

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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Semester:

7th

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Chapter-1

Introduction to Python

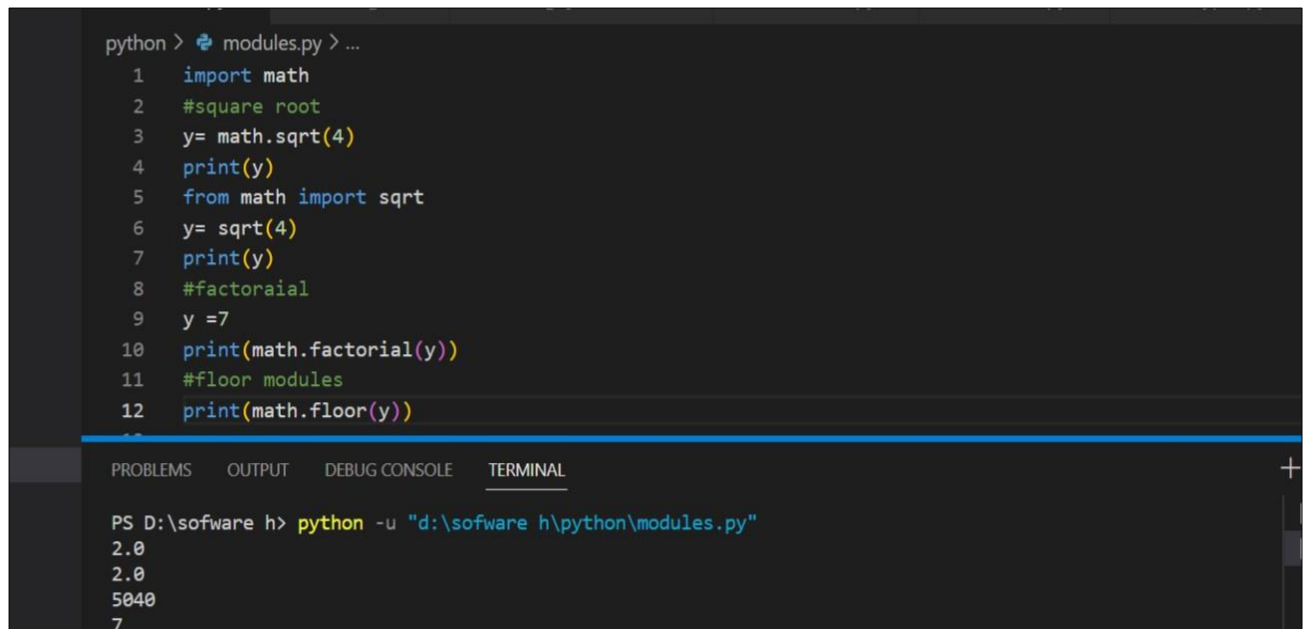
❖ **Introduction:**

➤ **Python:**

Python is known for its simplicity and readability, making it a popular choice for beginners and experts alike. Python was first released in 1991 by Guido van Rossum, and it has since become one of the most popular programming languages in the world. Python supports multiple programming paradigms, including object-oriented, imperative, and functional programming, which makes it a versatile tool for solving a wide range of programming tasks.

➤ **Modules in Python:**

In Python, a module is a single file containing Python definitions and statements. A module can define functions, classes, and variables, and can also include runnable code. Modules can be imported into other modules or into the main module (the module that contains the program's entry point, usually called `_main_`).



```
python > modules.py > ...
1  import math
2  #square root
3  y= math.sqrt(4)
4  print(y)
5  from math import sqrt
6  y= sqrt(4)
7  print(y)
8  #factorial
9  y =7
10 print(math.factorial(y))
11 #floor modules
12 print(math.floor(y))

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS D:\software h> python -u "d:\software h\python\modules.py"
2.0
2.0
5040
7
```

➤ **Comments in Python:**

In Python, comments are used to explain and document code. Comments are ignored by the interpreter and are not executed as part of the program. There are two types in Python:

I. Single-line comments:

start with a # symbol and continue to the end of the line.

- **Syntax:**

```
# This is a single-line comment x = 5
```

II. Multi-line comments:

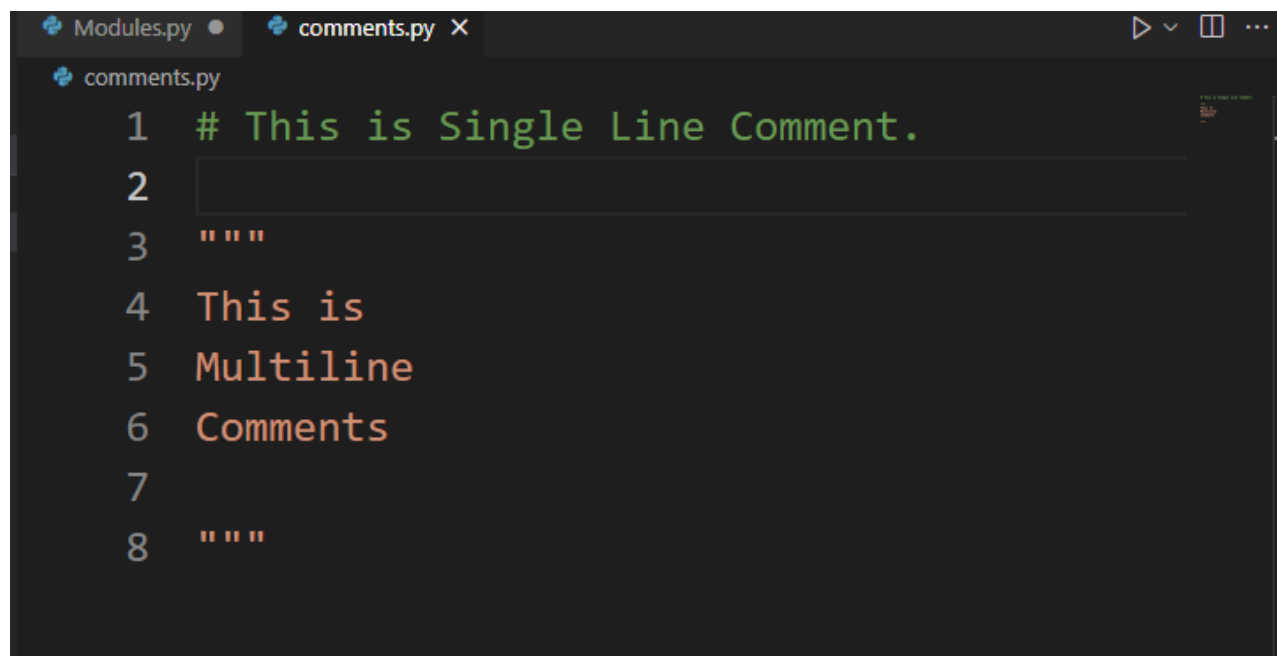
also known as documentation strings, start and end with triple quotes (either single or double)

- **Syntax:**

```
"""
```

They can span multiple lines and are often used to provide detailed information about the code or documentation.

```
"""
```

A screenshot of a code editor with a dark theme. The editor has two tabs at the top: 'Modules.py' and 'comments.py'. The 'comments.py' tab is active. The code in the editor is as follows:

```
1 # This is Single Line Comment.  
2   
3 """  
4 This is  
5 Multiline  
6 Comments  
7   
8 """
```

➤ **Pip in Python:**

Pip (package installer for python) is a package management system for Python that makes it easy to install and manage third-party libraries and modules. With pip, you can install, update, and remove packages with a simple command-line interface.

```
Windows PowerShell
Copyright (c) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Shazaib Laptops> pip install flask
Collecting flask
  Downloading Flask-2.2.2-py3-none-any.whl (101 kB)
----- 101.5/101.5 kB 500.4 kB/s eta 0:00:00
Collecting Werkzeug>=2.2.2
  Downloading Werkzeug-2.2.2-py3-none-any.whl (232 kB)
----- 232.7/232.7 kB 270.1 kB/s eta 0:00:00
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
----- 133.1/133.1 kB 91.0 kB/s eta 0:00:00
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting click>=8.0
  Downloading click-8.1.3-py3-none-any.whl (96 kB)
----- 96.6/96.6 kB 140.7 kB/s eta 0:00:00
Collecting colorama
  Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.2-cp311-cp311-win_amd64.whl (16 kB)
Installing collected packages: MarkupSafe, itsdangerous, colorama, Werkzeug, Jinja2, click, flask
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.2 Werkzeug-2.2.2 click-8.1.3 colorama-0.4.6 flask-2.2.2 itsdangerous-2.1.2

[notice] A new release of pip available: 22.3.1 -> 23.0
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\Shazaib Laptops> python
Python 3.11.1 (tags/v3.11.1:a7a450f, Dec 6 2022, 19:58:39) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import flask
>>> import random
>>> exit()
PS C:\Users\Shazaib Laptops>
```