

COEN 11- Practice III

Solutions on Wednesday

1. What is printed?

```
int main ( )
{
    int  a = 5;
    int  *p = &a;

    x (&a);
    printf ("%d\n", *p + 10);
    return;
}
```

```
void x (int *b)
{
    *b = 10;
    return;
}
```

2. Write a function to count the number of consecutive sequences of 1's in an array of size N.
3. Write a function to initialize an NxN 2D array mat with zero in the diagonals and one everywhere else.

```
0 1 1 1 1 1 0
1 0 1 1 1 0 1
1 1 0 1 0 1 1
1 1 1 0 1 1 1
1 1 0 1 0 1 1
1 0 1 1 1 0 1
0 1 1 1 1 1 0
```

4. Write a function that reverses a string (for example: "abc" becomes "cba", and "abcd" becomes "dcba").

5. Write a function to traverse an array of structures, in which one member is an integer x and the other is a union u. The members in the union are one integer y and one string s. When x is 1, y is valid, but when x is 0, s is valid. Your function should traverse the array counting the number of elements y between 10 and 100 and the numbers of elements y that are less than 10 or more than 100. Use a pointer to traverse the array.

6. Implement a doubly-linked list, i.e., a list in which each node points to both the next and the previous nodes:
 - a. Define the struct with an integer and two pointers.
 - b. Define a head and a tail struct pointers, which point to the 1st and the last nodes, respectively.
 - c. Write the functions below:
 - Function to insert a node with the number received.
 - Function to delete a node with the number received.
 - Function to search for the node with the number received returning the address of the node.
 - Function to print the number in each node of the list.