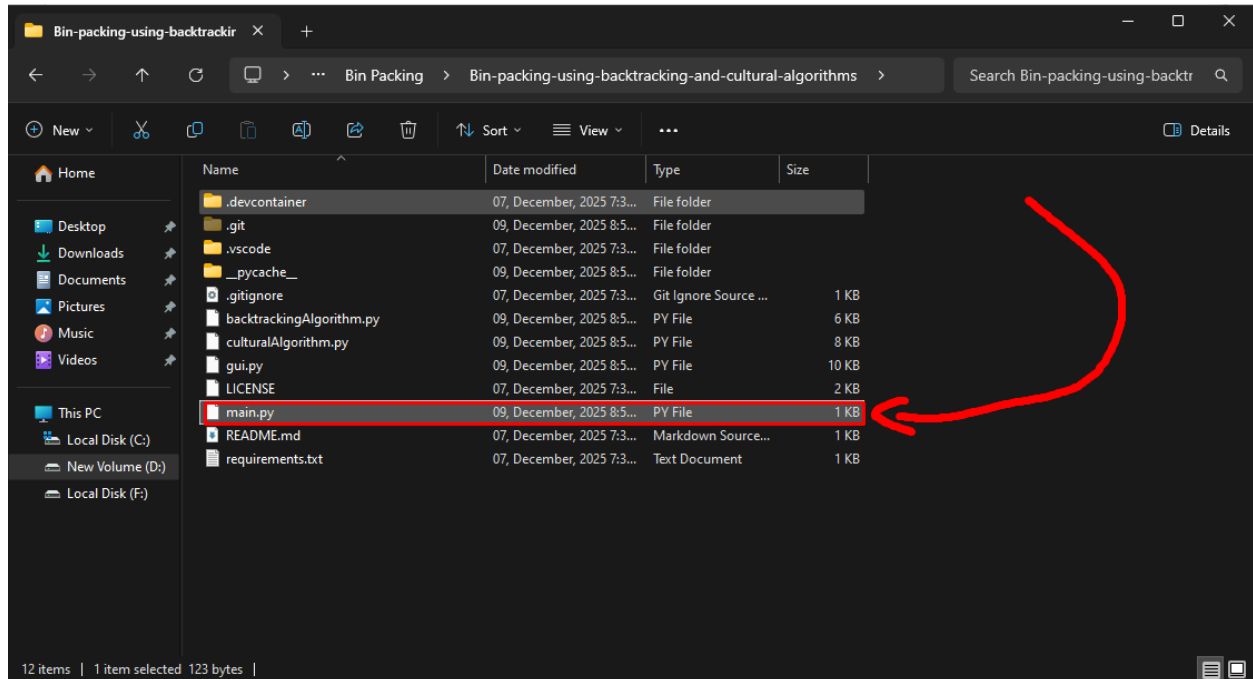


Welcome to bin packing algorithm, here is how to use it:

Step 1, unzip the file into a folder

Step 2, run main.py:



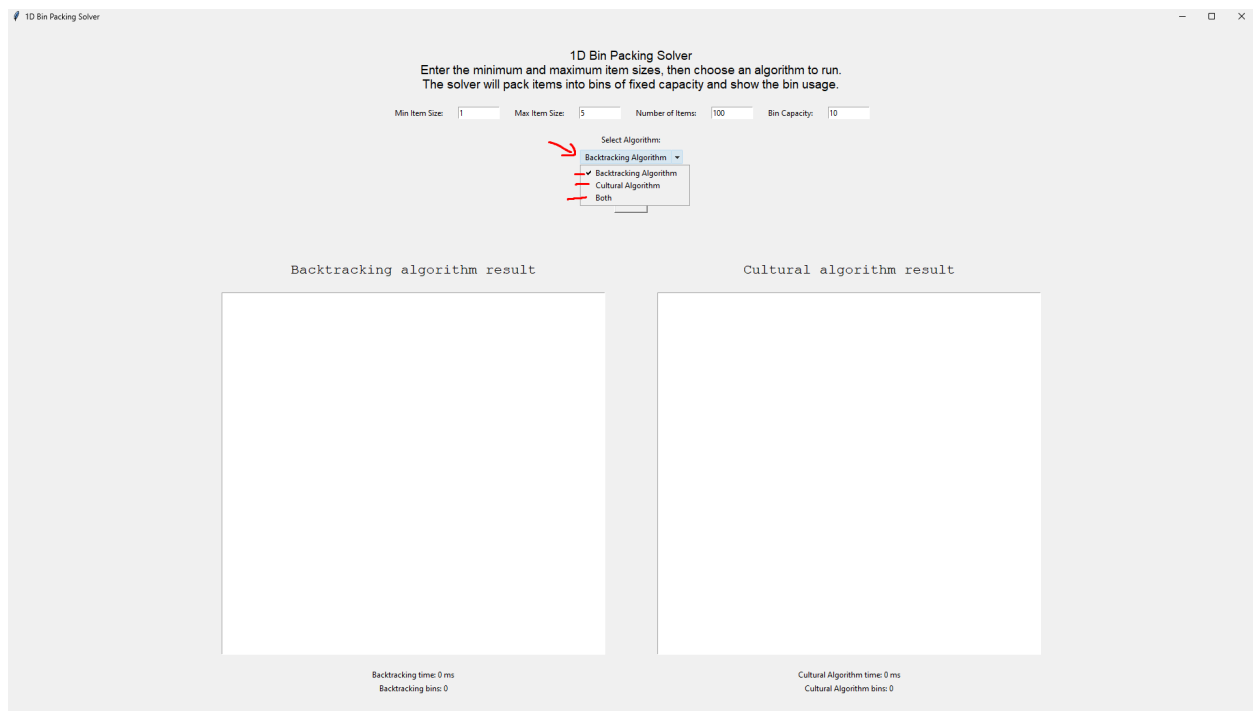
You can directly run it using python, or open it in any IDE and run it from there.

Step 3, enter all the desired input parameters (Minimum item size, maximum item size, number of items, and bin capacity) using the gui

The screenshot shows the '1D Bin Packing Solver' application window. At the top left, the title bar reads '1D Bin Packing Solver'. The main area contains the following elements:

- Handwritten Annotation:** 'Input Parameters' is written in red cursive and underlined. A red line with arrows points from this text to the input fields for 'Min Item Size', 'Max Item Size', 'Number of Items', and 'Bin Capacity'.
- Instructions:** 'Enter the minimum and maximum item sizes, then choose an algorithm to run. The solver will pack items into bins of fixed capacity and show the bin usage.'
- Input Fields:** Four text boxes are present: 'Min Item Size' (value: 1), 'Max Item Size' (value: 5), 'Number of Items' (value: 100), and 'Bin Capacity' (value: 14).
- Select Algorithm:** A dropdown menu is open, showing three options: 'Backtracking Algorithm' (selected with a checkmark), 'Cultural Algorithm', and 'Both'.
- Results Section:** Two large empty rectangular boxes are labeled 'Backtracking algorithm result' and 'Cultural algorithm result'.
- Status/Time:** At the bottom, there are two status lines: 'Backtracking time: 0 ms' and 'Backtracking bins: 0' on the left; 'Cultural Algorithm time: 0 ms' and 'Cultural Algorithm bins: 0' on the right.

Step 4, select the desired algorithm(s) using the dropdown menu:



1D Bin Packing Solver

Enter the minimum and maximum item sizes, then choose an algorithm to run.  
The solver will pack items into bins of fixed capacity and show the bin usage.

Min Item Size: 1 Max Item Size: 5 Number of Items: 100 Bin Capacity: 10

Select Algorithm:

- Backtracking Algorithm
- Backtracking Algorithm
- Cultural Algorithm
- Both

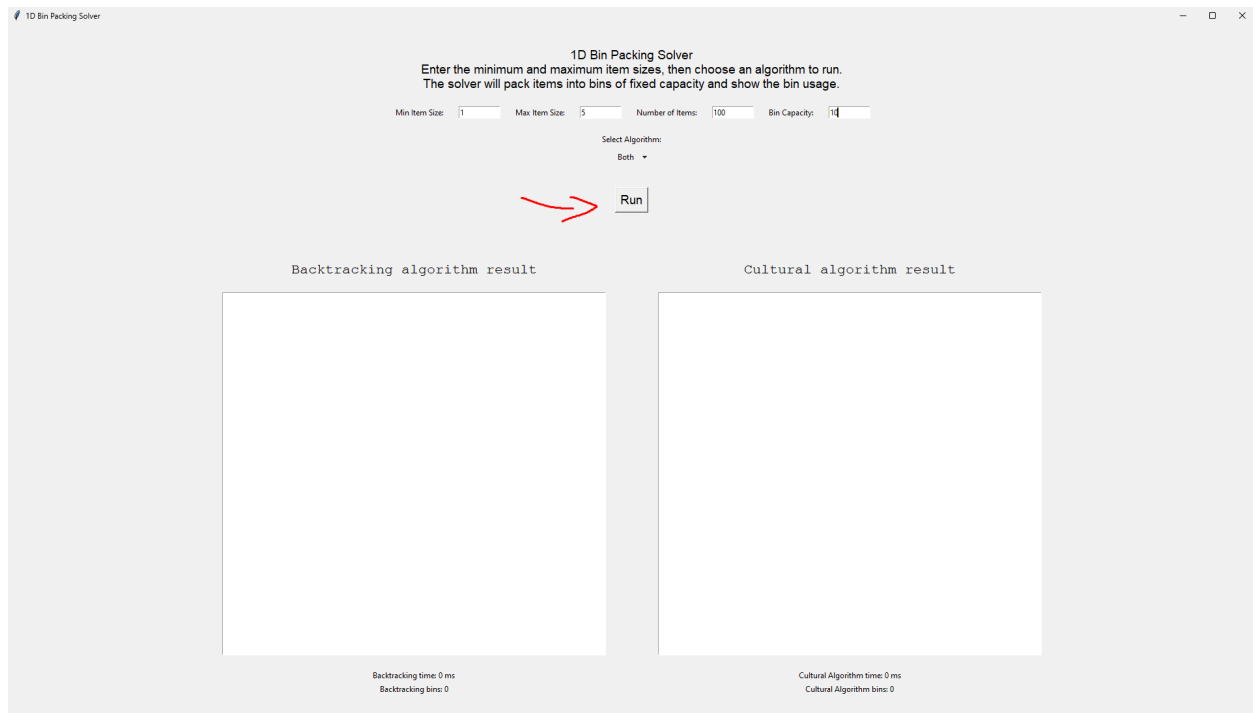
Backtracking algorithm result

Cultural algorithm result

Backtracking time: 0 ms  
Backtracking bins: 0

Cultural Algorithm time: 0 ms  
Cultural Algorithm bins: 0

Step 5, click run to run



1D Bin Packing Solver

Enter the minimum and maximum item sizes, then choose an algorithm to run.  
The solver will pack items into bins of fixed capacity and show the bin usage.

Min Item Size: 1 Max Item Size: 5 Number of Items: 100 Bin Capacity: 10

Select Algorithm:

Both

Run

Backtracking algorithm result

Cultural algorithm result

Backtracking time: 0 ms  
Backtracking bins: 0

Cultural Algorithm time: 0 ms  
Cultural Algorithm bins: 0

Step 6, the results of each algorithm are shown via the data visualization and performance indicators under their respective slots:

