- 3rd Homework
  - Overview

  - **Released date**: 11/22 (Tue.)
  - **Due date**: 11/28 (Mon.)
  - **Where to submit**: to e-class (http://eclass.seoultech.ac.kr)
    - Late submission is not allowed.
  - **Assigned score**: 1.5 points

    1. Fill the following codes for memory allocation and deallocation

```
#include<stdio.h>

struct rec
{
        int i;
        float PI;
        char A;
};

int main()
{
        struct rec *ptr_one;

        /* 1. allocate memory - use malloc() */

        /* 2. assign arbitrary values to member in struct rec */

        /* 3. print the values of members in struct rec */

        /* 4. deallocate memory - use free() */

        return 0;
}
```

```
osboxes@osboxes:~/work/Practice$ ./malloc
-----------------------------------------------
Memory is allocated at 0x1c6b010 (size: 12)
-----------------------------------------------
First value: 10
Second value: 3.140000
Third value: a
-----------------------------------------------
Memory is deallocated at 0x1c6b010
-----------------------------------------------
osboxes@osboxes:~/work/Practice$
```

2. Fill the following codes for copying strings

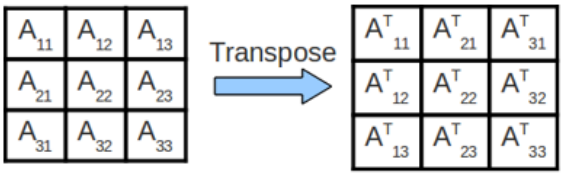
```
#include<stdio.h>

int main()
{
        char* str1;
        char str2[100];

        /* 1. allocate memory for str1 - use malloc() */

        /* 2. copy student ID into str1 - use strcpy() */

        /* 3. print contents of str1 and address of str1 */

        /* 4. copy student ID into str2 – use strcpy()*/

        /* 5. print contents of str2 and address of str2 */

        /* 6. deallocate memory for str1 – use free() */
}
```

```
osboxes@osboxes:~/work/Practice$ ./hw_4
str1: 20010000, 0x9b2010
str2: 20010000, 0xa2558e40
```

3. Practice how to handle elements in the array with a nested for loop

■ **Manipulate the matrix**

1. Construct an original matrix 4X4 by getting the numbers from the user as the input
2. Visit the elements in the original matrix to maximize the data locality and print them
3. Obtain the transpose of a given matrix and print the elements in the transposed matrix
4. Obtain the sum of two matrices, where one is original one and the other is transposed one, and print the elements of the results



- Submissions – Do not compress files
  - Three C files, one for each problem
  - Three captured images to show the results, one for each problem