PREMIER UNIVERSITY CHATTOGRAM

DEPARTMENT OF **COMPUTER SCIENCE AND ENGINEERING**

Lab Report

COURSE NAME	Microcontrollers Laboratory
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REPORT NO	07
REPORT NAME	Intel 8086 Machine Code Programming.
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SUBMITTED TO

MOHAMMED SAIFUDDIN MUNNA
ASSISTANT PROFESSOR
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

REMARKS	**SUBMITTED BY**	
	NAME	Rimjhim Dey
	ID	0222220005101039
	SEMESTER	4th
	BATCH	42
	SESSION	Spring 2024
	SECTION	A

Experiment Name:

Intel 8086 Machine Code Programming.

Objective:

The objective of this experiment is to understand the execution of machine code instructions on the Intel 8086 microprocessor by typing and analyzing specific machine code sequences along with their corresponding mnemonics.

Instruments Required:

Intel 8086 Microprocessor System: The hardware used for executing machine code instructions.

Machine Code and Mnemonics:

Address	Machine Code	Mnemonic
1000	B8 0000	MOV AX, 0000h
1003	9E	PUSH DS
1004	05 8947	ADD AX, 4789h
1007	15 8864	ADC AX, 6488h
100A	04 88	ADD AL, 88h
100C	80 D4 33	ADD AH, 33h
100F	2D 6735	SUB AX, 3567h
1012	1D 0080	SBB AX, 8000h
1015	2C 45	SUB AL, 45h
1017	80 DC 78	AND AL, 78h
101A	B0 FF	MOV AL, FFh
101C	FE C0	DEC AL
101E	FE C8	DEC CL
1020	98	CBW
1021	F6 D8	NEG AL
1023	B0 F0	MOV AL, F0h
1025	B3 11	MOV BL, 11h
1027	F6 E3	MUL BL
1029	B8 00F0	MOV AX, F000h
102C	BB 3412	MOV BX, 1234h
102F	F7 EB	DIV BX
1031	B8 F000	MOV AX, 00F0h
1034	B3 10	MOV BL, 10h
1036	F6 F3	DIV BL
1038	BA FFFF	MOV DX, FFFFh
103B	B8 FFFF	MOV AX, FFFFh
103E	BB 0100	MOV BX, 0001h
1041	F7 FB	DIV BX
1043	CC	INT 3

Output:

The output of this experiment consists of the results of executing the machine code instructions on the Intel 8086 microprocessor, including:

- Execution results of each mnemonic instruction.
- Observed changes in registers, memory, or flags as a result of executing the code.

Discussion:

In this experiment, we implemented and executed a sequence of machine code instructions on the Intel 8086 microprocessor, along with their corresponding mnemonics. By entering these instructions, we observed how the processor executes and interprets the code.

The exercise provided practical insights into how mnemonics translate into machine code and how these instructions control the microprocessor. This hands-on experience helped us understand the fundamental operations of the Intel 8086, including data manipulation and arithmetic operations.

Overall, the experiment demonstrated the connection between machine code and assembly language, providing a deeper understanding of how instructions are processed by the microprocessor.