FR. Conceicao Rodrigues College of Engineering
Department of Computer Engineering

3. TO IMPLEMENT BLOCK TRANSFER

1. Course, Subject & Experiment Details

Academic Year	**2023-24**	**Estimated Time**	**Experiment No. 3– 02 Hours**
Course & Semester	**S.E. (Comps) – Sem. IV**	**Subject Name**	**Microprocessor**
Chapter No.	**2**	**Chapter Title**	**Instruction Set and Programming**
Experiment Type	**Software**	**Subject Code**	**CSC405**

Rubrics

Timeline (2)	Practical Skill & Applied Knowledge (2)	Output (3)	Postlab (3)	Total (10)	Sign

2. Aim & Objective of Experiment

Aim: Write a program to transfer a block of data from one location to another.

Objective : Program involves transferring source string from a particular location in source segment (Data Segment) to the desired location in destination segment (Extra Segment). The objective of this program is to give an overview of the String instructions of 8086.

3. Software Required

TASM Simulator

4. Pre-Requisites:

1. Knowledge of TASM directives.
2. Knowledge of String Instructions of 8086.

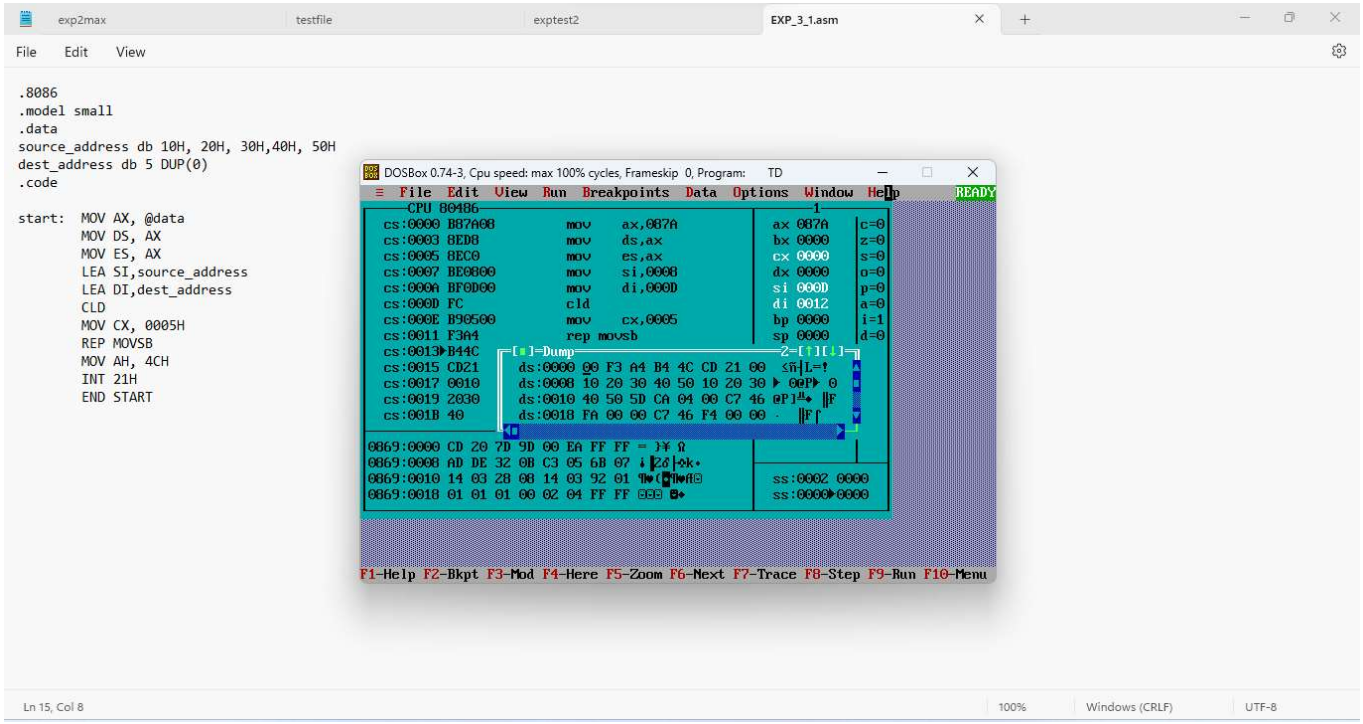
5. Algorithm:

1. Initialize the data segment.
2. Store the source string in consecutive memory location
3. Initialize the extra segment.
4. Allocate consecutive memory locations for transfer.
5. Load the effective address of source string in SI register.
6. Load the effective address of destination string in DI register.
7. Initialize the Direction flag for Auto increment or Auto Decrement.
8. Store number of bytes to be transferred in any of the general Purpose registers.
9. Transfer the source string using appropriate string instructions (MOVSB / MOVSW)
10. Decrement count
11. Check if count = 0.If yes then stop else repeat steps 9 - 11.
12. Stop

6. Conclusion:

A program is successfully executed to transfer a block of data from one location to another

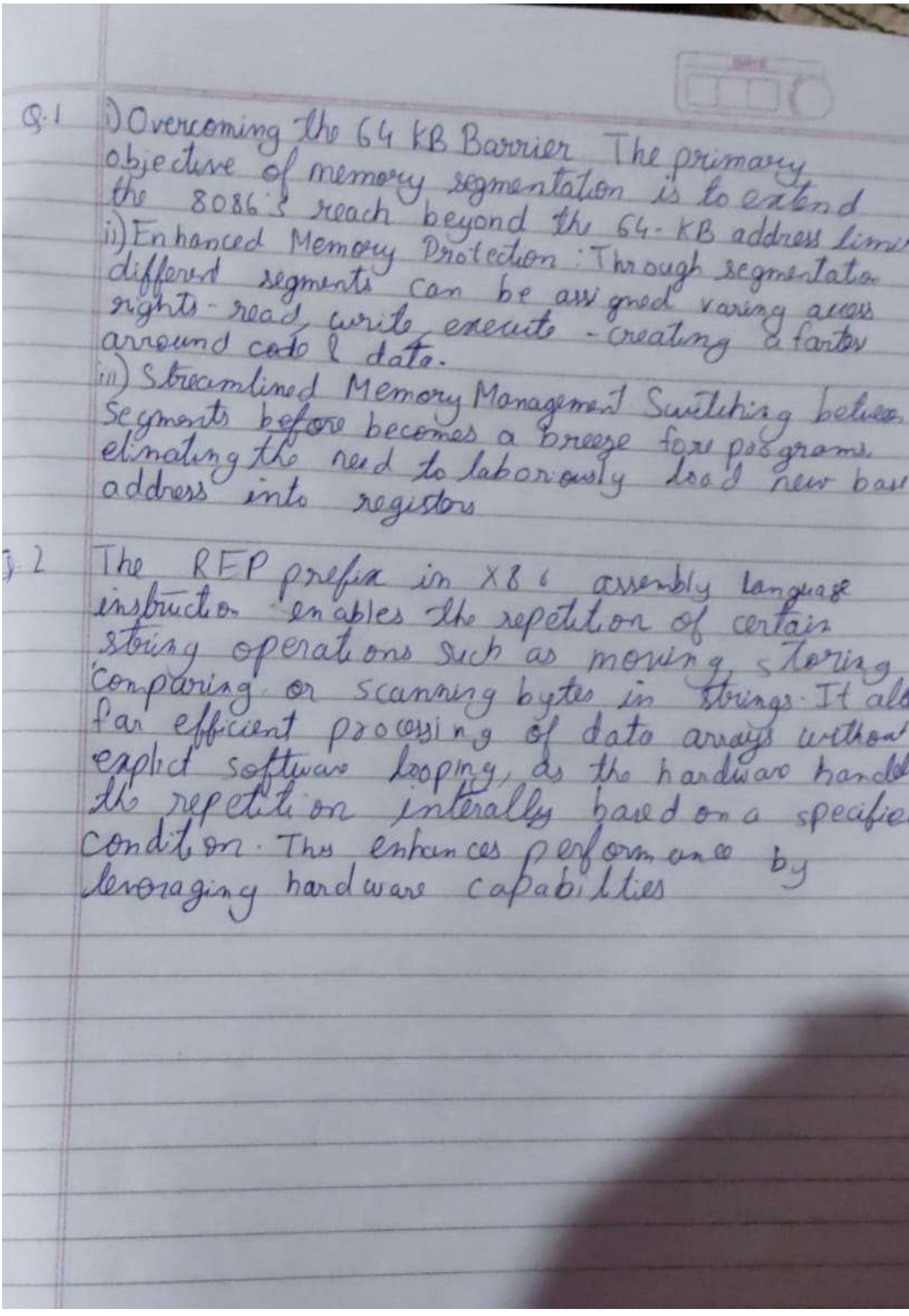
CODE:



Postlab:

What is the advantage of segmentation?

Explain the significance of REP Prefix



Q.1 i) Overcoming the 64 KB Barrier The primary objective of memory segmentation is to extend the 8086's reach beyond the 64-KB address limit
ii) Enhanced Memory Protection: Through segmentation different segments can be assigned varing access rights - read, write, execute - creating a barrier around code & data.
iii) Streamlined Memory Management Switching between segments before becomes a breeze for programs, eliminating the need to laboriously load new base address into registers

Q.2 The REP prefix in X86 assembly language instruction enables the repetition of certain string operations such as moving, storing, comparing or scanning bytes in strings. It also for efficient processing of data arrays without explicit software looping, as the hardware handles the repetition internally based on a specified condition. This enhances performance by leveraging hardware capabilities