Faculty of Computing

Lab # 9

Computer Architecture

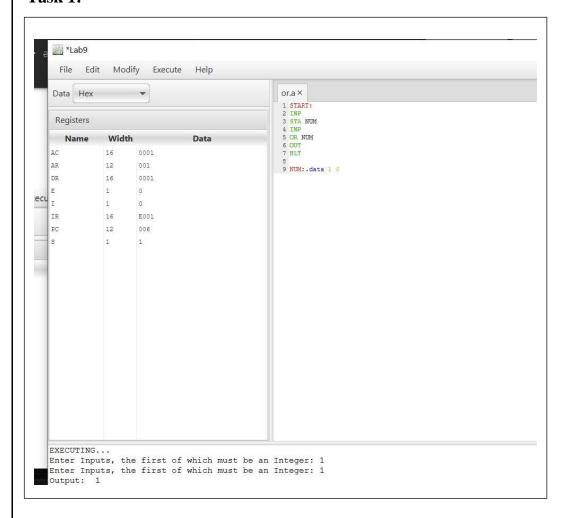Lab Instructor: Ayesha Akram

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SAP ID: 52926

Semester: BSCS-4
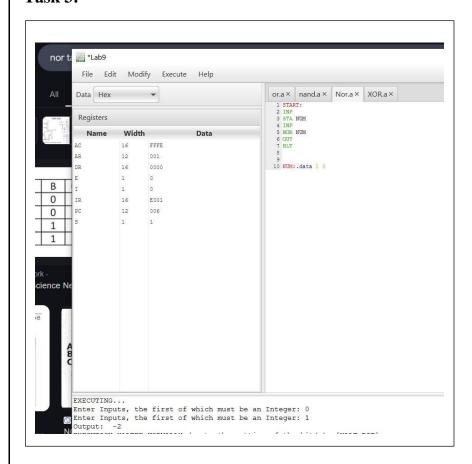
Task 1:

```
*Lab9

File   Edit   Modify   Execute   Help

Data  Hex  ▼                          or.a ×

Registers                             1 START:
                                      2 INP
  Name    Width         Data          3 STA NUM
                                      4 INP
AC        16      0001                5 OR NUM
AR        12      001                 6 OUT
DR        16      0001                7 HLT
E         1       0                   8
I         1       0                   9 NUM:.data 1 0
IR        16      E001
PC        12      006
S         1       1
```

```
EXECUTING...
Enter Inputs, the first of which must be an Integer: 1
Enter Inputs, the first of which must be an Integer: 1
Output:  1
```

Task 2:

```
nor t   *Lab9

File   Edit   Modify   Execute   Help

All    Data  Hex  ▼                   or.a ×  nand.a ×  Nor.a ×  XOR.a ×

       Registers                      1 START:
                                      2 INP
         Name   Width      Data       3 STA NUM
                                      4 INP
B      AC       16    FFFF            5 NAND NUM
0      AR       12    001             6 OUT
0      DR       16    0000            7 HLT
1      E        1     0               8
1      I        1     0               9 NUM:.data 1 0
       IR       16    E001
       PC       12    006
       S        1     1
```

```
EXECUTING...
Enter Inputs, the first of which must be an Integer: 0
Enter Inputs, the first of which must be an Integer: 0
Output:  -1
```

Task 3:

Registers (Nor.a)

Name	Width	Data
AC	16	FFFE
AR	12	001
DR	16	0000
E	1	0
I	1	0
IR	16	E001
PC	12	006
S	1	1

```
1 START:
2 INP
3 STA NUM
4 INP
5 NOR NUM
6 OUT
7 HLT
8
9
10 NUM:.data 1 0
```

```
EXECUTING...
Enter Inputs, the first of which must be an Integer: 0
Enter Inputs, the first of which must be an Integer: 1
Output:  -2
```

Task 4:

Registers (XOR.a)

Name	Width	Data
AC	16	0001
AR	12	001
DR	16	0000
E	1	0
I	1	0
IR	16	E001
PC	12	006
S	1	1

```
1 START:
2 INP
3 STA NUM
4 INP
5 XOR NUM
6 OUT
7 HLT
8
9
10
11 NUM:.data 1 0
```

```
EXECUTING...
Enter Inputs, the first of which must be an Integer: 0
Enter Inputs, the first of which must be an Integer: 1
Output:  1
```

Task 5:

*Lab9

File   Edit   Modify   Execute   Help

Data   Hex

| or.a × | nand.a × | Nor.a × | XOR.a × | not.a × |

```
1 START:
2 INP
3 STA NUM
4 NOT NUM
5 OUT
6 HLT
7
8
9
10
11 NUM:.data 1 0
```

Registers

Name	Width	Data
AC	16	FFFF
AR	12	001
DR	16	0000
E	1	0
I	1	0
IR	16	E001
PC	12	005
S	1	1

All

Exc

t **Outp**

Output (

1
0

EXECUTING...
Enter Inputs, the first of which must be an Integer: 0
Output: -1