# Lab Assignment Week 02

*CSC/DSCI 1301 – Principles of CS/DS I*

*Week of January 20th, 2025*

## Introduction

Welcome to the second programming lab of CSC/DSCI 1301! Today, we will be covering the following topics:

- Creating and using variables
- Integer and floating-point arithmetic
- Taking input from the user via the Terminal/Console
- Displaying output on the Terminal/Console
    - Formatting the output
- Using block and inline comments

### Comments

The lab assignment requires the inclusion of comments to enhance code readability and understanding. Specifically, a block comment at the beginning of the Python file is required. Your block comment should include the following:

- The program name
- The author's name (your name)
- A description of the program's overall purpose

Additionally, inline comments should be used throughout the code to explain specific lines or sections that might be less obvious to someone reading the code. These inline comments can clarify complex calculations, explain the purpose of certain variables, or provide additional context for specific code blocks.

### Lab policy reminders:

- Attendance is mandatory.
- Labs must be completed **individually.**
- TAs are here to help you. Ask them for help!

### Deliverables:

1. Python files for all three programs in the lab
2. Screenshots of program output for all three programs

If you have any questions, please do not hesitate to ask your TA!

# Program 1: introduction.py

For your first program in Python, you will need to replicate the output of the hello.py file that you executed during last week's lab. You will need to make two main changes to the welcome message:

1. First, ask the user for their name and display and include their name in the display message.
2. Alter the message to include the day and times of **the lecture days and your lab session**.

## Example Output

Your terminal output should be formatted like the image below.

```
Please enter your name: [Name]

Hello [Name]!
Welcome to the CSC/DSCI 1301 Principles of Computer/Data Science Course!
Our class is held every Tuesday and Thursday at 11:00am.
Our lab session is held every [Day] at [Time].
```

## Skills Covered

- Taking input from the user via the Terminal/Console
- Displaying output on the Terminal/Console
    - Formatting the output
- Using block and inline comments

## Deliverables

For this program, you will need to provide the Python file containing your code as well as a screenshot of the output of your program. Please name your files as follows:

- Python Files
    - lastname_firstname_filename.py
    - For example: **hawamdeh_faris_intro.py**
- Screenshots
    - lastname_firstname_filename.png
    - For example: **hawamdeh_faris_intro.png**

## Program 2: triangle_area.py

For your second program, you will write a calculator program that uses information the user enters to calculate the area of a triangle. You will be reinforcing the programming skills from Program 1 and learning to program integer arithmetic expressions in Python. You will need to gather the following information from the user:

1. **Base:** The length of the base of the triangle in meters (Integer).
2. **Height:** The height of the triangle in meters (Integer).

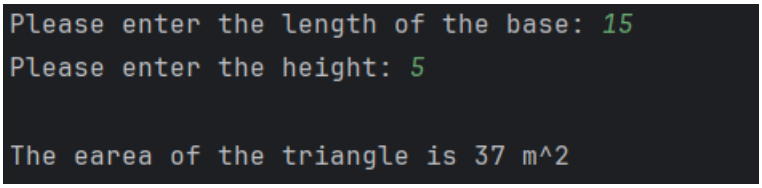
The formula for the area of a triangle is shown below. You will need to write a Python expression for the following formula:

$$Area = \frac{(\ Base * Height\ )}{2}$$

The output of this program should be the area of the triangle based on the data values entered by the user. **You should program the formula in Python in such a way that the resulting area is also an integer.**

### Example Output

Your terminal output should be formatted like the image below.




### Skills Covered

- Creating and using variables
- Taking input from the user via the Terminal/Console
- Integer arithmetic
    - Using the floor division operator
- Displaying output on the Terminal/Console
    - Formatting the output
- Using block and inline comments

### Deliverables

For this program, you will need to provide the Python file containing your code as well as a screenshot of the output of your program. Please name your files as follows:

- Python Files
    - lastname_firstname_filename.py
    - For example: **hawamdeh_faris_triangle.py**
- Screenshots
    - lastname_firstname_filename.png
    - For example: **hawamdeh_faris_triangle.png**

## Program 3: pizza_party.py

For your third program, you will create a simple calculator for a pizza party. You will reinforce the programming skills from the previous programs and learn to program floating-point arithmetic expressions in Python. To build this calculator, you will need to gather the following information from the user:

1. **Number of people:** The number of people attending the party. (Integer)
2. **Number of pizzas:** The number of pizzas bought for the party. (Integer)
3. **Diameter:** The diameter of the pizzas in inches. (Integer)
4. **Number of slices:** The number of slices per pizza. (Integer)

The formula for the area of a pizza is shown below. You will need to write a Python expression for the following formula:

$$Area = 3.14 * radius * radius$$

The output of this program should consist of the following information:

- **Total area:** The total area of pizza bought for the party. (Floating-point)
- **Area per person:** The area of pizza purchased per person. (Floating-point)
- **Total slices:** The total number of slices bought. (Integer)
- **Slices per person:** The number of slices purchased per person. (Floating-point)

The output of this program follow the data types specified in the instruction. **You should format the output for the floating point values so that they only display a maximum of two decimal places.**

### Example Output

Your terminal output should be formatted like the image below.

```
Please enter the number of people attending the party: 5
Please enter the number of pizzas purchased for the party: 3
Please enter the diameter of the pizzas: 12
Please enter the number of slices per pizza: 8

Total pizza area: 339.12 square inches
Total number of slices: 24
Pizza area per person: 67.82 square inches
Slices per person: 4.80
```

## Skills Covered

- Creating and using variables
- Taking input from the user via the Terminal/Console
- Integer and Floating-point arithmetic
- Displaying output on the Terminal/Console
    - Formatting the output
- Using block and inline comments

## Deliverables

For this program, you will need to submit the Python file containing your code as well as a screenshot of the output of your program. Please name your files as follows:

- Python Files
    - lastname_firstname_filename.py
    - For example: **hawamdeh_faris_pizza_party.py**
- Screenshots
    - lastname_firstname_filename.png
    - For example: **hawamdeh_faris_pizza_party.png**