National University

Of Computer & Emerging Sciences Peshawar Campus

Student Name: _____ **Roll No:** _____

Program: BS CS
Semester: Spring-2022
Time Allowed: **2 hours**
Course: Computer Organization and Assembly Language- Lab

Examination: Final Exam
Weightage: **6**
Date: 03-Dec 2022
Instructor Name: Engr. Khuram Shahzad

Important Instructions:

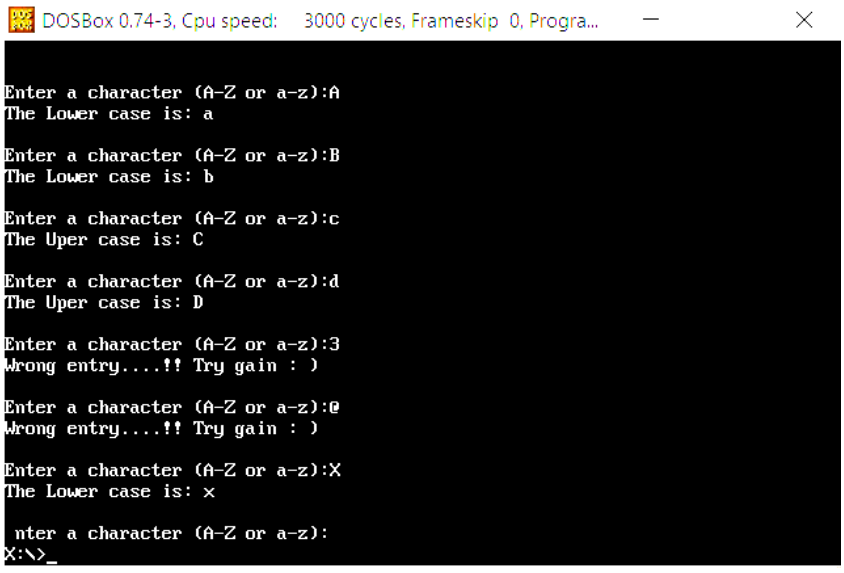
- Attempt all questions using subroutine.

Lab 12 Lab

Problem 01: Write a program that fulfills following requirements: [Marks: 15] 3 wtg

- **(Step- 0):** Ask user to enter the user's name and password if both matches then proceed to step **(1)**.
  - If the entered username and password dose not match **ask** user to re-enter**.**
- **(Step- 1):** Ask user to enter a character.
  - If user presses the Enter Key, terminate program execution. Otherwise go to next.
  - Check whether the entered character lies in the range of "A-Z" or "a-z". If character is not in the given range, then display an error message and ask user to enter again. Otherwise print it and go to next step. **(2)**
- **(Step-2):** If the character entered by user is in uppercase, convert it into lowercase. If it is in lowercase, then convert it to uppercase.
  - After case conversion, display the character in next line. Jump back to step. **(1)**
- **Sample Execution**

Note: See "**Helping Material"** for guide.



Lab 13 Lab

Problem 04: Write a program that fulfills following requirements: [Marks: 5+10] 3 wtg

1. Ask user to enter Ten (10) character (range of "A-Z") Print the all character in reverse order without using stack.

2. Ask user to enter a number. Write a recursive function to calculate the Fibonacci of a number. The number is passed as a parameter via the stack and the calculated Fibonacci number is returned in the AX register. A local variable should be used to store the return value from the first recursive call. Fibonacci function is defined as follows:
   - Fibonacci (0) = 0
   - Fibonacci (1) = 1
   - Fibonacci (2) = 0 1 1
   - Fibonacci (5) = 0 1 1 2 3
   - Fibonacci(n) = Fibonacci(n-1) + Fibonacci(n-2)
   - Print the output on screen.

Helping Materials

HEX	BIN	COLOR
0	0000	black
1	0001	blue
2	0010	green
3	0011	cyan
4	0100	red
5	0101	magenta
6	0110	brown
7	0111	light gray
8	1000	dark gray
9	1001	light blue
A	1010	light green
B	1011	light cyan
C	1100	light red
D	1101	light magenta
E	1110	yellow
F	1111	white

Character Name	Char	Decimal	Binary	Hex
Lower-case A	a	97	01100001	61
Lower-case B	b	98	01100010	62
Lower-case C	c	99	01100011	63
Lower-case D	d	100	01100100	64
Lower-case E	e	101	01100101	65
Lower-case F	f	102	01100110	66
Lower-case G	g	103	01100111	67
Lower-case H	h	104	01101000	68
Lower-case I	I	105	01101001	69
Lower-case J	j	106	01101010	6A
Lower-case K	k	107	01101011	6B
Lower-case L	l	108	01101100	6C
Lower-case M	m	109	01101101	6D
Lower-case N	n	110	01101110	6E
Lower-case O	o	111	01101111	6F
Lower-case P	p	112	01110000	70
Lower-case Q	q	113	01110001	71
Lower-case R	r	114	01110010	72
Lower-case S	s	115	01110011	73
Lower-case T	t	116	01110100	74
Lower-case U	u	117	01110101	75
Lower-case V	v	118	01110110	76
Lower-case W	w	119	01110111	77
Lower-case X	x	120	01111000	78
Lower-case Y	y	121	01111001	79
Lower-case Z	z	122	01111010	7A
Enter key	Enter			0D

Character Name	Char	Decimal	Binary	Hex
Capital A	A	65	01000001	41
Capital B	B	66	01000010	42
Capital C	C	67	01000011	43
Capital D	D	68	01000100	44
Capital E	E	69	01000101	45
Capital F	F	70	01000110	46
Capital G	G	71	01000111	47
Capital H	H	72	01001000	48
Capital I	I	73	01001001	49
Capital J	J	74	01001010	4A
Capital K	K	75	01001011	4B
Capital L	L	76	01001100	4C
Capital M	M	77	01001101	4D
Capital N	N	78	01001110	4E
Capital O	O	79	01001111	4F
Capital P	P	80	01010000	50
Capital Q	Q	81	01010001	51
Capital R	R	82	01010010	52
Capital S	S	83	01010011	53
Capital T	T	84	01010100	54
Capital U	U	85	01010101	55
Capital V	V	86	01010110	56
Capital W	W	87	01010111	57
Capital X	X	88	01011000	58
Capital Y	Y	89	01011001	59
Capital Z	Z	90	01011010	5A
Enter key	Enter			0D