

U-value calculator User's guide

ABEE1025 UNNC

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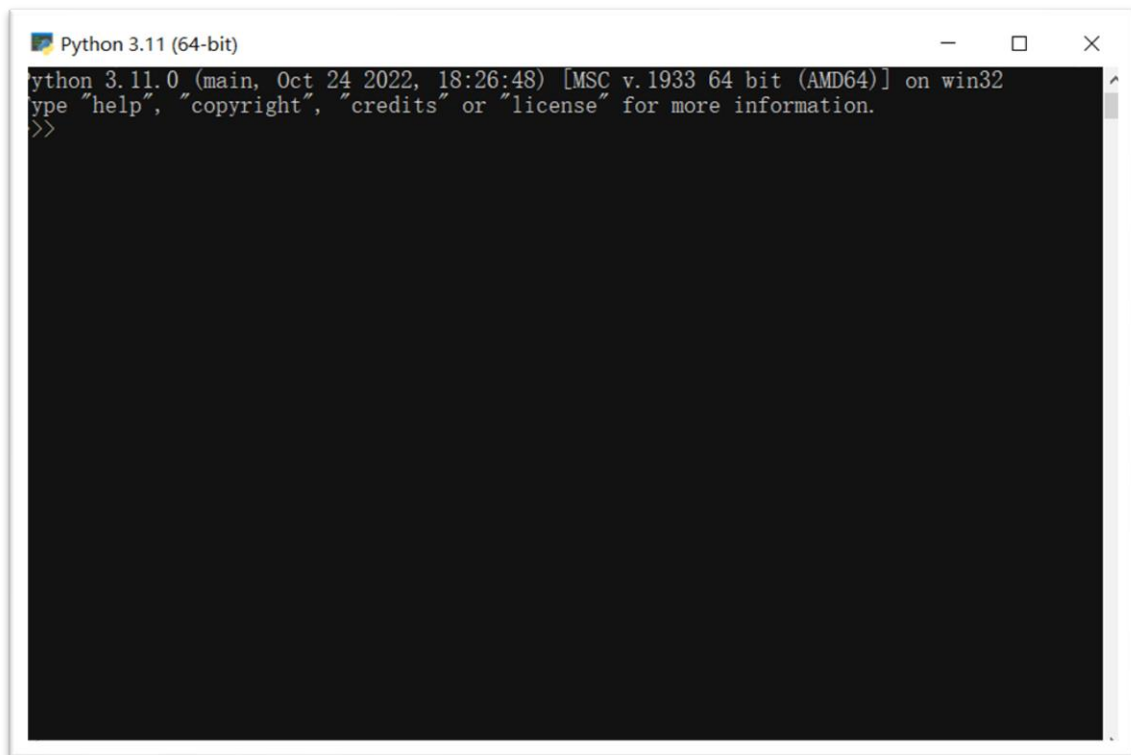
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Instructions of the software.

1. ENVIRONMENT DEPENDENCIES

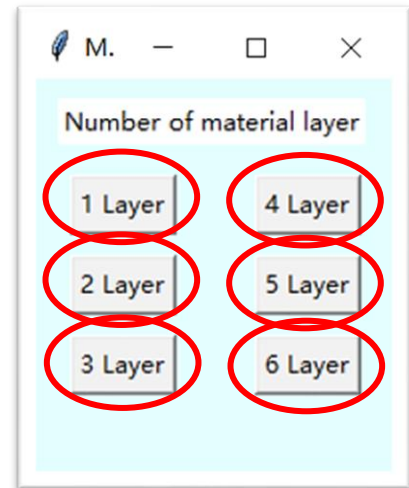
The software requires users to install python 3.11.1 in advance and run it in Windows system. After the system environment is ready, download and double-click the main program 'U-value calculator' to run the software.



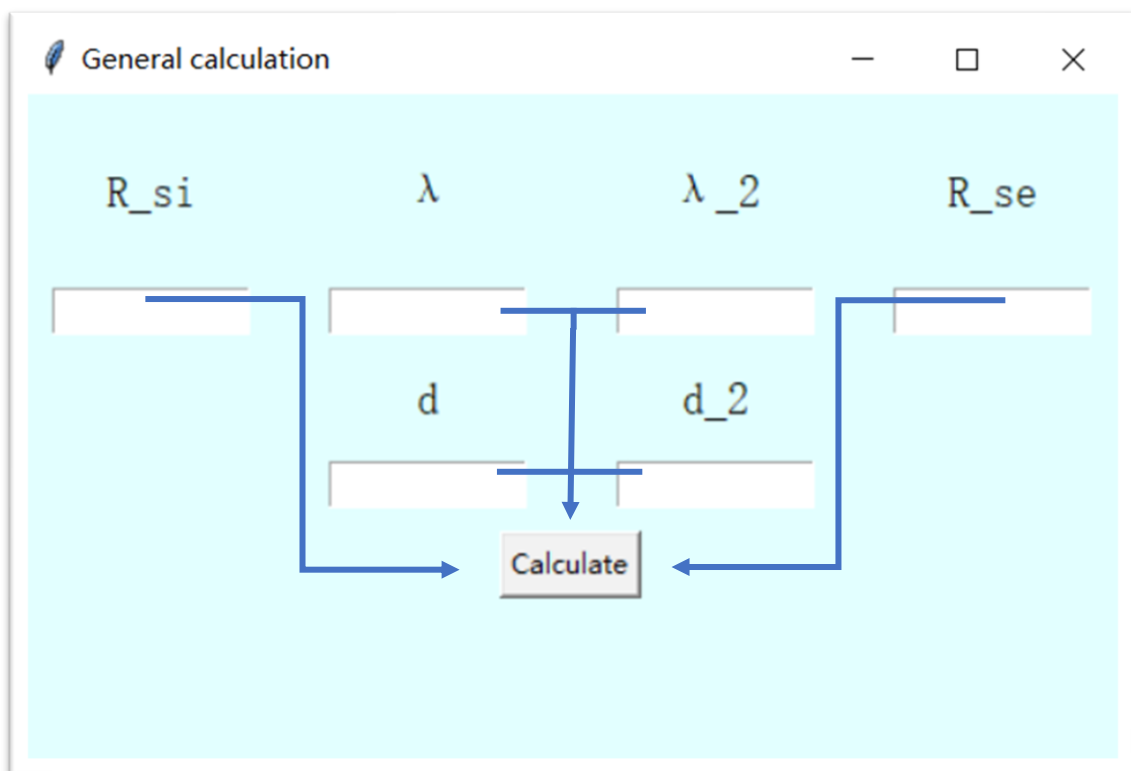
2. INTERFACE FUNCTIONALITY

The software contains three interactive elements, which are buttons, entry boxes, and window maximization/minimization and closing.

Users can click the button to realize the corresponding function. The Button appearance is shown in the right figure.



Similarly, users could click the entry box to type in the material's thermal conductivity, thickness and so on.

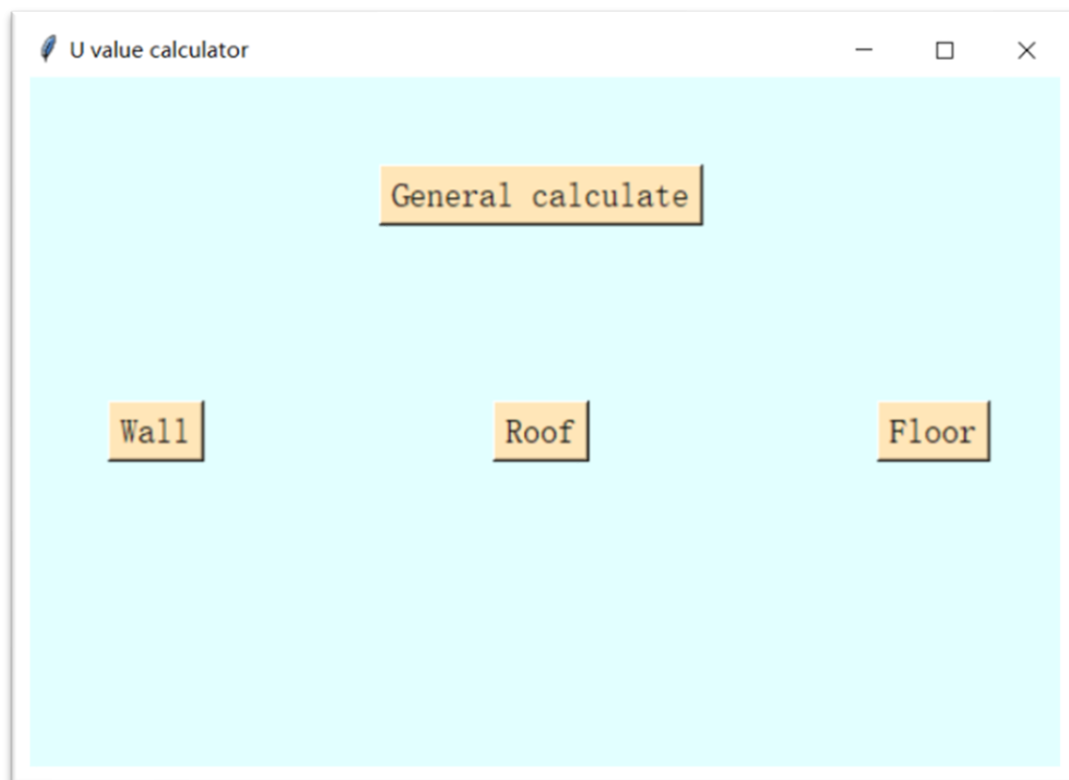


3. OPERATING INSTRUCTION

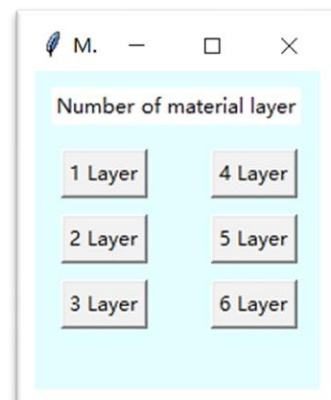
1.Download the 'U-value calculator.pyw' from GitHub.

2.Double click the main file to run the software.

3.Then choose the building element (only General calculate part is available now).

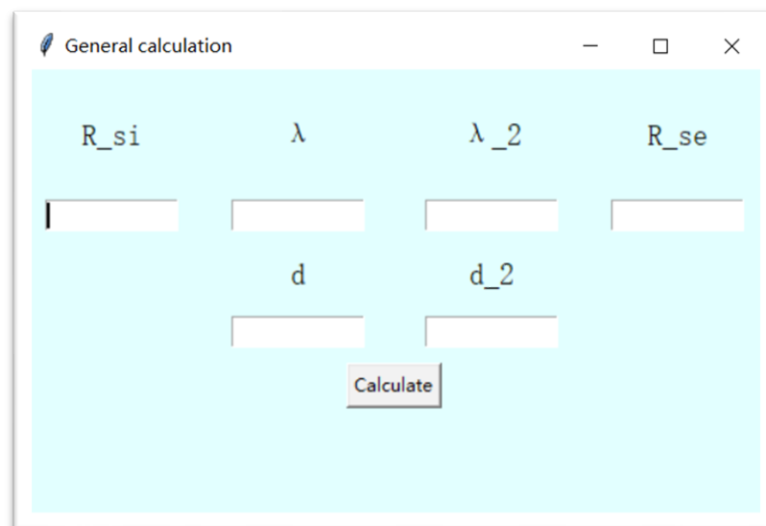


4. Then choose the number of the element's material layer.

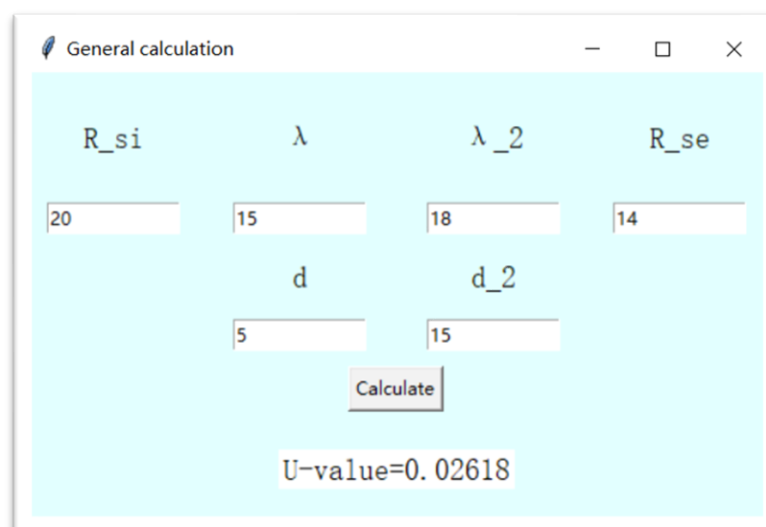


5. Then type in the material's thermal conductivity, thickness, internal surface heat transfer resistance and external surface heat transfer resistance.

6. Finally, click 'calculate' button to get the final answer.



The screenshot shows a window titled "General calculation" with a light blue background. It contains six input fields arranged in two rows. The top row has fields labeled R_{si} , λ , λ_2 , and R_{se} . The bottom row has fields labeled d and d_2 . Below these fields is a button labeled "Calculate".



The screenshot shows the same "General calculation" window, but now with numerical values entered in the input fields: R_{si} is 20, λ is 15, λ_2 is 18, R_{se} is 14, d is 5, and d_2 is 15. The "Calculate" button is still present. At the bottom of the window, the result "U-value=0.02618" is displayed.