

COLLEGE'S OF ENGINEERING & MANAGEMENT PUNNAPRA
Department of Computer Science & Engineering
UCEST 105 Algorithmic Thinking with Python
Module 2 - Question Set 2

1. A mechanical engineer is tracking the fuel efficiency of her vehicle over several trips. She records the distance traveled 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 and determines the highest temperature recorded.
3. Ms. Leena, a climate scientist, is analyzing 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 aimed at computing and reporting 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, 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 identifies 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.
