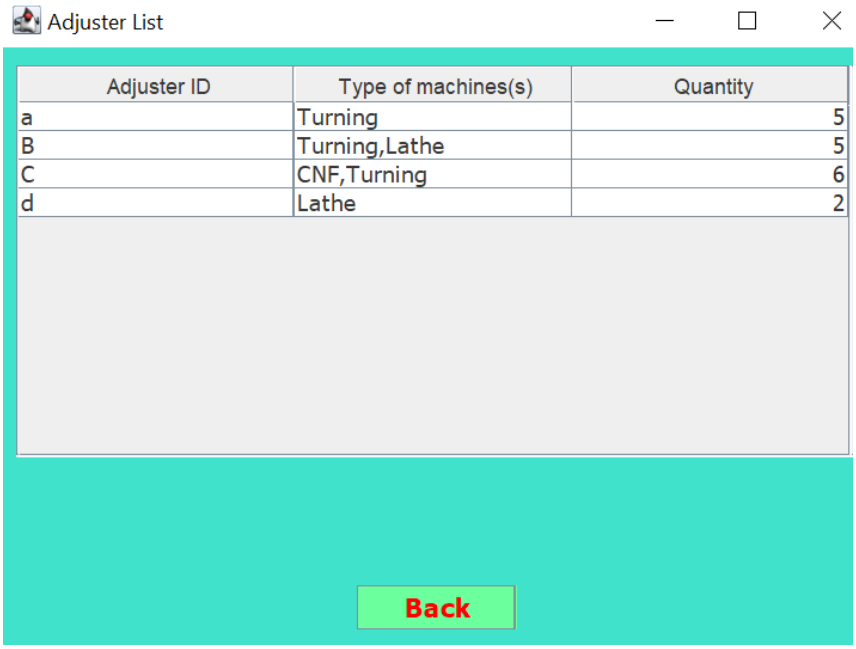
(i) Choose the first ‘k-1’ to-be-deleted adjusters from the drop-down menu and select ‘Delete another Adjuster’ (k-1 times) to register each one.
(ii) The ‘k’ th adjuster is then selected in the drop-down menu and ‘Delete adjuster’ is selected to finish deletions.

1.7. Show machine



All the machines added in the company database can be checked here for future reference. It shows the ID, MTTF, Repair time and Quantity features of each machine type too.
Whenever the user adds a machine it gets added here as a row. Edit/ delete changes are also reflected in this tabular representation.

1.8. Show adjuster

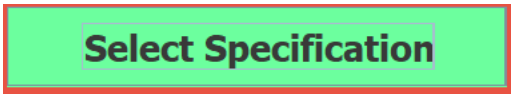


All the adjusters added to the company database can be checked here for future reference. It shows the ID, repairable machines and quantity features of each adjuster type too.
Whenever the user adds an adjuster it gets added here as a row. Edit/ delete changes are also reflected in this tabular representation.

1.9. Simulation Time

It refers to the time duration of the simulation.
The user is expected to give the simulation time in the two fields here.
The time is expected to be in the range 1 day to (99 years,364 days).

1.10. Select Specification



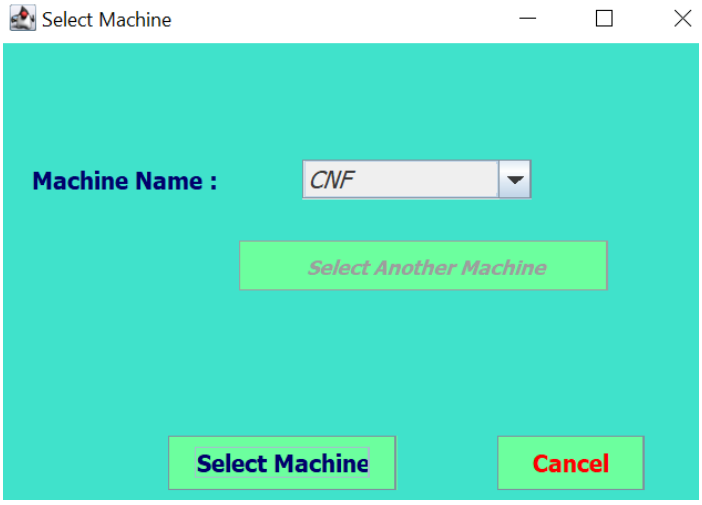
It refers to the machines/adjusters being selected for the simulation. Clicking on it leads to the ‘Simulation Specification’ page, which is described in the next section.

1.11. Log Out

The user can log out when he/she wants to close the system. The data added/changed in the current session will be stored safely.

3.Simulation Specification Page

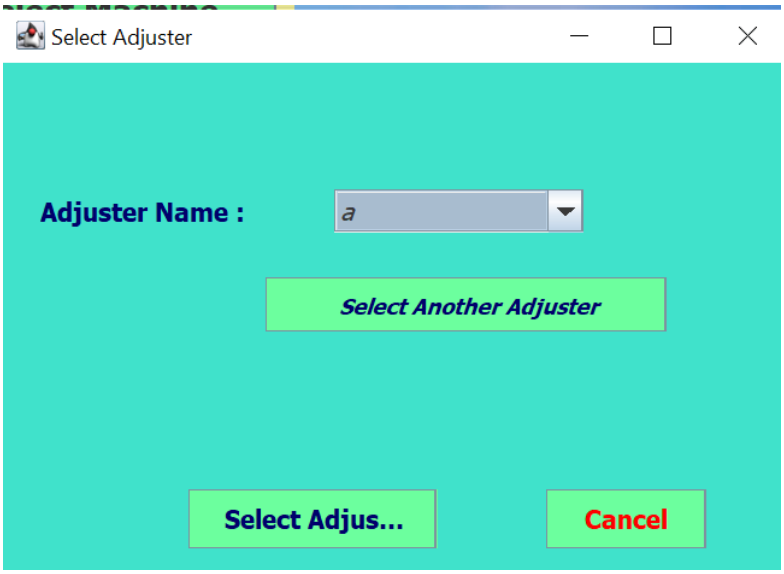
3.1. Select machine



Multiple machines have to be selected for the simulation from the database through this option. Suppose ‘k’ machines are being selected at once.
By default, the quantity of each machine type is taken the same as in the database.

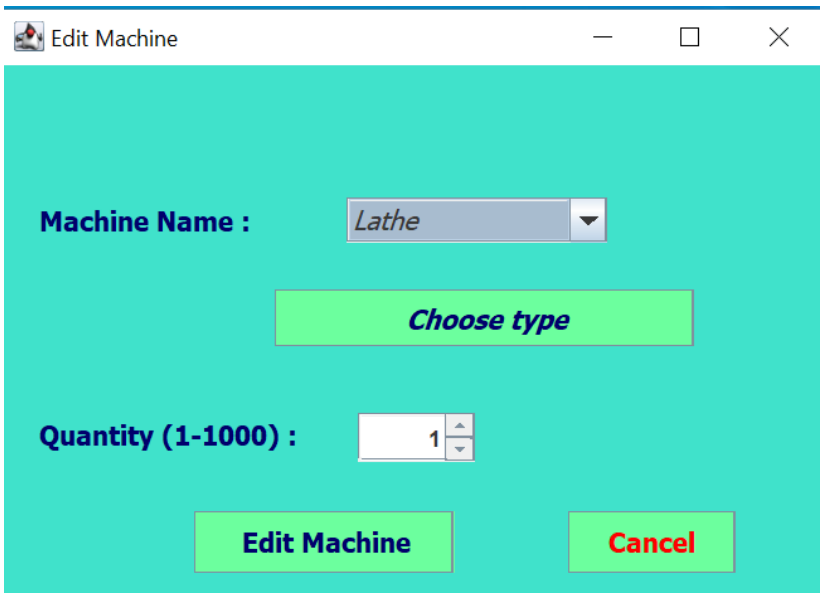
(i) Choose the first ‘k-1’ to-be-selected machines from the drop-down menu and select ‘Select another Machine’ (k-1 times) to register each one.
(ii) The ‘k’ th machine is then selected in the drop-down menu and ‘Select machine’ is selected to finish all selections.

3.2. Select adjuster



Multiple adjusters have to be selected for the simulation from the database through this option. Suppose ‘k’ adjusters are being selected at once.
By default, the quantity of each adjuster type is taken the same as in the database.
(i) Choose the first ‘k-1’ to-be-selected adjusters from the drop-down menu and select ‘Select another Adjuster’ (k-1 times) to register each one.
(ii) The ‘k’ th adjuster is then selected in the drop-down menu and ‘Select Adjuster’ is selected to finish all selections.

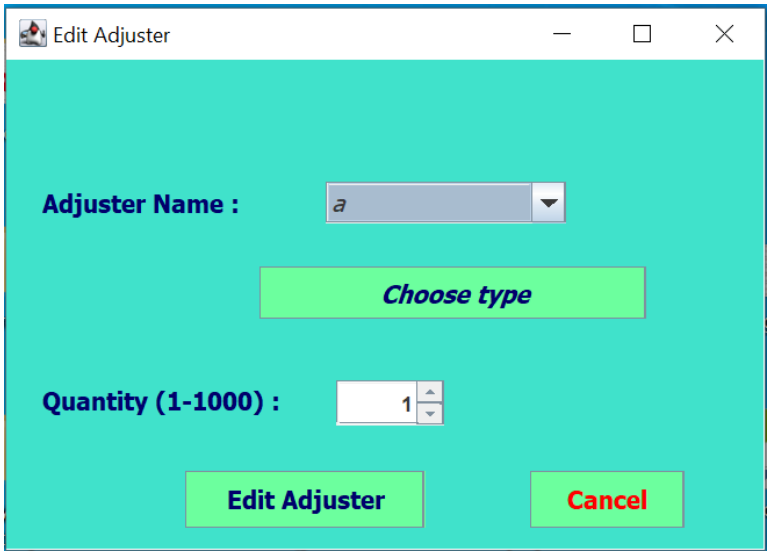
3.3. Edit machine



The quantity of a machine type in the simulation-selection can be edited here.
(i) The machine whose quantity is to be edited is first chosen from the drop-down menu. ‘Choose type’ is selected to confirm it.
(ii) Then the quantity (between 1 and 1000) is typed and ‘Edit Machine is selected to confirm the editing.

NOTE: The quantity may be lesser than/ greater than the database quantity, depending on the situation.

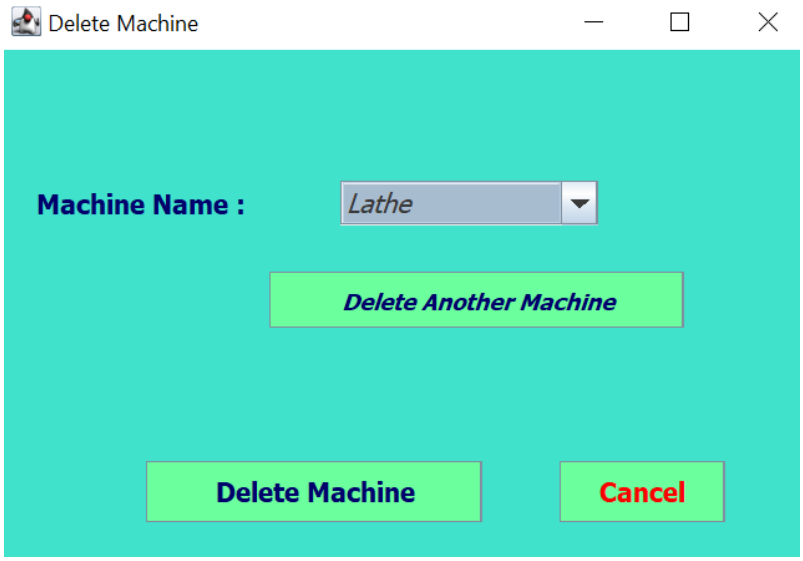
3.4. Edit adjuster



The quantity of an adjuster type in the simulation-selection can be edited here.
(i) The adjuster whose quantity is to be edited is first chosen from the drop-down menu. ‘Choose type’ is selected to confirm it.
(ii) Then the quantity (between 1 and 1000) is typed and ‘Edit Machine is selected to confirm the editing.

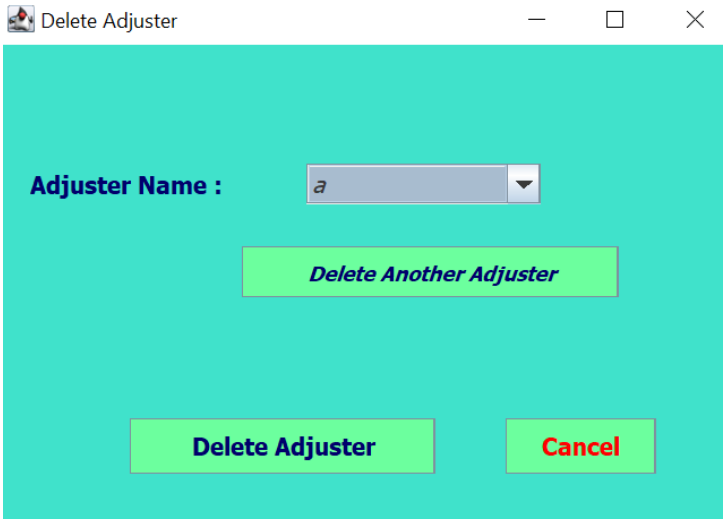
NOTE: The quantity may be lesser than/ greater than the database quantity, depending on the situation.

3.5. Delete machine



Multiple machines can be deleted from the selected choices through this option. Suppose ‘k’ machines are being deleted at once.
(i) Choose the first ‘k-1’ to-be-deleted machines from the drop-down menu and select ‘Delete another Machine’ (k-1 times) to register each one.
(ii) The ‘k’ th machine is then selected in the drop-down menu and ‘Delete machine’ is selected to finish deletions.

3.6. Delete adjuster

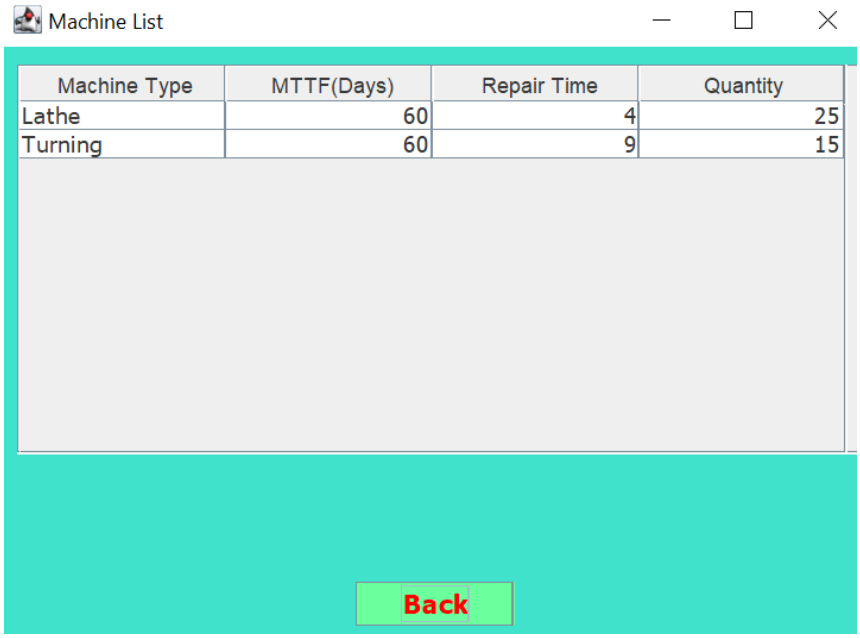


Multiple adjusters can be deleted from the selected choices through this option. Suppose ‘k’ adjusters are being deleted at once.

(i) Choose the first ‘k-1’ to-be-deleted adjusters from the drop-down menu and select ‘Delete another Adjuster’ (k-1 times) to register each one.

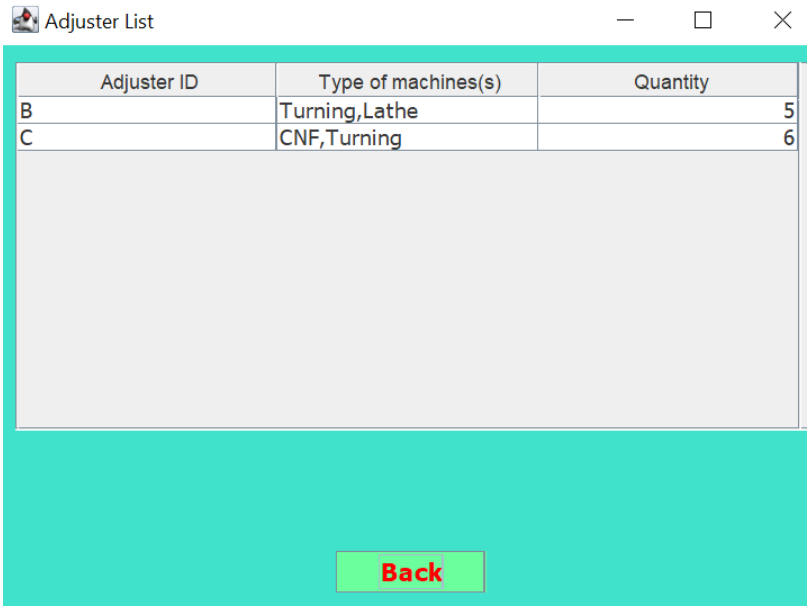
(ii) The ‘k’ th adjuster is then selected in the drop-down menu and ‘Delete adjuster’ is selected to finish deletions.

3.7. Selected machines



All the machines added to the selection database can be checked here for future reference. It shows the ID, MTTF, Repair time and Quantity features of each machine type too.
Whenever the user adds a machine it gets added here as a row. Edit/ delete changes are also reflected in this tabular representation.

3.8. Selected adjusters



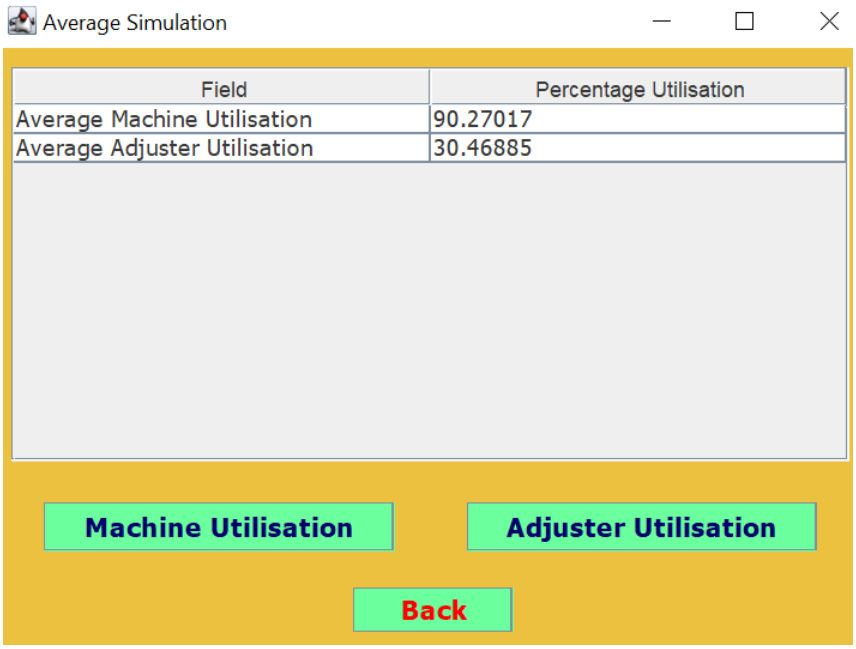
All the adjusters added to the selection database can be checked here for future reference. It shows the ID, repairable machines and quantity features of each adjuster type too.
Whenever the user adds an adjuster it gets added here as a row. Edit/ delete changes are also reflected in this tabular representation.

4.Simulation Results Page

The Service Manager needs to determine the optimum number of adjusters required for best performance. He/she can:
(i) Choose different sets of machines, and simulate the results to get the percentage details for each set.

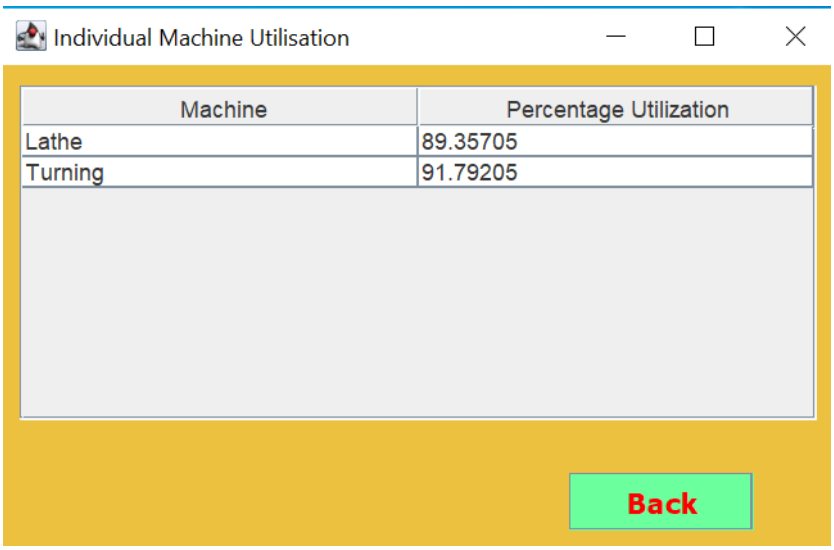
(ii)For a given machine set, he/she can compare these data to find in which adjuster set the adjuster utilization is best.
(iii) The adjuster sets also need to be checked at a local level whether or not they are feasible.

4.1. Average Utilization



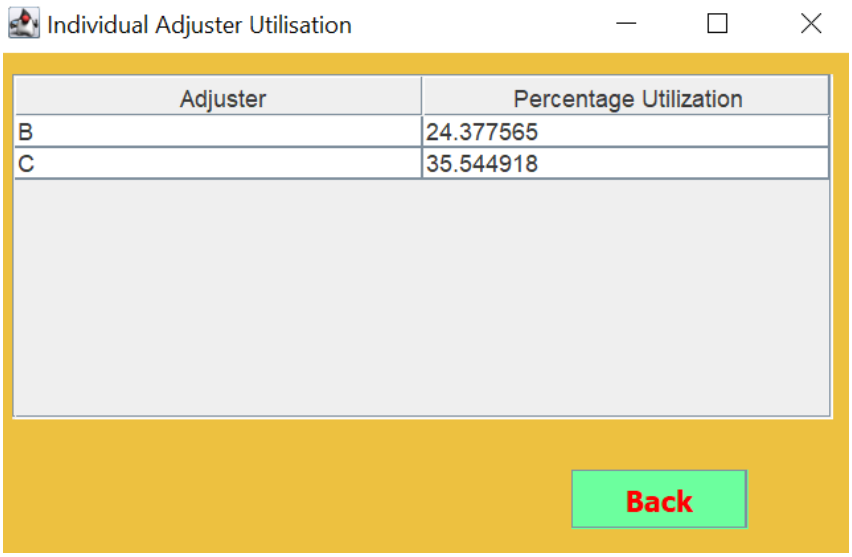
When the simulation is done, the Results page first shows the average machine and adjuster average utilizations through this section. The average is taken by the weighted principle.

4.2. Machine Utilization



This option shows the utilization percentages for each machine type. The user can analyze this data to choose which machines are the most productive.

4.3. Adjuster Utilization



This option shows the utilization percentages for each adjuster type. The user can analyze this data to choose which adjuster are the most productive.

Salient Points

- The Service Manager can open this software on the Eclipse editor, and run it through the top option taskbar.
- At startup a login page opens up, as mentioned above.
- The specific details of each option is ideally to be followed as mentioned above.
- Whenever a new account is created. all the previous data stored for the company in an old account gets deleted. So data should be stored whenever a new account is being made.
- Following real-life constraints, the selected quantity of a particular machine/adjuster (Section 3.3 and 3.4) should be kept lesser than the already present quantity in the database (2.7 and 2.8). However, in order to get information of how much quantity is to be bought in future for best results, the quantity may exceed the database limitation.

This is kept as an open-ended choice for the Service Manager depending on the situation.

- In case of any issues, this document may be referred to first. In case the problems persist the developers can help on being contacted.