

실습 1.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
int main() {
```

```
    int* x; // allocate the pointers x
```

```
    x = malloc(sizeof(int)); //Allocate an int pointee, and set x to point ot it
```

```
    *x = 42; //Derefeence x to store 42 in its pointee
```

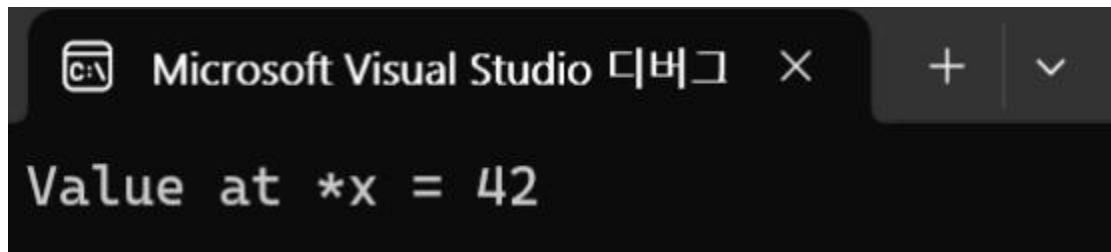
```
    printf("Value at *x = %d \n", *x);
```

```
    free(x);
```

```
    return 0;
```

```
}
```

실습 1 실행 화면.



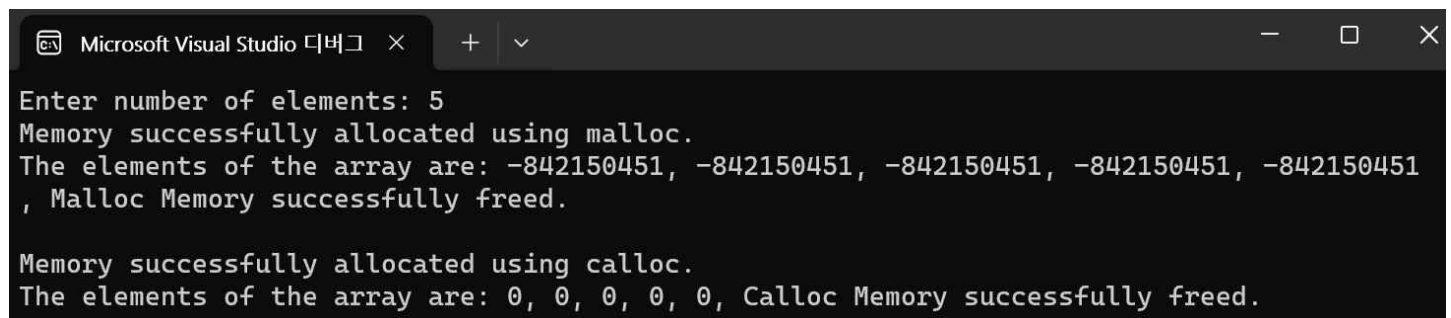
## 실습 2.

```

#include <stdio.h>
#include <stdlib.h>
int main() {
    // This pointer will hold the
    // base address of the block created
    int* ptr, * ptr1;
    int n, i;
    // Get the number of elements for the array
    n = 5;
    printf("Enter number of elements: %d\n", n);
    // Dynamically allocate memory using malloc()
    ptr = (int*)malloc(n * sizeof(int));
    // Dynamically allocate memory using calloc()
    ptr1 = (int*)calloc(n, sizeof(int));
    // Check if the memory has been successfully
    // allocated by malloc or not
    if (ptr == NULL || ptr1 == NULL) {
        printf("Memory not allocated.\n");
        exit(0);
    }
    else {
        // Memory has been successfully allocated
        printf("Memory successfully allocated using malloc.\n");
        // Print the elements of the array
        printf("The elements of the array are: ");
        for (i = 0; i < n; ++i) printf("%d, ", ptr[i]);
        free(ptr); // Free the memory
        printf("Malloc Memory successfully freed.\n");
        // Memory has been successfully allocated
        printf("\nMemory successfully allocated using calloc.\n");
        // Print the elements of the array
        printf("The elements of the array are: ");
        for (i = 0; i < n; ++i) printf("%d, ", ptr1[i]);
        free(ptr1); // Free the memory
        printf("Calloc Memory successfully freed.\n");
    }
    return 0;
}

```

실습 2 실행 화면.



```

Microsoft Visual Studio 디버그
Enter number of elements: 5
Memory successfully allocated using malloc.
The elements of the array are: -842150451, -842150451, -842150451, -842150451, -842150451
, Malloc Memory successfully freed.

Memory successfully allocated using calloc.
The elements of the array are: 0, 0, 0, 0, 0, Calloc Memory successfully freed.

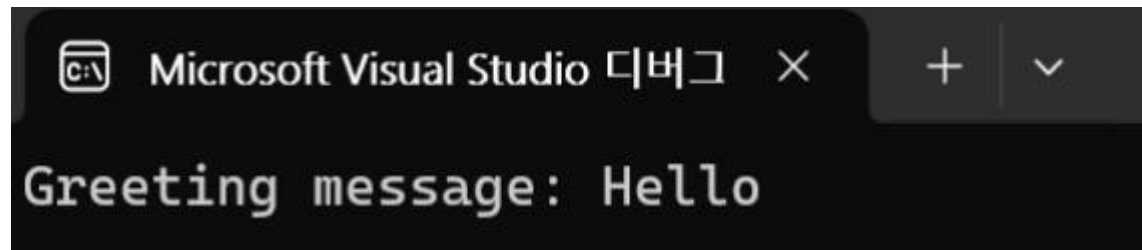
```

실습 3.

```
#include <stdio.h>
```

```
int main() {  
    char greeting[] = { 'H', 'e', 'l', 'l', 'o', '\0' };  
    //char greeting[] = "Hello";  
    printf("Greeting message: %s\n", greeting);  
    return 0;  
}
```

실습 3 실행 화면.

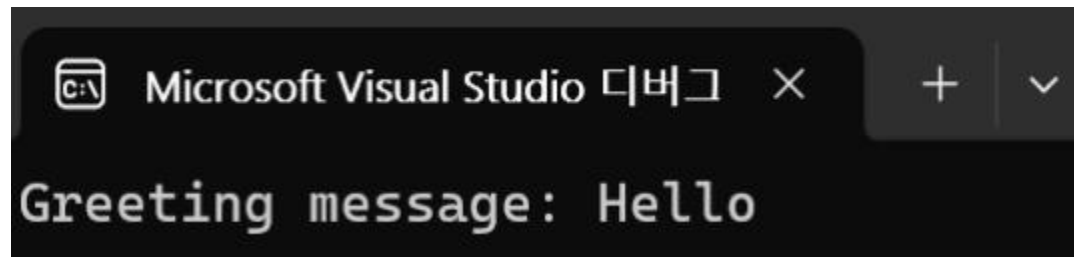


실습 4.

```
#include <stdio.h>
```

```
int main() {  
    //char greeting[] = "Hello";  
    char* greeting = "Hello";  
    printf("Greeting message: %s\n", greeting);  
    return 0;  
}
```

실습 4 실행 화면.

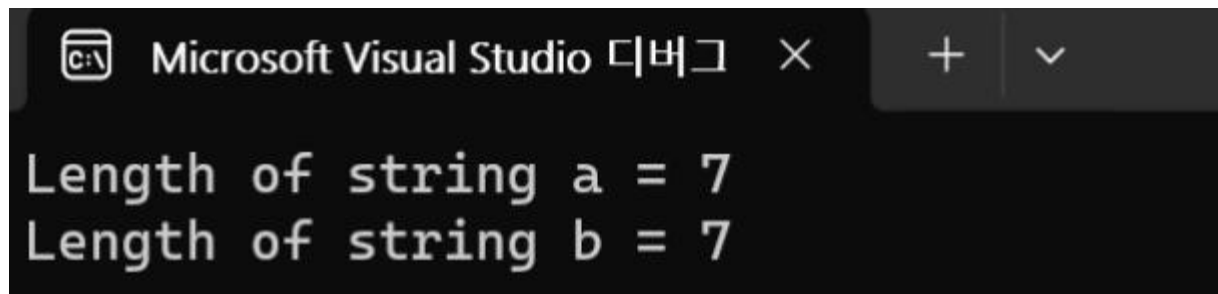


실습 5.

```
#include<stdio.h>
```

```
int main() {  
    char a[20] = "Program";  
    char b[20] = { 'P','r','o','g','r','a','m','\0' };  
    //using the %zu format specifier to print size_t;  
    printf("Length of string a = %zu \n", strlen(a));  
    printf("Length of string b = %zu \n", strlen(b));  
    return 0;  
}
```

실습 5 실행 화면.



```
Microsoft Visual Studio 디버그 × + ▾  
Length of string a = 7  
Length of string b = 7
```

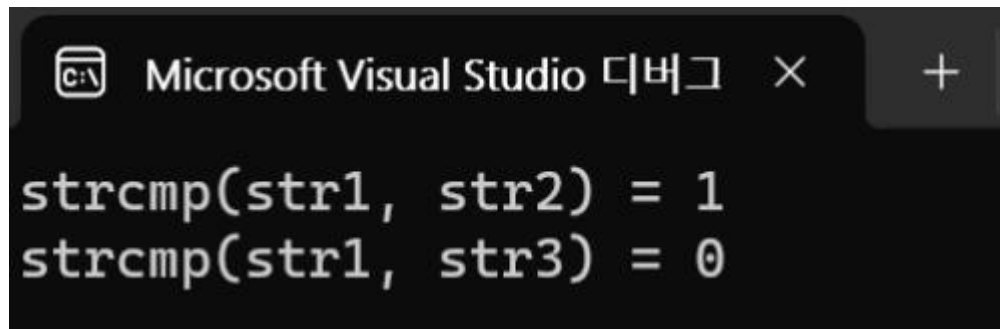
실습 6.

```
#include <stdio.h>
```

```
#include <string.h>
```

```
int main() {  
    char str1[] = "abcd", str2[] = "abCd", str3[] = "abcd";  
    int result;  
  
    // comparing strings str1 and str2  
    result = strcmp(str1, str2);  
    printf("strcmp(str1, str2) = %d\n", result);  
    // comparing strings str1 and str3  
    result = strcmp(str1, str3);  
    printf("strcmp(str1, str3) = %d\n", result);  
  
    return 0;  
}
```

실습 6 실행 화면.



The screenshot shows the Microsoft Visual Studio debug console window. The title bar reads "Microsoft Visual Studio 디버그" with a close button (X) and a plus sign (+). The console output displays two lines of text: "strcmp(str1, str2) = 1" and "strcmp(str1, str3) = 0".

실습 7.

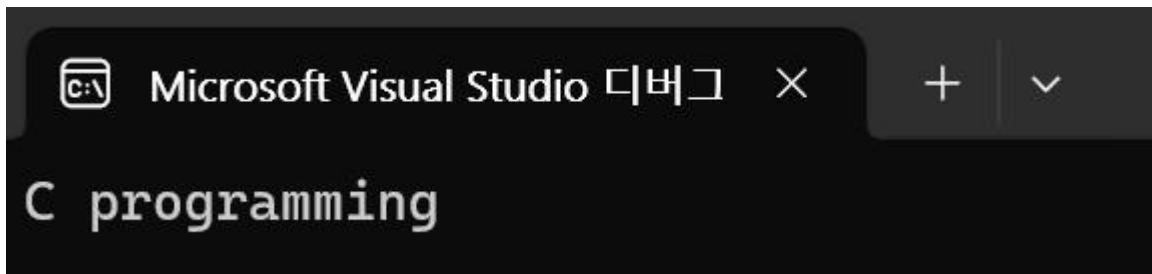
```
#include<stdio.h>
#include<string.h>
```

```
int main() {
    char str1[20] = "C programming";
    char str2[20];

    // comping str1 to str2
    strcpy_s(str2, 20, str1);
    //strcpy(sstr2, str1);
    puts(str2);// C programming

    return 0;
}
```

실습 7 실행 화면.



실습 8.

```
#include<stdio.h>
#include<string.h>
```

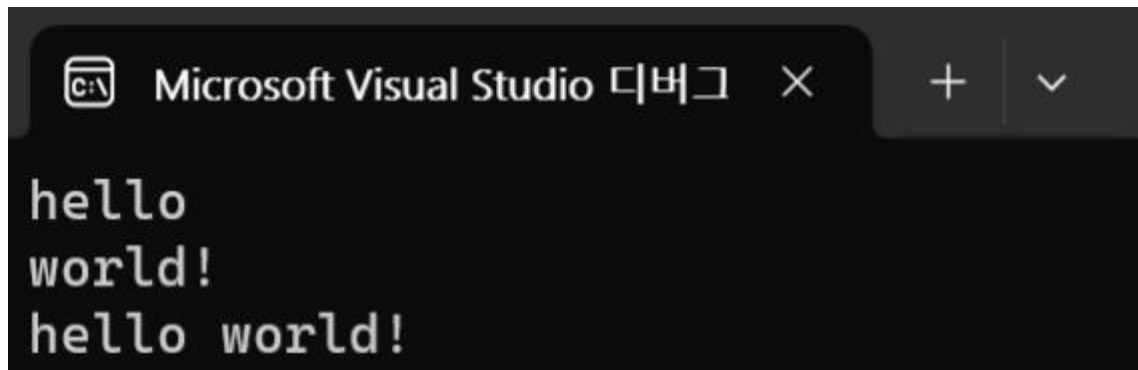
```
int main() {
    char str1[14];
    strcpy_s(str1, 14, "hello ");
    printf("%s\n", str1);

    char str2[7];
    strcpy_s(str2, 7, "world!");
    printf("%s\n", str2);

    strcat_s(str1, 14, str2);
    printf("%s\n", str1);

    return 0;
}
```

실습 8 실행 화면.

A screenshot of the Microsoft Visual Studio Debug Console window. The window title bar shows the Visual Studio icon, the text 'Microsoft Visual Studio 디버그', and standard window controls (close, maximize, and a split view button). The console output area has a dark background with white text. It displays three lines of output: 'hello' on the first line, 'world!' on the second line, and 'hello world!' on the third line, which is the result of concatenating the first two strings.

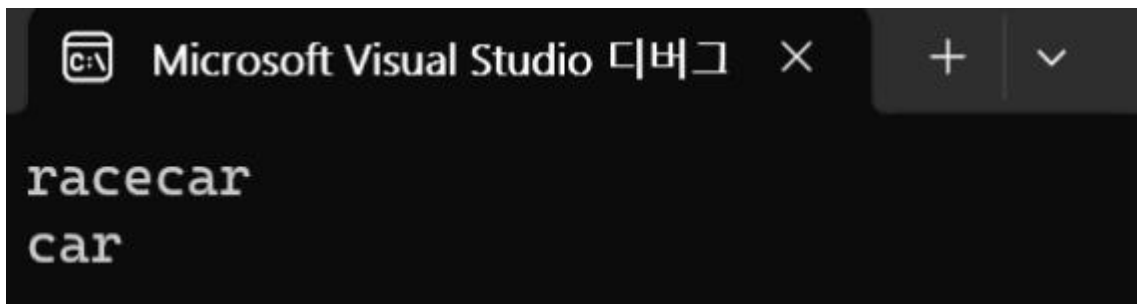


실습 9.

```
#include<stdio.h>
#include<string.h>
```

```
int main() {
    char chars[8];
    strcpy_s(chars, 8, "racecar");
    char* str1 = chars;
    char* str2 = chars + 4;
    printf("%s\n", str1);
    printf("%s\n", str2);
    return 0;
}
```

실습 9 실행 화면.

A screenshot of the Microsoft Visual Studio debugger console. The title bar at the top reads "Microsoft Visual Studio 디버그" with a close button. The console output shows two lines: "racecar" on the first line and "car" on the second line, both in a monospaced font.

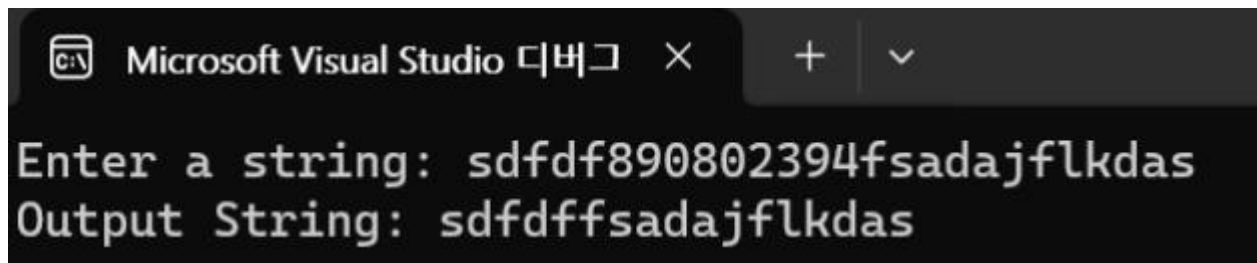
실습 10.

```
#include<stdio.h>
```

```
int main() {
    char line[150];
    printf("Enter a string: ");
    fgets(line, sizeof(line), stdin); //take input

    for (int i = 0, j; line[i] != '\0'; ++i) {
        //enter the loop if the character is not an alphabet and not the null character
        while (!(line[i] >= 'a' && line[i] <= 'z') && !(line[i] >= 'A' && line[i] <= 'Z') && !(line[i] == '\0')) {
            for (j = i; line[j] != '\0'; ++j) {
                // if jth element of line is not an alphabet,
                // assign the value of (j+1)th element to the jth element
                line[j] = line[j + 1];
            }
            line[j] = '\n';
        }
    }
    printf("Output String: ");
    puts(line);
    return 0;
}
```

실습 10 실행 화면.



```
Microsoft Visual Studio 디버그
Enter a string: sdfdf890802394fsadajflkdas
Output String: sdfdf890802394fsadajflkdas
```