Xilinx Zynq FPGA, TI DSP, MCU 기반의 프로그래밍 및 회로 설계 전문가 과정

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1. day_8/01.c

– 스택구현

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 #define EMPTY 0
5
6 typedef struct _stack{
7
8 int data;
9 struct _stack *link;
10
11 }stack;
12
 13 stack *get_node()
14 {
15   stack *tmp;
16   tmp = (stack *)malloc(sizeof(stack));
17   tmp->link = EMPTY;
18
19   return tmp;
20 }
22 void push(stack **top, int data)
23 {
24   stack *tmp;
25
26   tmp = *top;
27
28   *top = get_node();  //push 될때마다 top 또한 계속 생성 //a->b
29
30   (*top)->data = data;
31
32   (*top)->link = tmp;
33
34 }
```

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– 스택구현

```
36 int pop(stack **top)
37 {
38   int data;
39
40   stack *tmp;
41
42   if((*top)->link == EMPTY)
43   {
44
45      printf("stack is empty\n");
46   }
47    tmp = (*top);
48    data = tmp->data;
49   *top = tmp->link;
50
51
52  free(tmp);
53
54  return data;
55
56 }
```

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- 스택구현

```
59 int main(void)
60 {
61
62    stack *top;
63
64    push(&top,10);
65
66    push(&top,20);
67    push(&top,30);
68
69    printf("First Pop: %d\n", pop(&top));
70    printf("second Pop: %d\n", pop(&top));
71   //printf("third Pop: %d\n", pop(&top));
72
73
74    return 0;
75 }
```

1. day_8/02.c

- 큐 구현

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 #define EMPTY 0
5
6 typedef struct __queue
7 {
8   int data;
9   struct __queue *link;
10
11 }queue;
12
13
14 void enqueue(queue **head, int data)
15 {
16
17   queue *tmp;
18
19   if(*head == NULL)
20   {
21     *head=(queue *)malloc(sizeof(queue));
22     (*head)->data = data;
23
24     return;
25    }
26
27    tmp = (queue *)malloc(sizeof(queue));
28
29    tmp->data = data;
30
31   (*head)->link = tmp;
32
 33 }
```

1. day_8/02.c

- 큐 구현

```
36 int dequeue(queue **head)
37 {
38   queue *tmp;
39
40   int data;
41
42   tmp = *head;
43
44   data = tmp->data;
45
46   *head = tmp->link;
47
48   free(tmp);
49
50   return data;
51
52 }
53
54
55 int main(void)
56 {
57
58   queue *head = EMPTY;
59
60   enqueue(&head, 10);
61   enqueue(&head, 20);
62
63   printf("%d st: %d\n",1, dequeue(&head));
64   printf("%d st: %d\n",2, dequeue(&head));
65
66
67   return 0;
68 }
69
70
```

1. day_8/02.c

- 큐 구현

```
36 int dequeue(queue **head)
37 {
38   queue *tmp;
39
40   int data;
41
42   tmp = *head;
43
44   data = tmp->data;
45
46   *head = tmp->link;
47
48   free(tmp);
49
50   return data;
51
52 }
53
54
55 int main(void)
56 {
57
58   queue *head = EMPTY;
59
60   enqueue(&head, 10);
61   enqueue(&head, 20);
62
63   printf("%d st: %d\n",1, dequeue(&head));
64   printf("%d st: %d\n",2, dequeue(&head));
65
66
67   return 0;
68 }
69
70
```