User Manual

Name： Hejun Lin(20413374)
ssyhl17/UNNC-F22-ABEE1025-Group21
<UNNC-F22-ABEE1025-Group21@noreply.github.com>

Environment Dependencies

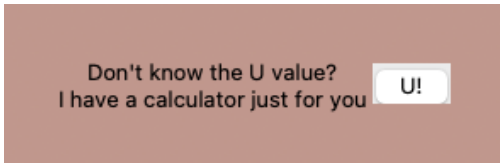
For this software, the environment is very simple. The `tkinter` library is included with most Python 3.x, so no special installation is required.

Description of User Interface Features

This software is divided into 6 sections.

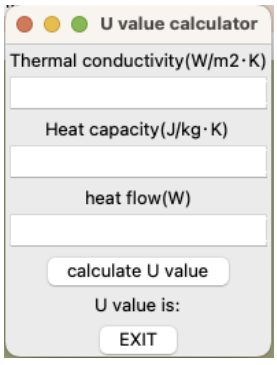
U-value Calculator

This is an in-built U-value calculator, if you do not know or understand the current environment or the U-value of the building materials, you can use this U-value calculator to calculate the U-value. It should be noted that in order to calculate the U-value, three parameters are required, namely:



- Thermal conductivity
- Heat capacity
- Heat flow

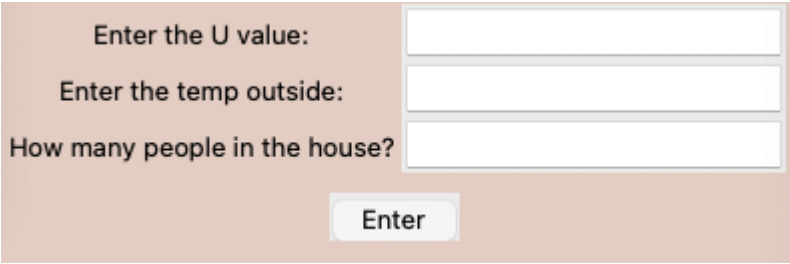
Among them, Thermal conductivity and Heat capacity can be searched in the Material Selection and View Related Data Area, but only five materials are built in. See the following for specific methods.



After input is completed, click the "calculate U value" button to generate the corresponding U value.

Click the "EXIT" button to close the window and return to the main page.

Data Input Area



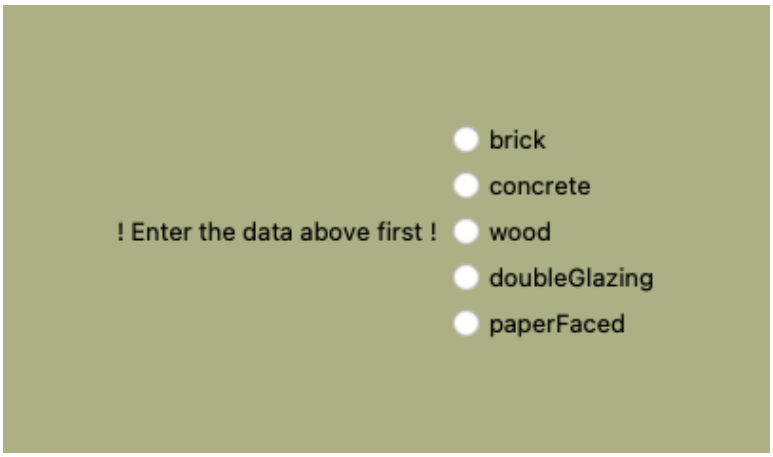
Here you can enter three values to calculate the final optimal indoor temperature. These are:

- U-value
- Outdoor temperature
- Number of people indoors

Once the input is complete, click the Enter button.

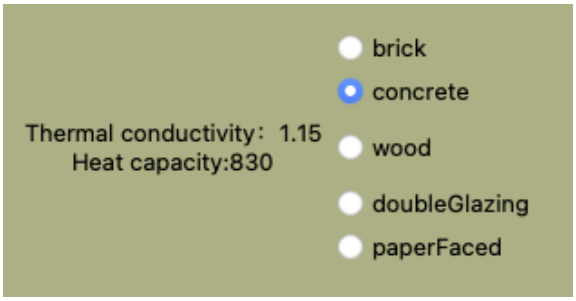
By using the corresponding scientific methods and formulas, the corresponding parameters can be calculated.

Material Selection and View Related Data Area

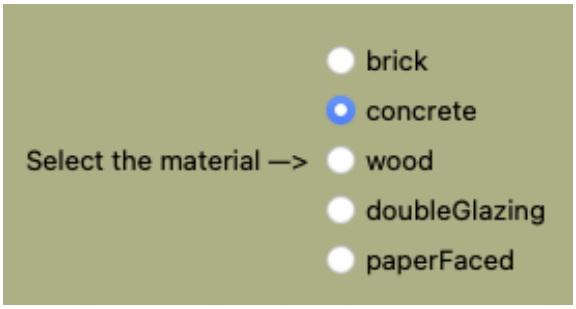


Here, there are two functions. There are also five built-in building materials.

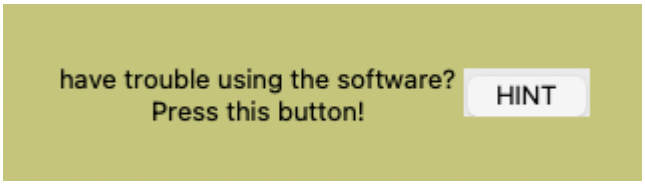
1. Before pressing the Enter button without entering the data of the previous panel, clicking the corresponding building material can view the corresponding Thermal conductivity and Heat capacity.



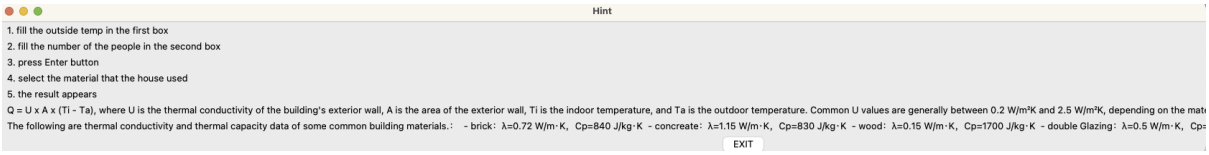
2. After entering the data of the previous panel and pressing the Enter button, the label on the left will prompt you to select the corresponding building material. After selection, the result will be automatically displayed in the Result Area.



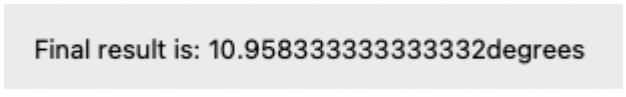
Hint Area



If you have any problems using the software, it is a good choice to view this manual and click the HINT button here. After clicking the HINT button, a new window will pop up, which contains the formulas used in this program and a simple user manual.



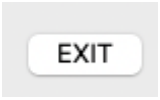
Result Area



Nothing will be displayed here before the second step of Material Selection and View Related Data Area is completed. Only after the above steps are completed, the final result will be displayed.

Exit Button

Clicking this will terminate the program.


EXIT