Instructor: Dr. Zehir Hatem
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Python Programming for Urban Planning
Series 3: Functions and Strings
Badji Mokhtar - Annaba University, Urban Planning Department

Exercise 1:

Statement.
Urban registries often contain poorly formatted text entries. You are given a raw address string:
`raw_address = " rue emir abdelkader, annaba "`

1. Remove the leading and trailing whitespace using the appropriate string method.
2. Capitalize the words properly (Title Case) so that every word starts with an uppercase letter.
3. Replace the word "Rue" with "Avenue".
4. Print the final cleaned address.

Solution.

```
raw_address = "  rue emir abdelkader, annaba  "

cleaned = raw_address.strip()
cleaned = cleaned.title()
cleaned = cleaned.replace("Rue", "Avenue")

print(cleaned)
```

Exercise 2:

Statement.
Create a reusable function to compute urban density without rewriting code.

1. Define a function named `calculate_density(population, area_km2)`.
2. Inside the function, calculate the density and return the value.
3. Call the function using two different datasets:
   - District A: Population = 25000, Area = 5.0 km^2
   - District B: Population = 80000, Area = 25.5 km^2
4. Print the returned results with descriptive labels.

Solution.

```python
def calculate_density(population, area_km2):
    return population / area_km2


density_a = calculate_density(25000, 5.0)
density_b = calculate_density(80000, 25.5)

print("District A density:", density_a, "people/km²")
print("District B density:", round(density_b, 2), "people/km²")
```

Exercise 3:

Statement.

1. Write a function named `format_street_name(street_name)` that takes a string representing a street name, converts it to uppercase, and adds the prefix "ZONE - " to it.
2. Test the function with the input "cours de la revolution" and print the output.

Solution.

```python
def format_street_name(street_name):
    return "ZONE - " + street_name.upper()


print(format_street_name("cours de la revolution"))
```