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[5]: import matplotlib.pyplot as plt
import numpy as np
import random

# Grid size
rows, cols = 10, 10

# Define zoning types
zones = {
    0: 'Residential',
    1: 'Commercial',
    2: 'Industrial',
    3: 'Park'
}

# Generate random zoning map
def generate_zoning(rows, cols):
    return np.random.choice(list(zones.keys()), size=(rows, cols))

# Visualize the zoning map
def plot_city(zoning_map):
    color_map = {
        0: 'lightblue',    # Residential
        1: 'orange',       # Commercial
        2: 'gray',         # Industrial
        3: 'green',        # Park
    }

    fig, ax = plt.subplots(figsize=(8, 8))
    for i in range(zoning_map.shape[0]):
        for j in range(zoning_map.shape[1]):
            zone = zoning_map[i, j]
            ax.text(j, i, zones[zone], color=color_map[zone], edgecolor='black')
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    }

    fig, ax = plt.subplots(figsize=(8, 8))
    for i in range(zoning_map.shape[0]):
        for j in range(zoning_map.shape[1]):
            zone = zoning_map[i, j]
            ax.add_patch(plt.Rectangle((j, rows - i - 1), 1, 1, color=color_map[zone], edgecolor='black'))
            ax.text(j + 0.5, rows - i - 0.5, zones[zone][0], ha='center', va='center', fontsize=8)

    ax.set_xlim(0, cols)
    ax.set_ylim(0, rows)
    ax.set_xticks([])
    ax.set_yticks([])
    ax.set_title("Simple Urban Zoning Layout")
    plt.grid(True)
    plt.show()

# Run the simulation
zoning_map = generate_zoning(rows, cols)
plot_city(zoning_map)

```