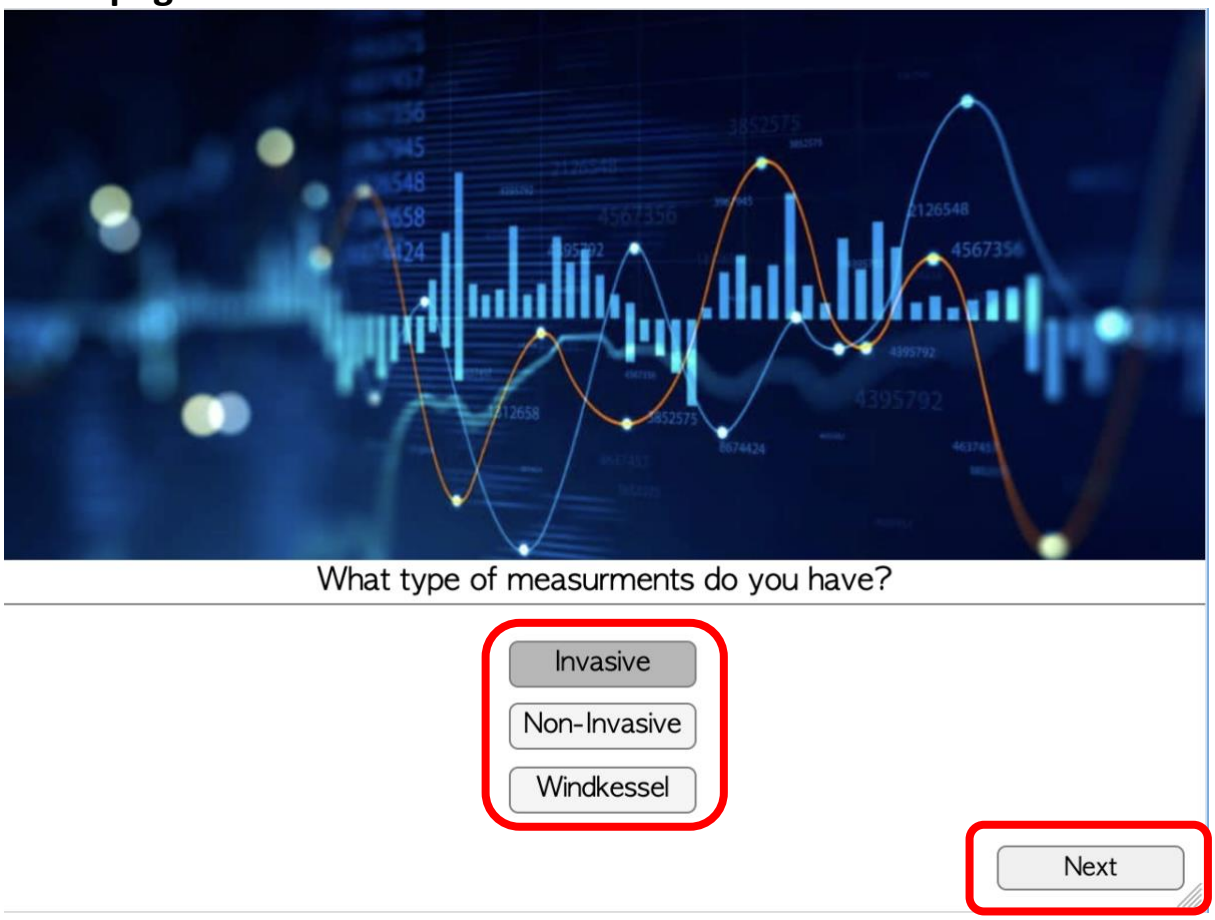
How to use / GUI overview

The GUI is broken down into the following pages for simplicity:

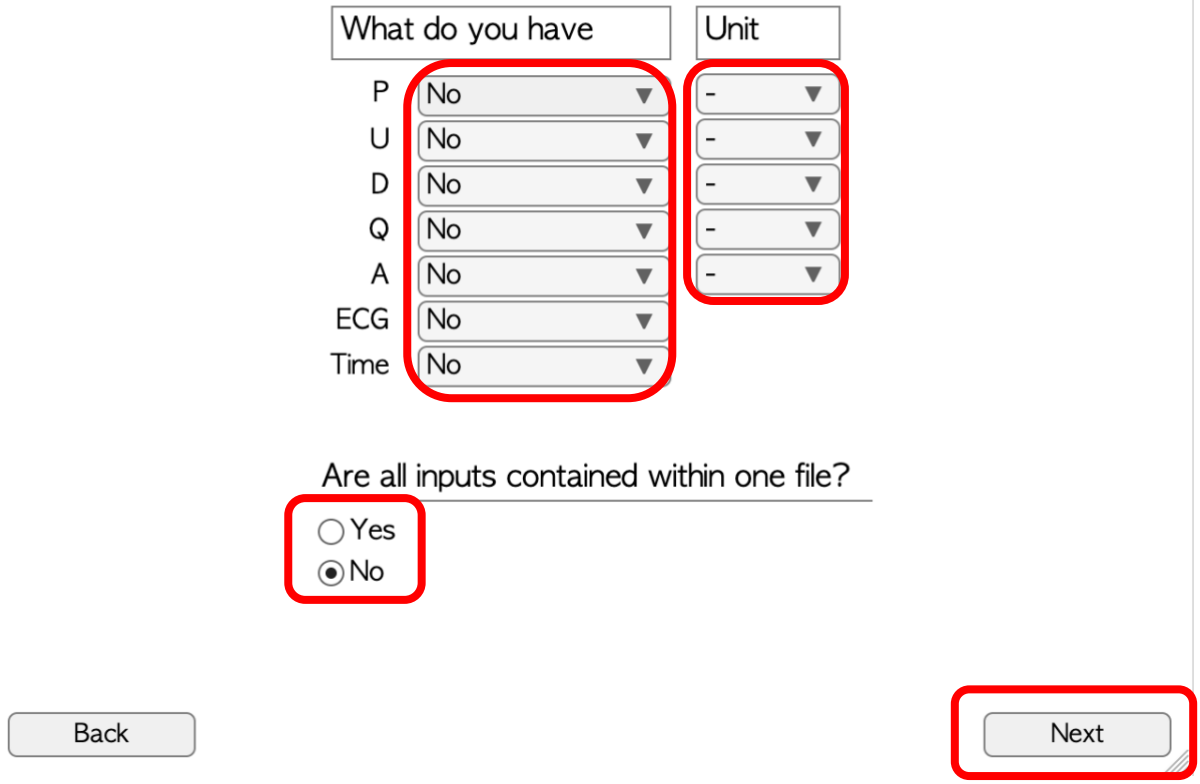
1. Homepage (Specify the type of technique – Invasive / Non / Windkessel)
2. WhichInputs (Specify which variables you have and their units)
3. Inputpage (Upload the variables)
4. Pt_new (Displays variables and confirms they are correct)
5. Ultrasound_new (Extracts data from ultrasound images)
6. Clean (Allows the data to be smoothed using a savgol filter)
7. PUadjust (Allows the upstrokes of the data to be aligned)
8. PU (Calculates wave speed using appropriate technique)
9. Windkessel (Completes the windkessel technique)
10. Outputpage (Calculates WIA and seperations)

Homepage



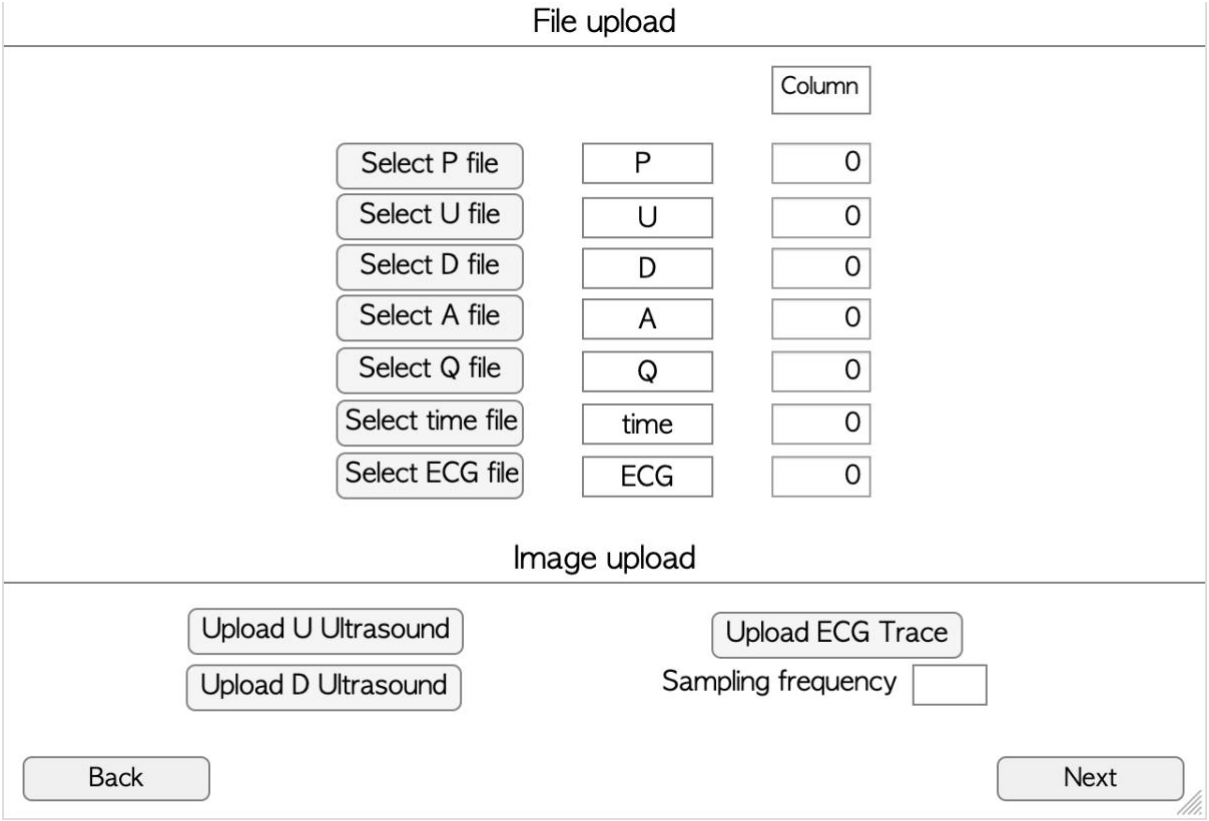
1. Select the type of method you have

Whichinputs



1. This page allows you to select the type of input you have (.mat, .txt, Image ect) and the corresponding units of that data.
2. If the data is contained within one file check yes as this simplifies the file upload.
3. Then press next, or if you need to return to the home screen press back.

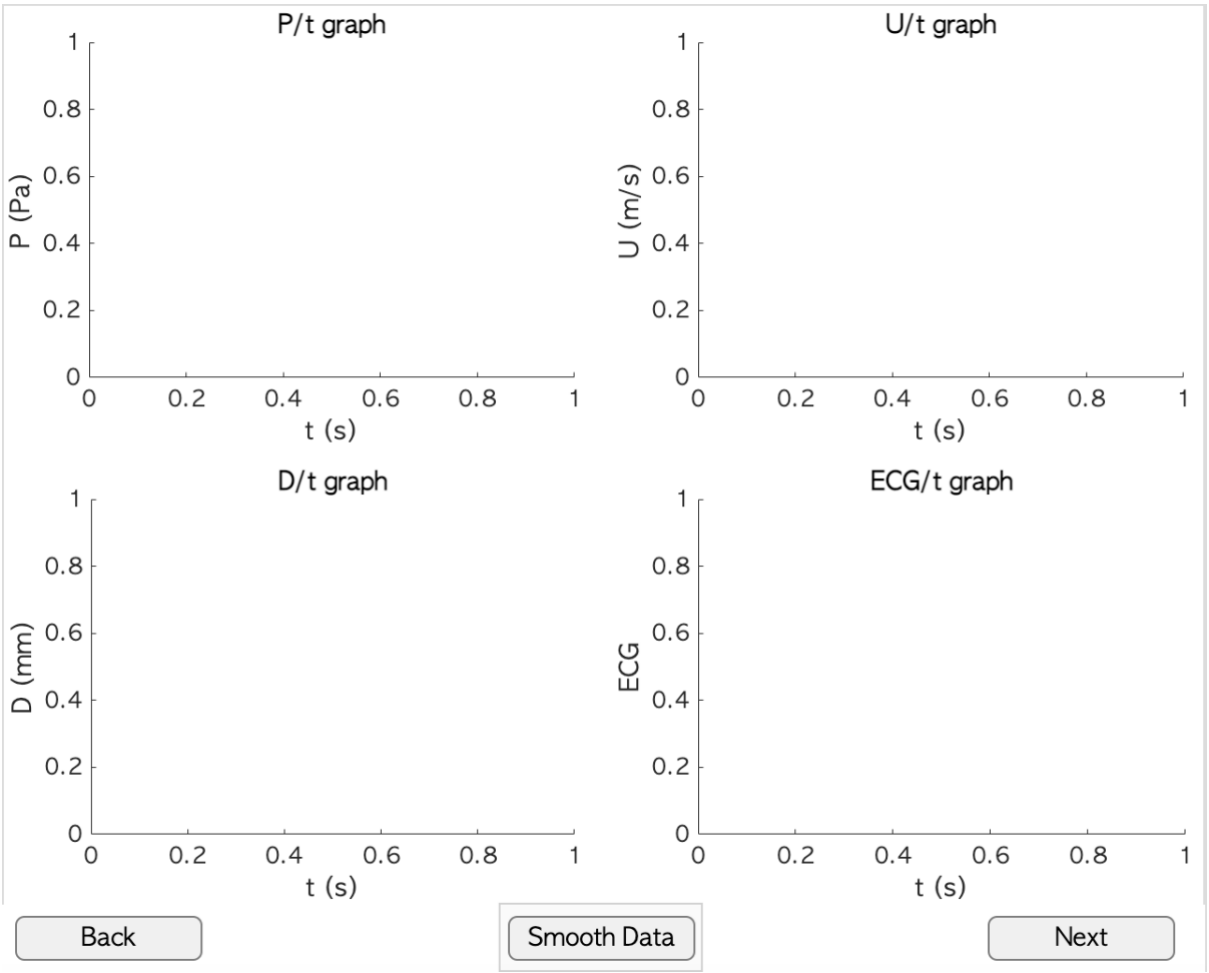
Inputpage



Note: Only the relevant fields (based of selections on whichinputs) will be displayed

1. Select the file using the buttons which will open a UI (and if relevant add which column within the file the data is contained). If the UI does not appear check behind any open files on your desktop.
2. If no time file is uploaded add a Sampling frequency (if completing ultrasound upload and number in this box will suffice)
3. Press Next to progress or back to change your previous uploads

Pt_new

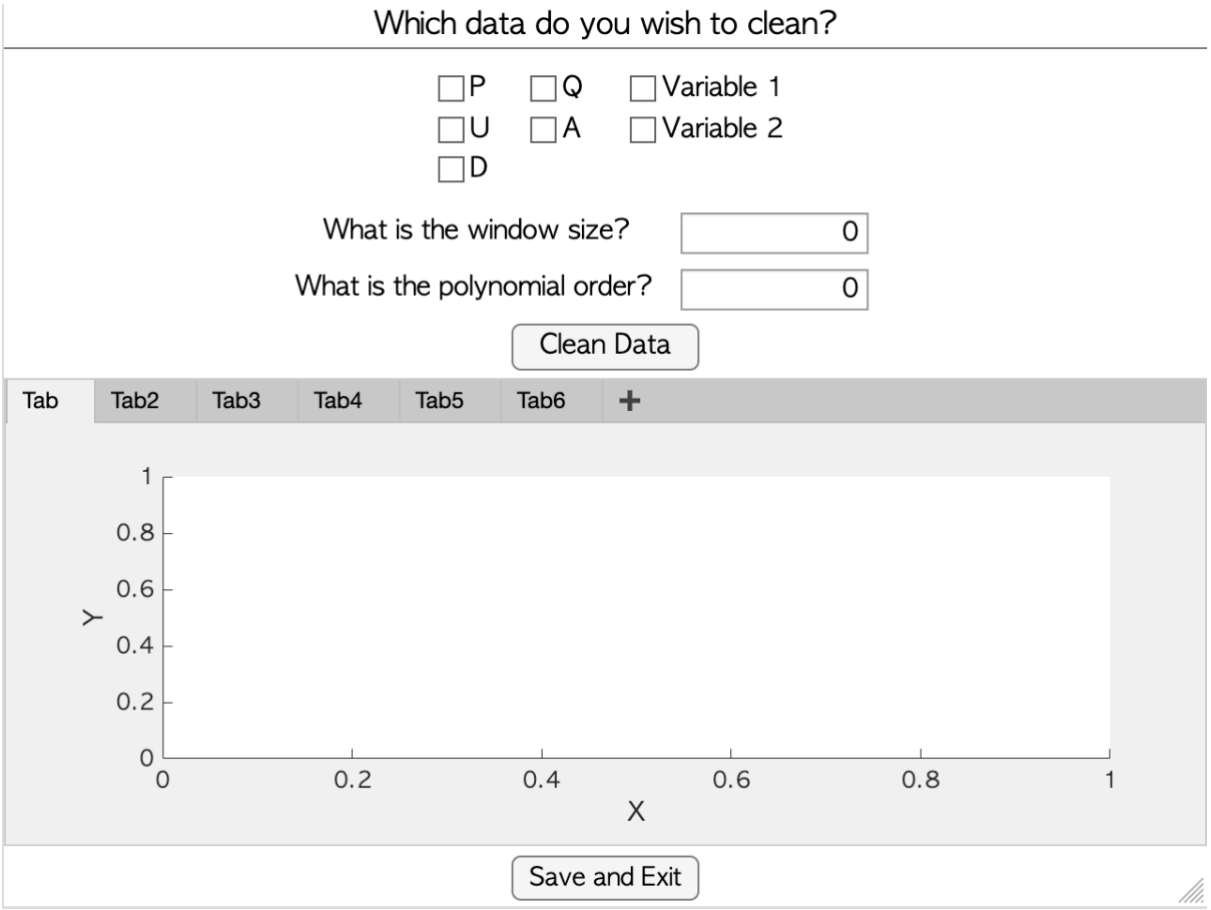


Note: The GUI will only display the traces uploaded on the previous page and so some graphs will be empty

1. Check the data on the graphs is correct (If not return to the Inputpage with the back button)
2. Decide if the data is smooth or needs smoothing. (If it needs smoothing press smooth data)
3. If you are happy with the data press next and a popup will appear asking you to confirm you're happy with the graphs as you can't return to this page from the next one.

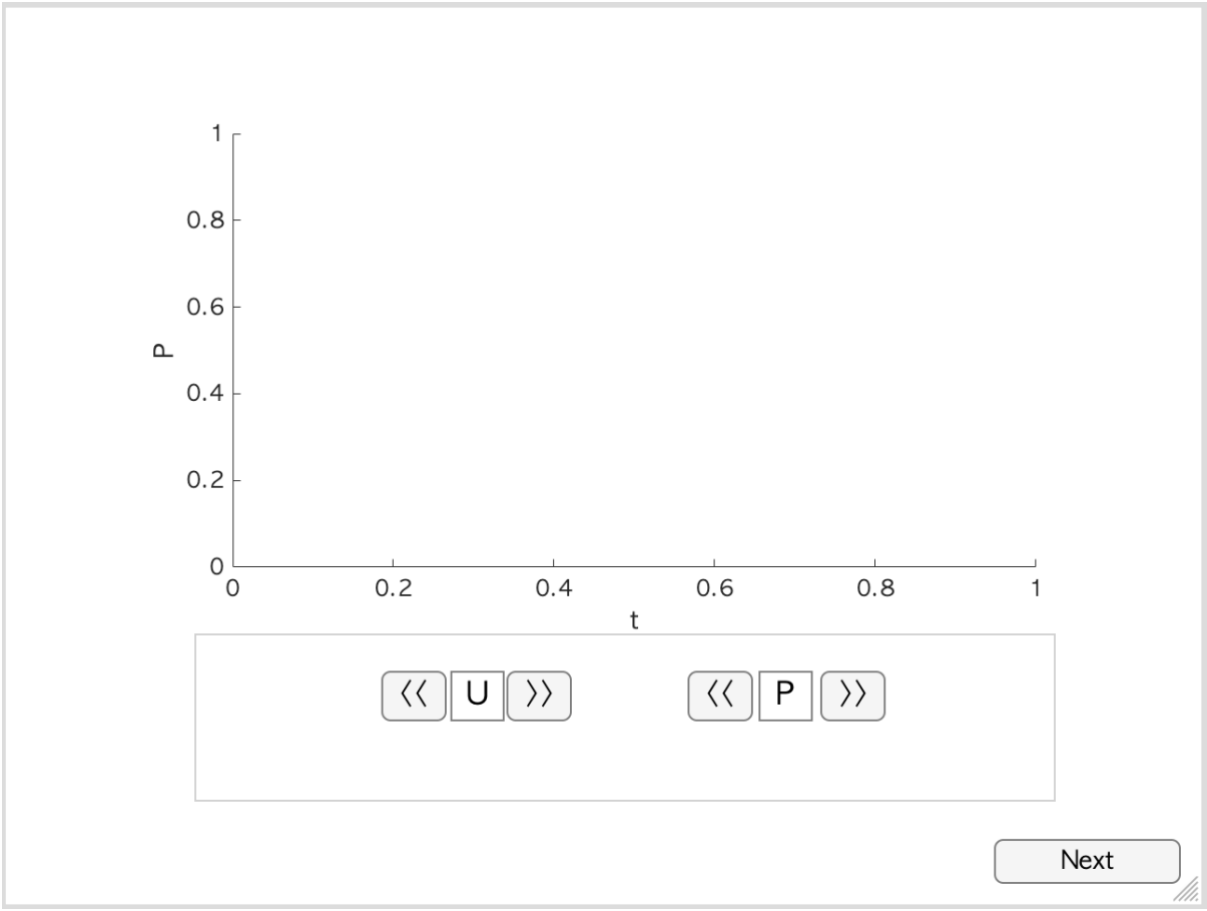
Ultrasound_new

Clean



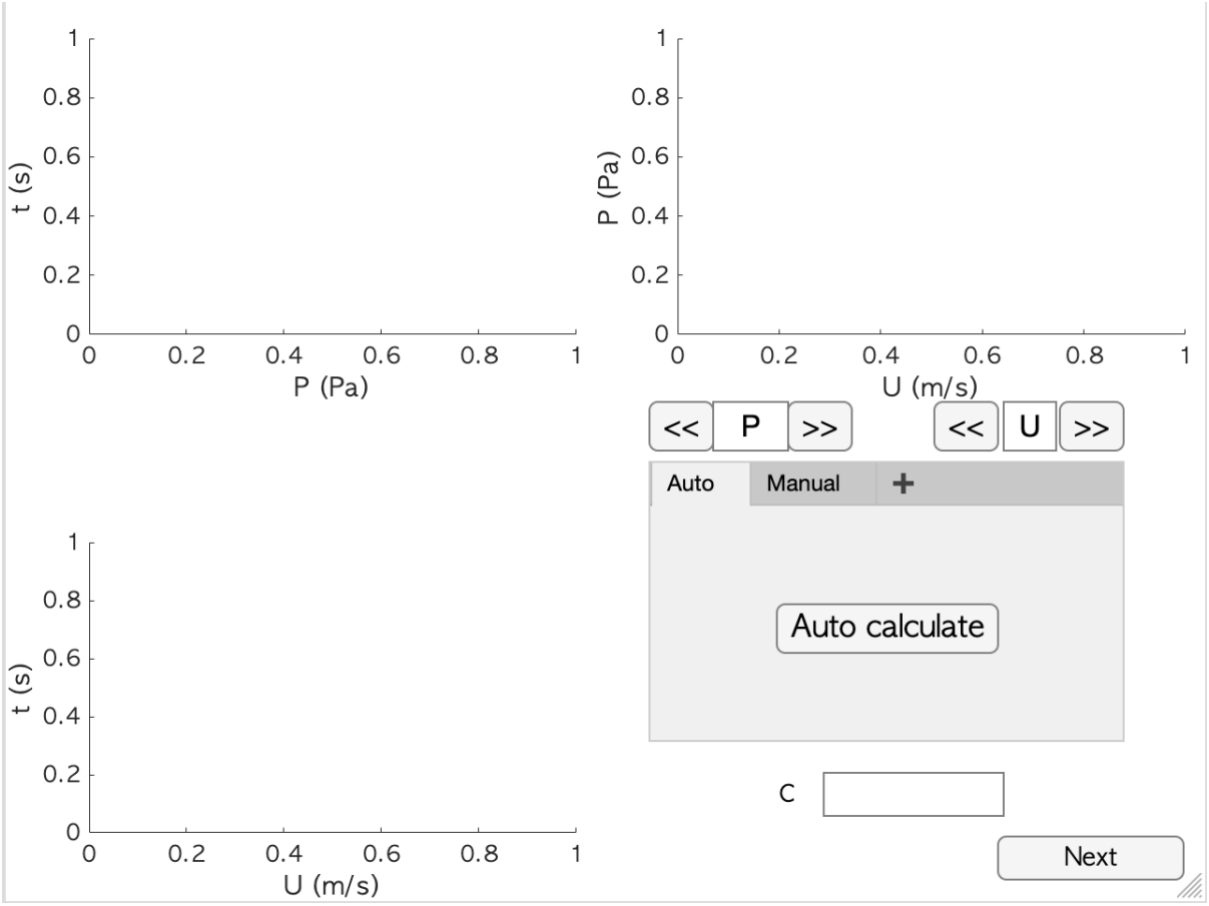
1. Select the checkboxes next to the data you wish to clean
2. Set the window size to use for Savgolay filtering
3. Set the polynomial order to use for Savgolay filtering
4. Press clean data
5. Navigate the tabs to view the newly cleaned data
6. If you're happy press save and exit otherwise repeat steps (2:4)

PUadjust



1. Use the left and right arrows to shift the curves until their upstrokes are aligned at t = 0
2. One you're satisfied press next

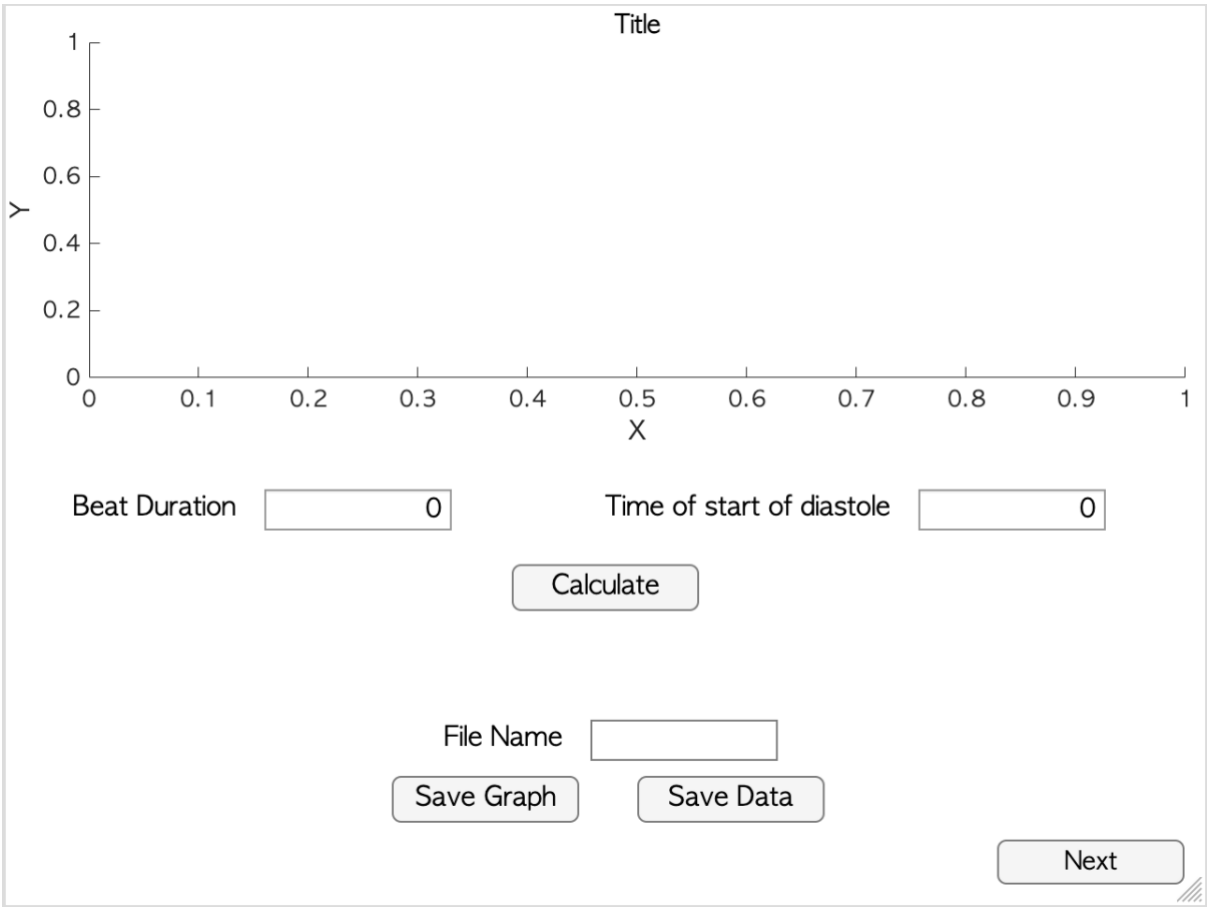
PU



1. Continue adjusting using the left and right arrows if you aren't satisfied with the loop.
2. Once you're happy, chose to either use the auto calculate functionality, or manually calculate the wave speed.
3. Then press next to progress to the output page.

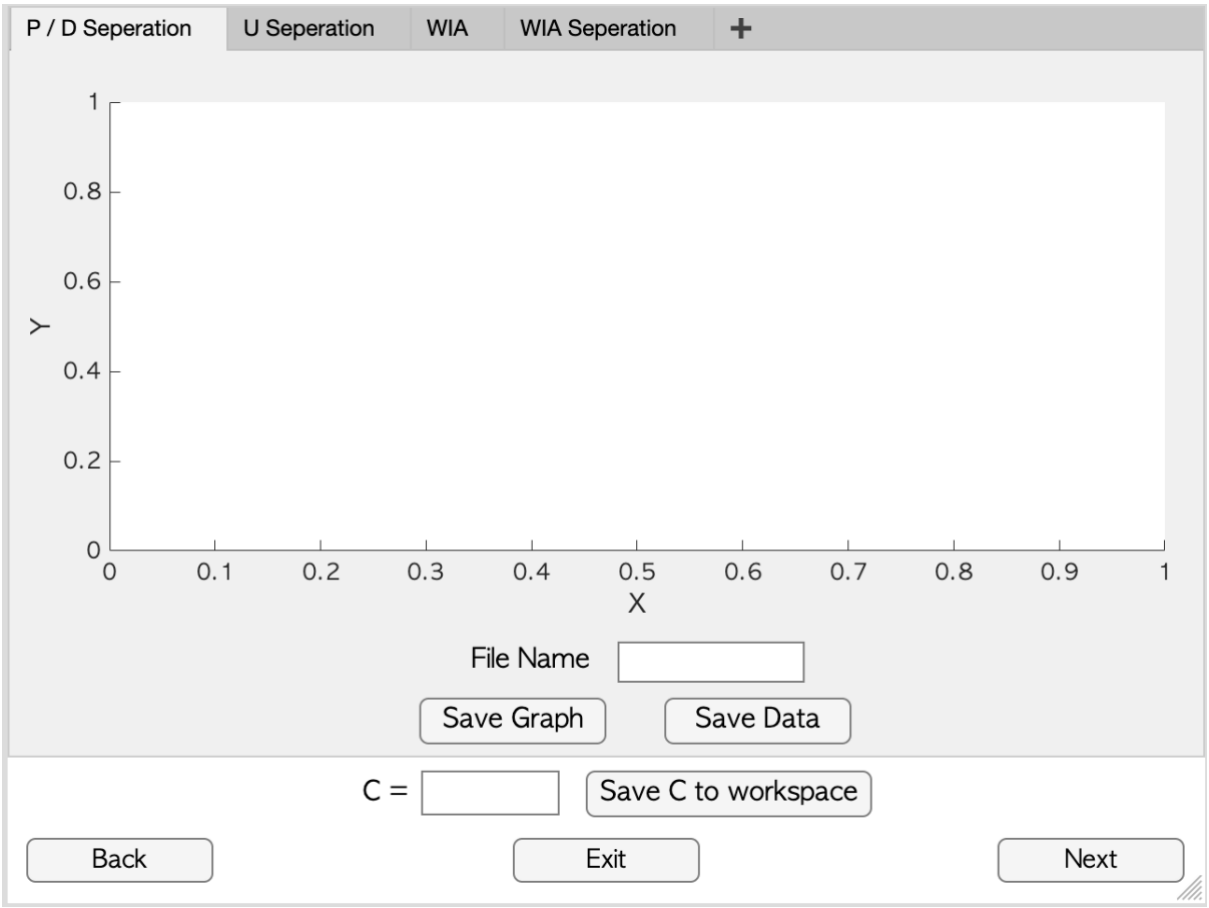
Note: if you initially entered the incorrect units for the data you can correct this at this stage. This can be done by going to the change units tab, entering the initial units you inputted and then when the next drop down appears selecting what the correct units were.

Windkessel



1. Use the x axis to update the beat duration and the time of the start of diastole.
2. Then press calculate
3. If you are unhappy, repeat steps (1:2)
4. To save the data type in what you want the file to be called and either press save data or save graph depending on which you wish to save.
5. Then press next to return to the home screen. A notification will appear asking you to confirm you've saved any data you need.

Outputpage



1. Navigate the tabs to see the relevant output data
2. On each tab is the opportunity to save the data / graph. To do this type in the filename you want to use and then press the relevant button.
3. If you wish to save the value of C to your MATLAB workspace press the relevant button.
6. Then you can either Exit the app or return to the home page (using the next button). A notification will appear asking you to confirm you've saved any data you need.
4. If you need to return to the previous screen press the back buton.