

# Python Programming (B.Tech CSE - Sem 2)

## Experiment 01 – Exercise Sheet

### Python Installation and Basic Python Statements

Tofik Ali

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**Repository:** <https://github.com/tali7c/Python-Programming>

**Note:** This document contains only problem statements (no solutions).

## Instructions

- Write a separate Python program for each programming exercise.
- Use meaningful variable names and clear output formatting.
- Validate input where appropriate (example: non-negative values).

## Exercises

### Exercise 00: Python Installation and Modes (Non-coding)

- Install Python 3.
- Write the steps of installation.
- Explain the difference between interactive mode and scripting mode (IDLE/terminal).

### Exercise 01: Age Type

Create a variable to store your age and print its type using `type()`.

### Exercise 02: Hello String

Declare a string variable called `x` and assign it the value `"Hello"`. Print the value of `x`.

### **Exercise 03: Print Different Data Types**

Take different data types (int, float, string, boolean, etc.) and print values using the `print` function. Also print their types.

### **Exercise 04: Integer Arithmetic**

Declare `x=9` and `y=7`. Perform addition, multiplication, division and subtraction on these two variables and print the results.

### **Exercise 05: Hypotenuse (Pythagoras Theorem)**

Write a program to compute the length of the hypotenuse ( $c$ ) of a right triangle using Pythagoras theorem.

### **Exercise 06: Simple Interest**

Write a program to find simple interest.

### **Exercise 07: Triangle Area (Sides Given)**

Write a program to find area of a triangle when lengths of sides are given. Validate whether the sides form a valid triangle.

### **Exercise 08: Seconds Conversion**

Convert given seconds into hours, minutes and remaining seconds.

### **Exercise 09: Swap Without Extra Variable**

Swap two numbers without taking an additional variable.

### **Exercise 10: Sum of First $n$ Natural Numbers**

Find sum of first  $n$  natural numbers.

### **Exercise 11: Truth Table for Bitwise Operators**

Print truth table for bitwise operators `&`, `|` and `^` for inputs  $a, b \in \{0, 1\}$ .

### **Exercise 12: Left Shift and Right Shift**

Find left shift and right shift values of a given number.

### **Exercise 13: Membership Operator**

Using membership operator, find whether a given number is in sequence (10, 20, 56, 78, 89).