Instructor: Dr. Zehir Hatem
Academic year: 2026/2027

# Python Programming

Homework 1

**Submission deadline: 19 November 2026**

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## Instructions

- This homework is individual.
- Send your work by email to **hatem.zehir@univ-annaba.dz** before **19 November 2026**.
- Email subject: `[Python HW] LASTNAME Firstname`
- Attach **8 files** to the email:
  - `ex1.py` to `ex7.py`: one Python file for each exercise.
  - `screenshots.pdf`: one PDF file with 7 screenshots of your results, one for each exercise, in the same order.

## Exercise 1:

You are collecting data about a public park in your city.

1. Create these four variables:
   - `park_name` = "Edough Park"
   - `park_area_m2` = 12500.5
   - `trees_count` = 320
   - `is_open` = True
2. Print the type of each variable..

## Exercise 2:

1. A bench costs 50000 DA. The municipality buys 3 benches. Print the total price.
2. A budget of 25000000 DA is shared equally between 4 neighborhoods. Print the share of each neighborhood.
3. A bus line takes 275 minutes to cross the whole city and back. Print the number of hours, then the remaining minutes.
4. A square plot of land has a side of 6 m. Print its area (use `**` for the power).

## Exercise 3:

You check if a neighborhood has enough green space for its inhabitants.

1. Create a variable `green_m2_per_person` with the value 14 (square meters of green space for each inhabitant).
2. Write an `if-elif-else` code that prints:
   - "Excellent" if the value is 16 or more,
   - "Acceptable" if the value is 10 or more (and less than 16),
   - "Insufficient" otherwise.

### Exercise 4:

You count the vehicles passing on a street during 5 different hours.

1. Create the list: `vehicles = [120, 150, 135, 180, 165]`
2. Use a `for` loop to print each number of vehicles.
3. Use a second `for` loop to calculate the total number of vehicles (start with `total = 0`).
4. Print the total and the average.

### Exercise 5:

You are conducting a survey of five city districts to assess their infrastructure and public facilities. The program should display the number of each district being surveyed and indicate when the survey is complete.

1. Create a variable `district` with the value 1, representing the first district to be surveyed.
2. Write a `while` loop that prints `"Surveying district:"` followed by the value of `district`, then adds 1 to `district`, as long as `district` is less than or equal to 5.
3. After the loop, print `"Urban planning survey complete."`.

### Exercise 6:

You clean a text taken from a city map.

1. Create the variable `text = " centre hospitalier universitaire ibn rochd "`.
2. Remove the extra spaces at the start and at the end and save the result in a variable `clean`. Print `clean`.
3. Print `clean` in capital letters.
4. Print the number of characters of `clean`.

### Exercise 7:

1. Write a function `plot_area(length, width)` that returns the area of a rectangular plot (length multiplied by width). Print the result of `plot_area(20, 15)`.
2. Write a function `density(population, area_km2)` that returns the population divided by the area. Print the result of `density(12000, 4)`.