

Live Coding Assessment

October 31, 2025

1. ATM Withdrawal System

Write a function `atm_withdraw(balance, amount)` that

- Checks if the withdrawal amount is a multiple of 100.
- Deducts a 2% service fee.
- Prints the new balance if sufficient funds are available; otherwise, prints 'Insufficient Balance'.

Use if-else conditions and loops to validate multiple withdrawal attempts.

2. Employee Overtime Calculator

A company pays overtime at $1.5 \times$ the hourly rate for hours worked beyond 40.

Write a function `calculate_pay(hours, rate)` that takes weekly hours and hourly rate, and calculates total pay using conditionals.

Use a loop to process multiple employees until the user enters 'stop'.

3. Student Grade Analyzer

Create a function `grade_summary()` that:

- Reads marks of multiple students (until user enters -1).
- Calculates class average, highest, and lowest marks.
- Uses conditionals to classify overall performance (e.g., 'Excellent', 'Good', 'Needs Improvement').

Use loops and if-else inside the function.

4. Library Late Fee System

In a library, fines are charged as follows:

- 1–5 days late → Rs. 5/day
- 6–10 days late → Rs. 10/day
- >10 days late → Rs. 20/day

Write a function `calculate_fine(days_late)` that returns the fine.

Use a while loop to process multiple books.

5. Traffic Signal Simulation

Simulate a traffic signal using a function `traffic_light()` that loops through signals:

Red - Stop

Yellow - Get Ready

Green - Go

Use time.sleep() delays and an infinite loop with a keyboard interrupt (Ctrl+C) to stop.

6. Bank Loan Eligibility Checker

Write a function `check_loan_eligibility(income, credit_score, years_in_job)` that:

- Approves if income \geq 50,000, credit score \geq 700, and years \geq 2.
- Gives 'Conditional Approval' if only two conditions are met.

- Otherwise, rejects.

Use nested if-else and loops to process multiple applicants.

7. Inventory Management System

Write a function `inventory_tracker()` where:

- The user enters item names and stock quantities.
- If any stock < 5, print 'Restock required: [item]'.
- The program stops when 'done' is entered.

Use a dictionary with while and conditionals.

8. Student Attendance Tracker

Write a function `attendance_report()` that:

- Takes total and attended classes as inputs for each student.
- Calculates attendance percentage and prints:
 - 'Eligible for Exam' if $\geq 80\%$
 - 'Warning' if between 60–79%
 - 'Not Eligible' otherwise

Use loops and if-else logic.

9. Cinema Ticket Booking

Design a function `book_ticket(age, show_time)` that:

- Applies a 10% discount for morning shows.
- Applies a 50% discount for kids below 12 and seniors above 60.
- Uses a loop to take multiple bookings and calculate total sales.

10. Electricity Bill Calculator

An electricity board charges as follows:

Units	Rate (Rs per unit)
0–100	10
101–200	15
Above 200	20

Write a function `bill_calculator(units)` that computes the total bill with 5% tax if total > Rs. 2000.

Use if-else for range logic and loops to handle multiple customers.