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Python Programming for Urban Planning
Series 4: File Operations in Python
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Exercise 1: Saving Survey Data (Writing Files)

Statement.
You have conducted a land-use survey and collected a list of recorded parcel types:
`parcels = ["Residential", "Commercial", "Green Space", "Industrial", "Residential"]`

1. Write a Python script that creates (or opens) a text file named `surveys_output.txt` in write mode (`'w'`).
2. Loop through the `parcels` list and write each parcel type on a new line in the file.
3. Ensure you properly close the file after writing.

Solution.

```
parcels = ["Residential", "Commercial", "Green Space", "Industrial", "Residential"]

file = open("surveys_output.txt", "w")
for parcel in parcels:
    file.write(parcel + "\n")
file.close()
```

Exercise 2: Reading Inventory Records (Reading Files)

Statement.
Assume you have a text file named `urban_inventory.txt` containing names of urban facilities (one per line: Park, School, Hospital, Library, Station).

1. Write a Python script to open and read `urban_inventory.txt` using read mode (`'r'`).
2. Read all lines into a list using `.readlines()` or loop through the file object.
3. Print each facility name prepended with its index number (starting from 1).

Solution.

```
with open("urban_inventory.txt", "w") as f:
    f.write("Park\nSchool\nHospital\nLibrary\nStation\n")

with open("urban_inventory.txt", "r") as f:
    lines = f.readlines()

for index, facility in enumerate(lines, start=1):
    print(index, facility.strip())
```

Exercise 3: Automated Report Generator (Append & Read)

Statement.

1. Open the existing file `surveys_output.txt` in append mode (`'a'`).
2. Append a new surveyed parcel type: `"\nAgricultural"` to the end of the file.
3. Re-open the file in read mode (`'r'`), read the entire content as a single string using `.read()`, and print the complete updated survey report to the console.

Solution.

```
with open("surveys_output.txt", "a") as f:
    f.write("\nAgricultural")

with open("surveys_output.txt", "r") as f:
    content = f.read()

print(content)
```