3. Homework Assignments

➢ 1st Homework

● Overview

➢ **Released date**: 9/20 (Mon.)
➢ **Due date**: 10/4 (Mon.)
➢ **Where to submit**: to e-class (http://eclass.seoultech.ac.kr)
  - Late submission is not allowed.
➢ **Assigned score**: 1.5 points

1. Modify Example #1

   ● Make 10 elements
   ● Insert **YOUR STUDENT ID** in 5-th elements
   ● **Submission**: capture the output to show **YOUR STUDENT ID**

Example #1

■ **Program to insert an element in an Array**

```
#include<stdio.h>

int main()
{
    printf("\n\n\t\tStudytonight - Best place to learn\n\n\n");
    int array[100], position, c, n, value;

    printf("\n\nEnter number of elements in array:");
    scanf("%d", &n);

    printf("\n\nEnter %d elements\n", n);
    for(c = 0; c < n; c++)
        scanf("%d", &array[c]);

    printf("\n\nEnter the location where you want to insert new element:  ");
    scanf("%d", &position);

    printf("\n\nEnter the value to insert: ");
    scanf("%d", &value);

    // shifting the elements from (position to n) to right
    for(c = n-1; c >= position-1; c--)
        array[c+1] = array[c];

    array[position - 1] = value;     // inserting the given value

    printf("\n\nResultant array is: ");
    /*
        the array size gets increased by 1
        after insertion of the element
    */
    for(c = 0; c <= n; c++)
        printf("%d   ", array[c]);

    printf("\n\n\t\t\tCoding is Fun !\n\n\n");
    return 0;
}
```

Output:

```
Enter 5 elements
3
4
5
6
7

Enter the location where you want to insert an element :  3

Enter the value to insert :   77

Resultant array is : 3   4   77   5   6   7
                          Coding is Fun !

Process returned 0 (0x0)    execution time : 13.550 s
Press any key to continue.
```

2. **Modify Example #2**
   - Change while-loop into for-loop
   - **Submission**: capture the **source code**

Example #2

■ Program to print the Fibonacci Series

```c
#include <stdio.h>
void fibonacci (int num);
void main()
{
        int num = 0;

        printf("Enter number of terms: ");
        scanf("%d", &num);
        fibonacci(num);
}

void fibonacci (int num)
{
        int a, b, c, i = 3;
        a = 0;
        b = 1;

        if (num == 1)
        {
                printf("%d", a);
        }

        if (num >= 2)
        {
                printf("%d\t%d", a, b);
        }

        while ( i <= num)
        {
                c = a + b;
                printf("\t%d", c);
                a = b;
                b = c;
                i++;
        }
}
```

OUTPUT:

Enter number of terms 6

| 0 1 | 1 | 2 | 3 | 5 |

3. **Modify Example #3**
   - Add one more element in the array whose value is **YOUR STUDENT ID**
   - Print four elements in the array including **YOUR STUDENT ID**
   - **Submission**: capture the output to show **YOUR STUDENT ID**

Example #3

■ **Accessing array elements by incrementing a Pointer**

```c
#include <stdio.h>

const int MAX = 3;   // Global declaration
int main()
{
    printf("\n\n\t\tStudytonight - Best place to learn\n\n\n");
    int var[] = {100, 200, 300};
    int i, *ptr;

    /*
        storing address of the first element
        of the array in pointer variable
    */
    ptr = var;

    for(i = 0; i < MAX; i++)
    {
        printf("\n\n\nAddress of var[%d] = %x ", i, ptr);
        printf("\nValue of var[%d] = %d ", i, *ptr);

        // move to the next location
        ptr++;
    }
    printf("\n\n\t\t\tCoding is Fun !\n\n\n");
    return 0;
}
```

```
Address of var[0] = 28feec
Value of var[0] = 100

Address of var[1] = 28fef0
Value of var[1] = 200

Address of var[2] = 28fef4
Value of var[2] = 300

            Coding is Fun !
```