

Lab # 01

Getting Started with Python



National University
of computer and emerging sciences

Artificial Intelligence Lab (AI-2002)

Semester: Spring 2026

Section: BCS-6A

Course Instructor: Mr. Abdullah Shaikh

LAB # 01 – IN-LAB TASKS

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Submission Instructions:

- Perform all tasks in class only. Late submissions will not be considered.
- Submit a .ipynb file with the filename formatted as:
Lab 01 - Your Name - Roll Number
- Upload the file on GCR.

Task # 01

Write a program in the Python programming language to declare variables for your name, and roll number. Assign appropriate values to these variables and display them on the screen such that the name and roll number appear on the same line separated by spaces. Use two print statements only.

Task # 02

Write a program in the Python programming language to take two integer values as input from the user. Swap the values of these two variables using a third variable, and display the values before and after swapping.

Task # 03

Create a list with at least five integers. On this same list, perform the following operations:

1. Add a new element at the end of the list.
2. Insert an element at a specific position in the list.
3. Remove a specific element from the list.
4. Sort the list in ascending order.
5. Delete an element at a given index.

After each operation, display the list to show the changes.

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Task # 04

Create a tuple with at least five integers. On this same tuple, perform the following operations:

1. Add a new element to the tuple.
2. Insert an element at a specific position in the tuple.
3. Remove a specific element from the tuple.
4. Sort the tuple in ascending order.
5. Delete an element at a given index.
6. After each operation, display the list to show the changes.

After each operation, display the tuple to show the changes.

Task # 05

Create a set with at least five integers. On this same set, perform the following operations:

1. Add a new element to the set.
2. Add multiple elements to the set at once.
3. Remove a specific element from the set.
4. Display the elements of the set in ascending order.
5. Clear all elements from the set.

After each operation, display the set to show the changes.

Task # 06

Create a dictionary with three students' names as keys and their marks as values. Display the dictionary.

1. Add a new student and their marks to the dictionary.
2. Update the marks of an existing student.
3. Delete a student from the dictionary.
4. Display all student names and all marks separately.

Task # 07

Write a Python program to:

1. Take a student's marks (0–100) as input.
2. Print the grade based on the marks:
 - 90 or above → A
 - 75 to 89 → B
 - 60 to 74 → C
 - Below 60 → F

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Task # 08

Write a program to print the following pattern using nested for loops:

```
*  
  
* *  
  
* * *  
  
* * * *  
  
* * * * *
```

Task # 09

1. Write a function to calculate the sum of two numbers, where the second number has a default value of 5. Call the function with one and two arguments.
2. Write a function to greet a user with their name, where the name has a default value "Guest".
3. Write a function to calculate the power of a number, where the exponent has a default value of 2 (i.e., square by default).

Task # 10

Write a function to compute simple interest and return it, where the rate has a default value of 5%.

THE END!