

## HELLO! WELCOME TO THE CMSC 150 APP USER'S GUIDE!

The following source files and libraries are needed:

```
source("QSI.r")           #imports the functions in the different r scripts|
source("SIMPLEX.r")

library(shiny)            #libraries to be imported
library(markdown)
```

Make sure that all files are in the same directory (ALL THE FILES BELOW ARE NEEDED)

app	16/12/2022 6:42 pm	R Source File	9 KB
QSI	16/12/2022 6:33 pm	R Source File	11 KB
SIMPLEX	16/12/2022 5:55 pm	R Source File	5 KB

To run the file, you can enter in the console: `runApp("<name_of_workspace_directory>")`

See example below

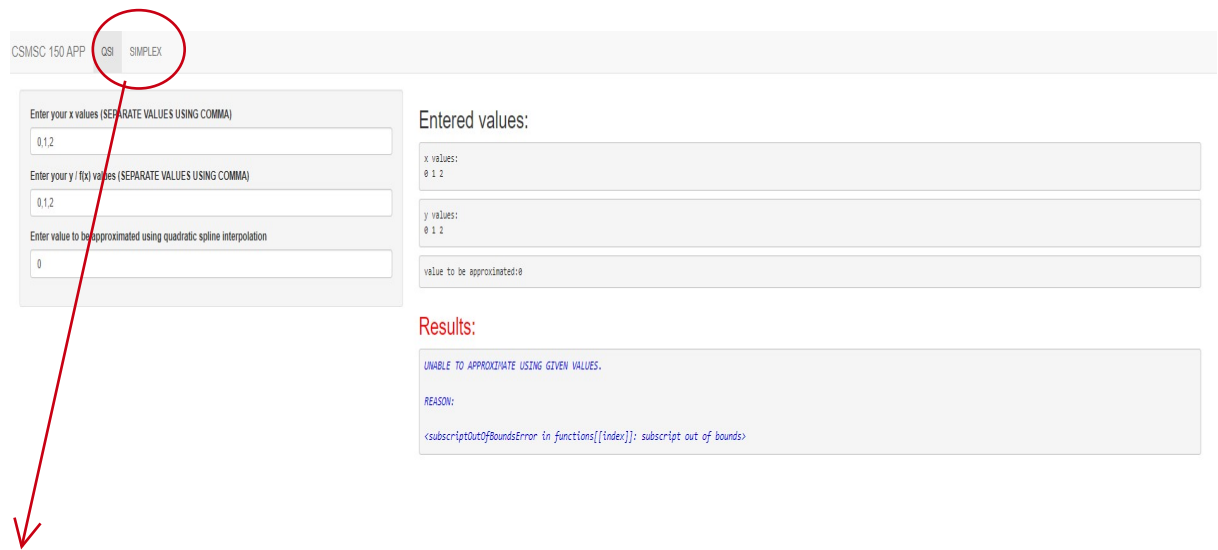
```
> runApp("App-1")
[1] 400
```

Listening on <http://127.0.0.1:6681>

Or you can click the run app button located at the upper right of the main window



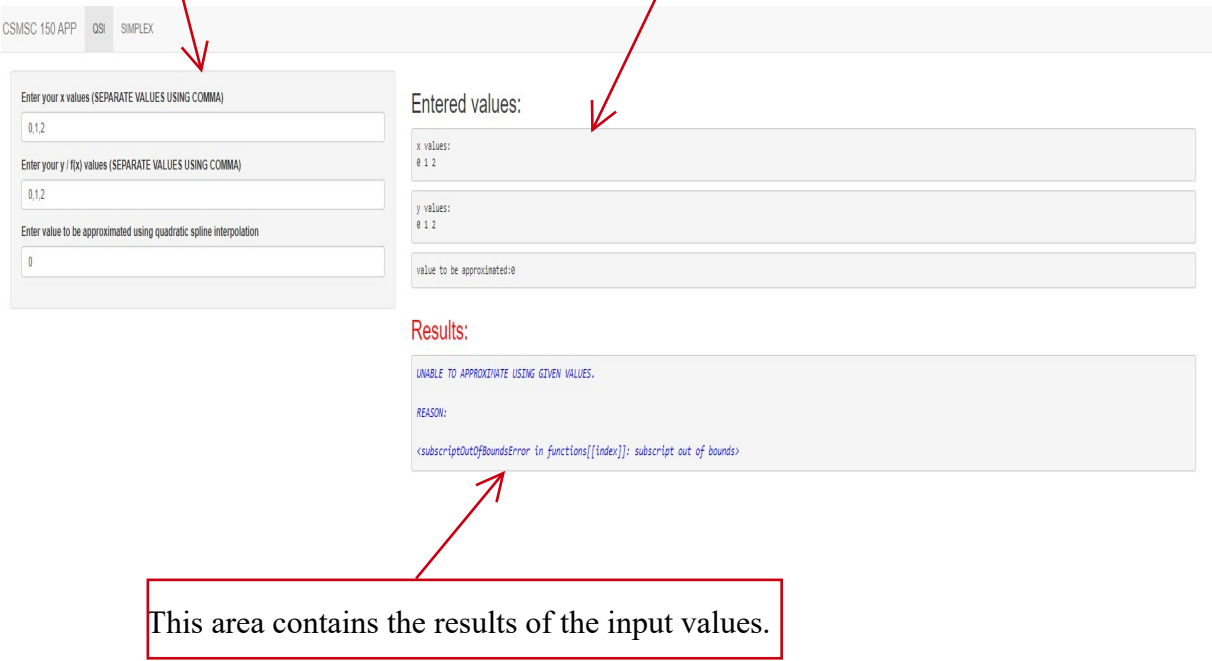
Once the app is running, you will see a navigational page where you can choose to perform QSI or Simplex



Clicking these tabs will allow you to switch between simplex and QSI

In the QSI panel, you can input your x and y values. These x and y values must be comma separated. The last input box contains one value to be approximated.

This prompt shows the entered values



This is an example of a QSI operation with correct input values

CSMSC 150 APP QSI SIMPLEX

Enter your x values (SEPARATE VALUES USING COMMA)

3,0,4,5,7,0,9,0

Enter your y / f(x) values (SEPARATE VALUES USING COMMA)

2,5,1,0,2,5,0,5

Enter value to be approximated using quadratic spline interpolation

5

Entered values:

x values:  
3 4,5 7 9

y values:  
2,5 1 2,5 0,5

value to be approximated:s

Results:

expression in interval 1 :  $0\%x^2+2x-2\%x+5,5$

expression in interval 2 :  $0,64\%x^2+6,78\%x+18,45$

expression in interval 3 :  $-1,6\%x^2+34,64\%x-81,44$

approximated value: 0.65

Clicking the simplex panel transitions the page into the page for simplex operations

CSMSC 150 APP QSI **SIMPLEX**

Enter the values of your initial tableau: (SEPARATE VALUES USING COMMA)

0,1,2

Choose an option  
☒ maximization  
☐ minimization

Will you be solving the given problem?  
☒ Yes  
☐ No

Initial Tableau:

S1	S2	S3	s4	s5	s6	s7	s8	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	z	SOLUTION
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00

Results:

Final Tableau

data

NOT AVAILABLE

Basic solution

data

NOT AVAILABLE

Problem answer

Error: object 'basicSol' not found

Optimum value

This is the sidebar area.  
You can input the values to be  
passed into the simplex  
function call here

You can input the multiple integers needed in the container box, while you can toggle the radio buttons based on your desired boolean values.

[illegible]

This area contains the initial tableau and the results of the simplex operation

~/App-1 - Shiny

http://127.0.0.1:6681 Open in Browser

CSMSC 150 APP QSI SIMPLEX

Enter the values of your initial tableau: (SEPARATE VALUES USING COMMA)

0,1,2

Choose an option

☒ maximization

☐ minimization

Will you be solving the given problem?

☒ Yes

☐ No

### Initial Tableau:

	S1	S2	S3	S4	S5	S6	S7	S8	x1	x2	x3
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00
	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00
	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00
	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00

**Results:**

Final Tableau

data

NOT AVAILABLE

Basic solution

If you are running in a window, click the exit button to exit the application once done. If the app is ran using a website, then simply close the tab to end the app.

-----END-----