

문제해결기법(13967005)

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Q1. Lab 2 Queue (p. 55)

```
#define _CRT_SECURE_NO_WARNINGS // or scanf_s
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <ctype.h>
#include <stdbool.h>
struct QUEUE {

    int *buf;
    int size;
    int front;
    int back;

}Queue; //global variable
bool Queue_full();
bool Queue_empty();
void create_Queue(const int size)
{
    Queue.buf = (int*)malloc(size * sizeof(int));
    Queue.size = size;
    Queue.front = -1;
    Queue.back = -1;
}
void release_Queue()
{
    free(Queue.buf);
    Queue.size = 0;
    Queue.front = -1;
    Queue.back = -1;
}
void enqueue(const int val) {

    if (Queue_full())
    {
        printf("enqueue() : Queue is full!\n");
        return;
    }
    if (Queue.back == -1)
    {
        Queue.front++;
    }
    Queue.back++;
    Queue.buf[Queue.back] = val;
    printf("enqueue[%d] : %d\n", Queue.back, val);
}
int dequeue() {

    if (Queue_empty())
    {
        printf("dequeue() : Queue is empty!!\n");
    }

    int val = Queue.buf[Queue.front];
    printf("dequeue[%d] : %d\n", Queue.front, val);
    Queue.front++;
}
```

```

        return val;
    }
    bool Queue_full() {

        return Queue.back >= Queue.size - 1;
    }
    bool Queue_empty() {

        return Queue.front > Queue.back;
    }
    int main()
    {
        create_Queue(10);
        int val = 10;

        while (!Queue_full())
        {
            enqueue(val);
            val += 10;
        }
        while (!Queue_empty())
        {
            val = dequeue();
        }

        release_Queue();
        return 0;
    }

```

```

Output
Show output from: Build
Rebuild started...
1>----- Rebuild All started: Project: C, Configuration: Debug Win32 -----
1>C.cpp
1>C.vcxproj -> C:\Users\한웅재\Desktop\Programing\C_PROJECT\C\Debug\C.exe
==== Rebuild All: 1 succeeded, 0 failed, 0 skipped =====

```

```
Microsoft Visual Studio Debug Console
enqueue[0] : 10
enqueue[1] : 20
enqueue[2] : 30
enqueue[3] : 40
enqueue[4] : 50
enqueue[5] : 60
enqueue[6] : 70
enqueue[7] : 80
enqueue[8] : 90
enqueue[9] : 100
dequeue[0] : 10
dequeue[1] : 20
dequeue[2] : 30
dequeue[3] : 40
dequeue[4] : 50
dequeue[5] : 60
dequeue[6] : 70
dequeue[7] : 80
dequeue[8] : 90
dequeue[9] : 100

C:\Users\한웅재\Desktop\Programing\C_PROJECT\C#Debug\C.exe (process 19880) exited with code 0.
Press any key to close this window . . .
```