🧠 Topic 6: Modules

🔹 Definition

A **module** is a Python file containing definitions and functions you can reuse in other programs.

🔹 Terminologies

- **import:** Keyword to include modules.
- **from-import:** Import specific functions.
- **as:** Give alias to module.
- **Built-in Modules:** Already included in Python.
- **Custom Modules:** Written by you.

🔹 Examples + Outputs

```
import math

print(math.sqrt(25))
```

Output:

```
5.0
```

```
from math import pi

print(pi)
```

Output:

```
3.141592653589793
```

🔹 Benefits

✅ Reuse code.
✅ Organize code better.
✅ Access powerful Python libraries.

- **Challenges**

Solved Challenge 1:

```
import random

print(random.randint(1,10))
```

Solved Challenge 2:

```
import math

print(math.factorial(5))
```

Your 18 Challenges:

1. Import datetime and print current date.
2. Import platform and show system info.
3. Import math and find square root.
4. Import os and print current directory.
5. Use random.choice() on a list.
6. Create custom module and import it.
7. Use from import to get one function.
8. Use alias for module.
9. Import time and delay execution.
10. Import sys and print version.
11. List all built-in modules.
12. Use statistics.mean().
13. Import multiple modules.
14. Create module for math functions.
15. Use module inside a loop.
16. Import JSON and load data.
17. Import re and search pattern.

18. Import math and use power.