

## Day 3 – 18 June 2025 (Wednesday): Decision Making and Iteration Constructs

On the third day of the internship, our focus shifted towards one of the most important aspects of programming — **decision-making and iteration constructs** in Python. These concepts form the logical backbone of any program and are essential for developing automation-based workflows and AI models.

The session was structured into several key parts:

- 1. Introduction to Conditional Statements:**  
The instructor began by explaining the purpose of decision-making statements such as `if`, `elif`, and `else`. We discussed how these statements allow a program to make logical decisions based on specific conditions. Simple examples were demonstrated, such as checking if a number is positive, negative, or zero.
- 2. Hands-on Coding Practice:**  
We then practiced building **grading system programs**, where the user's marks were taken as input and categorized into grades using nested if-else statements. This exercise helped reinforce how conditions can be layered to handle multiple logical paths efficiently.
- 3. Iteration Constructs:**  
The next part covered **loops**, including `for` and `while` loops. The instructor explained how loops are used to perform repetitive tasks, making programs more efficient and automated. We implemented several examples such as **pattern generation programs**, summing numbers within a range, and **list filtering** based on conditions.
- 4. Combining Loops and Conditionals:**  
After individual understanding, we combined loops and conditionals to create interactive programs like identifying even/odd numbers from a list and counting specific data elements. This helped us understand how control flow can be optimized in real-life automation scenarios.
- 5. Group Discussion and Problem Solving:**  
Towards the end of the session, a short **group discussion** was conducted. Each trainee explained their approach to solving the exercises, which encouraged logical thinking and improved our coding clarity. The instructor also shared real-world use cases where such constructs are used in automation, AI decision trees, and data preprocessing tasks.

Overall, this session strengthened our **logical reasoning** and problem-solving skills, building a solid foundation for writing structured and intelligent scripts — skills that would later prove crucial in our AI-related projects.

### Learning Outcome:

Learned to apply control structures effectively in Python to manage logical decisions and repetitive operations. Developed confidence in using conditionals and loops together to handle real-world automation problems efficiently.