HITEC University, Taxila
Department of Computer Science

BS Computer Science Program

Course Title:	**CS-205 Computer Organization & Assembly Language**
Batch / Semester:	Batch 2022 / Spring 2024
Instructor:	Dr. Muhammad Bilal
Target CO:	**CO3:** Use assembly language to implement the problem related to computer memory addressing modes, sorting algorithms, arithmetic, and floating-point operations. **(level-3)**

Complex Computing Problem

In a remote area, where availability of the internet very limited. The government want to initiate a program to help the people of that remote area by providing them resources e.g., food, water, and other resources, an IT solution company propose a solution using the Edge device i.e., Raspberry Pi, the problem with device that is has very limited memory and storage space.

The engineers advised to design a database using the low-level programming language i.e., assembly language. The database should manage the data of the area, population, and resources, which should be maintain in a file in the Raspberry Pi. The engineering wants the programming team to design an assembly language program that manages the database in the external file e.g., CSV, or .txt file. The database should manage the following.

Table 1: Remote Area Record

Sr#	Name	Family Members	Water Consumption (liter)	Floor Consumption (kg)	Pulses Consumption (kg)
1	Ali	5	60	20	5
2	Hassan	8	80	30	8
3	Akram	6	70	15	6

The assembly language should allow the user to add/update/remove record. The program should not allow the user to enter duplicate “Sr#”. It also allows the user to sort the table using the columns “Family members count”, “Water Consumption (liter)”, “Floor Consumption (kg)”, and “Pulses (kg)”. Also show the total number of numbers of family members in the area, water consumption, floor consumption, and pulses.

Marks Distribution

CCP

Task Understanding: 20%

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Description: 30%

Implementation: 30%

Viva: 20%