COMSATS University Islamabad, Islamabad Campus

Department of Computer Science

LAB Terminal - Fall 2025

Subject: CSC101 - Applications of Information and Communication Technologies **Instructor :** Mr. Muhammad Haris

Total Marks: **100**

(CLO-6: Demonstrate the usage of productivity software, problem solving tool, and web technology by performing appropriate tasks.)

Question: Design and implement a Python-based application to solve a any one of the given real-world problem by applying fundamental programming concepts such as input/output, decision structures, loops, functions, and basic data structures. Submit working code, a project report, and appear in a viva to demonstrate understanding and application of the developed solution.

Project Report: 30 Marks , Implementation : 30 Marks , Viva : 40 Marks = 100 Marks

1. SMART UTILITY CALCULATOR

Modules:

1. Electricity Bill Calculator
    - Inputs: Units consumed
    - Logic: Apply slab-based tariff
    - Output: Total bill with breakdown
2. Internet Data Usage Estimator
    - Inputs: Daily data use, number of days
    - Logic: Multiply and compute cost based on rate
    - Output: Monthly data cost
3. Gas Bill Estimator
    - Inputs: Gas units consumed
    - Logic: Fixed rate or slab rate
    - Output: Estimated monthly gas bill
4. Total Utility Cost
    - Aggregates bills from above modules

2. STUDENT GRADE MANAGEMENT SYSTEM

Modules:

1. Student Data Entry
    - Inputs: Name, roll number, number of subjects
2. Marks Input
    - For each subject: name, total marks, obtained marks
3. Percentage & GPA Calculation
    - Calculates percentage, assigns GPA or grade based on scale
4. Result Summary
    - Displays result with subject-wise and total stats
    - Optionally export as text file

3. BASIC ATM SIMULATION

Modules:

1. Login System
    - Input: PIN (hardcoded or randomly assigned)
    - Validates access
2. Transaction Menu
    - Options: Balance Inquiry, Deposit, Withdrawal, Exit
3. Withdrawal Logic
    - Checks for sufficient balance, updates account
4. Deposit Logic
    - Adds amount to balance
5. Session Summary
    - Shows transaction history (basic version)

4. TO-DO LIST MANAGER

Modules:

1. Add Task
   - Inputs: Task description, priority (optional)
2. View Tasks
   - Lists all tasks with status (pending/completed)
3. Mark Task as Complete
   - User selects task to update
4. Delete Task
   - Remove a specific task from the list

5. MULTIPURPOSE CONVERTER

Modules:

1. Temperature Converter
   - Celsius ↔ Fahrenheit ↔ Kelvin
2. Length Converter
   - km, m, cm, inches, feet
3. Weight Converter
   - kg ↔ pounds ↔ grams
4. Speed Converter
   - km/h ↔ m/s ↔ mph
5. Unit Selection Menu
   - Navigable menu system to access the conversions

Guidelines:

- Submit the zip file (word and python files) named "[Registration No.]"
- Ensure all document and programming formatting practices are properly applied.
- **Zero marks in viva = Fail**