

# ROI Polygon Editor (Tkinter GUI)

## Features

- Left-click to add points to a polygon
- Right-click to undo last point
- Double-click to complete the polygon and assign an ID
- Press 'C' to clear current polygon
- Press 'R' to reset all saved ROIs
- Press 'D' to delete a saved ROI by its ID
- Save all ROIs in structured JSON format

## Requirements

Install the required Python libraries (if not already installed):

```
pip install pillow
```

Tkinter is part of Python's standard library (no need to install separately in most cases).

## How It Works

- You load an image file via a file dialog.
- Start clicking on the image to mark ROI points.
- When a polygon is complete (min 3 points), double-click to finish and assign an ID.
- You can save all marked ROIs as a .json file.

## How to Run

1. Save the script as roi\_editor.py
2. Open terminal or command prompt and run:

```
python roi_editor.py
```

3. When prompted, select an image file (e.g., parking layout).
4. Use the mouse and keyboard shortcuts described below.

## Controls & Shortcuts

## ROI Polygon Editor (Tkinter GUI)

Action	Method
----- -----	
Add Point	Left Click
Undo Last Point	Right Click
Complete Polygon	Double Left Click
Assign ID to Polygon	Prompt appears after double click
Clear Current Polygon	Press 'C' key
Reset All ROIs	Press 'R' key
Delete ROI by ID	Press 'D' key
Save ROIs to JSON	Click " Save to JSON" button

### Sample Output (JSON Format)

```
[
  {
    "id": "A1",
    "coords": [[100, 150], [200, 150], [200, 250], [100, 250]]
  },
  {
    "id": "A2",
    "coords": [[220, 150], [320, 150], [320, 250], [220, 250]]
  }
]
```

### Output

ROIs are saved as a list of objects:

Each with an "id" and a list of "coords" (x, y) representing the polygon.