

## Module 2 – Flow chart Tutorial

- 1 A mechanical engineer is tracking the fuel efficiency of her vehicle over several trips. She records the distance travelled and the fuel consumed for each trip. Create a flowchart that loops through each trip, calculates the fuel efficiency (distance/fuel), and displays the overall average fuel efficiency.
- 2 You are developing a real-time monitoring system for a weather station that records temperatures at different intervals throughout the day. You receive  $N$  temperature readings. Draw a flow chart to determine the highest temperature recorded.
- 3 Ms. Leena, a climate scientist, is analysing the annual rainfall data over the last 20 years. She has the recorded rainfall amount for each year. Create a flowchart to calculate the average annual rainfall, and then determine the year with the maximum and minimum rainfall.
- 4 Determine the average age of students in your class. The user will stop giving the input by giving the age as zero.
- 5 The school administration system computes and reports the average heights of male and female students in a class consisting of  $N$  students. The system must categorize the students based on their gender and calculate separate average heights for boys and girls.
- 6 A financial advisor helps his client to determine the total savings after 10 years. The client deposits a fixed amount each year, and the amount increases by a certain percentage annually. Draw a flowchart that uses iteration to calculate the total savings at the end of the period.
- 7 An apartment manager needs to calculate the monthly electricity bill for multiple tenants. The rate changes after a certain number of units consumed. Draw a flowchart to process each tenant's electricity usage, calculate their bill based on different consumption rates, and output the total bill for all tenants.
- 8 A teacher wants to monitor the attendance of students for an entire semester. Given the number of days each student attended out of the total working days. Create a flowchart to calculate the attendance percentage for each student, and then display those with attendance below 75%.
- 9 Meera, a fitness trainer, tracks her client's daily calorie intake for a week. She wants to know the total calorie intake and the average daily calories consumed. Draw a flowchart to calculate the total and average calorie intake, and identify the days where the intake exceeds the average limit.
- 10 An HR manager needs to calculate monthly salary increments for employees based on their performance over 12 months. The increment percentage varies for each month depending on the performance rating. Draw a flowchart that iterates over each month's rating, calculates the increment, and outputs the total annual increment for each employee.