**Python Programming - Class 3 Notes**

**Topic: Review of Code Snippets & Key Concepts**

**1. Print & Comments**

* **print() function**: Displays text or values on the screen.
  + Example: print("Hello, World!")
* **Comments**: Lines starting with # are ignored by Python.
  + Used to explain code: # This is a comment

**2. Variables & Data Storage**

* **Variable assignment**: Store data with a name.
* favourite\_game = 'football'
* favourite\_player = 'ronaldo'
* Variables can hold **strings**, **numbers**, etc.

**3. f-Strings & Docstrings**

* **f-Strings**: Formatted string literals prefixed with f.
  + Insert variables directly: f"My name is {name}, age {age}."
  + Automatically converts data types (no str() needed).
* **Docstring**: Triple-quoted string ("""...""") used for multi-line text or documentation.
* print(f"""Hi\nMy name is {name}, favourite game is {favourite\_game}\nYour favourite?""")

**4. Arithmetic Operators**

| **Operator** | **Meaning** | **Example** |
| --- | --- | --- |
| + | Addition | 2 + 3 ➔ 5 |
| - | Subtraction | 5 - 2 ➔ 3 |
| \* | Multiplication | 4 \* 3 ➔ 12 |
| / | Division | 8 / 4 ➔ 2.0 |
| % | Modulus (remainder) | 7 % 3 ➔ 1 |
| \*\* | Exponentiation | 2 \*\* 3 ➔ 8 |
| // | Floor division | 7 // 2 ➔ 3 |

**5. Assignment Operators**

* Combine operation with assignment:
* num1 = 10
* num1 += 10 # same as num1 = num1 + 10
* num2 = 0
* num2 -= num1 # num2 = num2 - num1
* Other forms: -=, \*=, /= etc.

**6. Conditional Statements**

* **if / elif / else**: Execute code based on conditions.
* age = int(input("Enter age: "))
* if age >= 18:
* print("Allowed")
* elif age < 18:
* print("Not allowed")
* else:
* print("Invalid")
* Conditions use comparison (>, <, ==, !=) and **logical operators** (and, or, not).

**7. Indentation & Code Blocks**

* Python uses **indentation** instead of {}.
* After a colon :, indent the following lines as a **block**.
* if condition:
* # this is a block
* statement1
* statement2

**8. Input & Type Casting**

* **input()**: Reads user input as a **string**.
* **Type casting**: Convert between data types.
  + **Explicit casting**: int("123") or float("3.14")
  + **Implicit casting**: Python automatically converts smaller types to larger types (e.g., int to float in math).

**9. Logical Operators**

| **Operator** | **Meaning** |
| --- | --- |
| and | True if **both** conditions true |
| or | True if **at least one** is true |
| not | Reverses the result (True⇔False) |

Example:

if marks > 60 and marks < 100:

print("Qualified")

**10. Grading System Example**

1. **Ask user**: Choose Marks or CGPA
2. **Convert input**: int() for calculations
3. **Use if-elif-else** to assign grades:
   * B: 70 ≤ Marks < 80 or 2 ≤ CGPA < 2.5
   * A: 80 ≤ Marks < 90 or 2.5 ≤ CGPA < 3
   * A-1: 90 ≤ Marks ≤ 100 or 3 ≤ CGPA < 4
   * Overqualified / Fail as per ranges

**Key Takeaways:**

* Understand **why** each function/operator is used.
* Use **comments** to explain your code.
* Practice writing **blocks**, **conditions**, and using **f-strings**.