

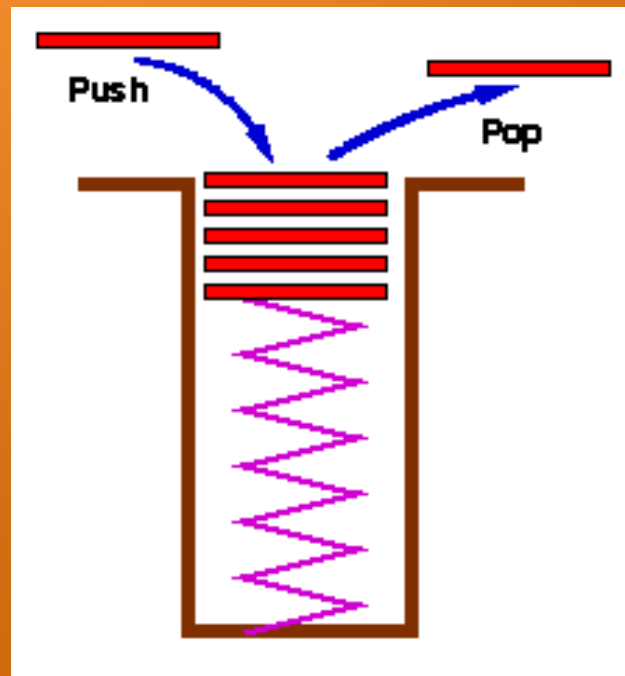
Stack (Tumpukan)

By

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Stack

- Merupakan Struktur Data dengan prinsip Last In First Out



Penyajian Stack dengan Array

```
#define MAXSTACK 100
/* Definisi struktur stack */
struct Stack{
int item[MAXSTACK];    /* Array yang berisi
    data tumpukan */
int Count; /* menunjukkan indeks data paling
    atas dari stack */
};
```

Operasi pada Stack

- Inisialisasi
- Apakah stack masih kosong?
- Apakah stack sudah penuh?
- Menyisipkan sebuah elemen ke dalam stack (Push)
- Mengambil elemen terakhir dari stack (Pop)

Inisialisasi

```
void InitializeStack(Stack *S)
{
    S->Count = 0;
}
```

Cek Apakah Stack Kosong?

```
int Empty(Stack *S)
{
    return (S->Count == 0);
}
```

Cek Apakah Stack Penuh?

```
int Full(Stack *S)
{
    return (S->Count == MAXSTACK);
}
```

Push

```
void Push(int x, Stack *S)
{
    if (Full(S))
        printf("Stack penuh! Data tidak dapat
masuk!");
    else
    {
        S->Item[S->Count]=x;
        ++(S->Count);
    }
}
```


Pop

```
void Pop(Stack *S, int *x)
{
    if (Empty(S))//stack kosong
        printf("Stack masih kosong!");
    else
    {
        --(S->Count);
        *x = S->Item[S->Count];
        S->Item[S->Count]=0;
    }
}

main()
{
    int in=0;
    //push
    pop(&S,&in);
    printf("%d",in);
}
```

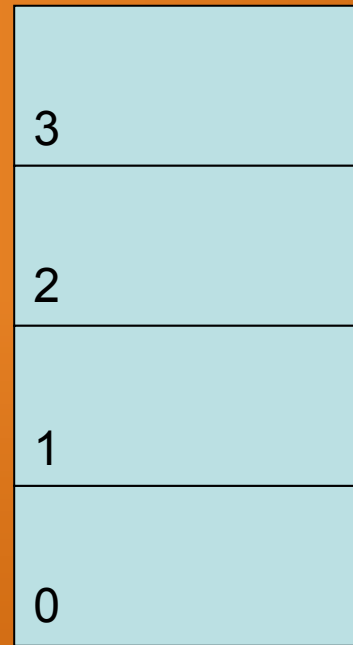
Pop

```
int Pop(Stack *S)
{
    if (Empty(S))//stack kosong
        printf("Stack masih kosong!");
    else
    {
        --(S->Count);
        return ( S->Item[S->Count]);
        S->Item[S->Count]=0;
    }
}

main()
{
    int in;
    //push
    in=pop(&S);
    printf("%d",in);
}
```

Kondisi awal

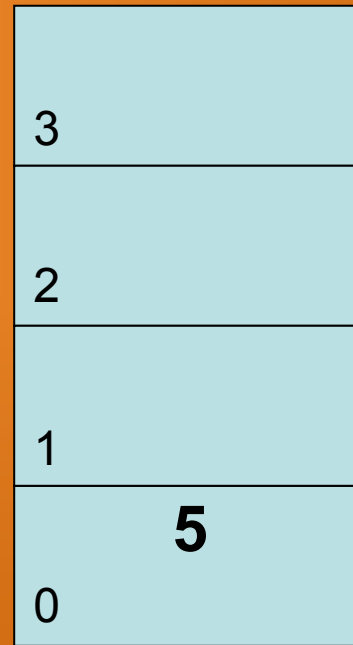
MAX = 4



count → 0

Push : 5

MAX = 4

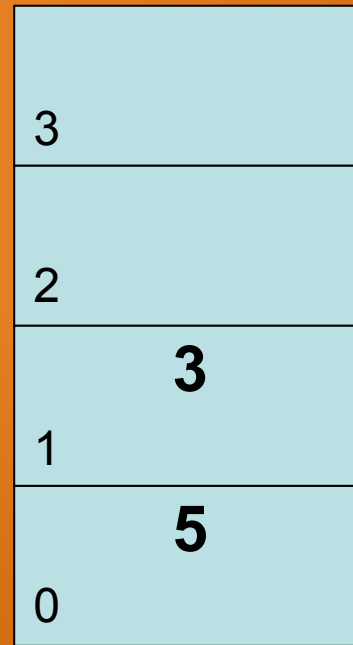


count →

1

Push : 3

MAX = 4



count →

2

Push : 8

MAX = 4

3	
2	8
1	3
0	5

count → 3

Push : 1

MAX = 4

3	1
2	8
1	3
0	5

count → 4

Push : 9

Stack penuh! Data tidak dapat masuk!

MAX = 4

3	1
2	8
1	3
0	5

count → 4

Pop

MAX = 4

1

3	
2	8
1	3
0	5

count → 3

Pop

MAX = 4

8

3	
2	
1	3
0	5

count →

2

Pop

MAX = 4

3

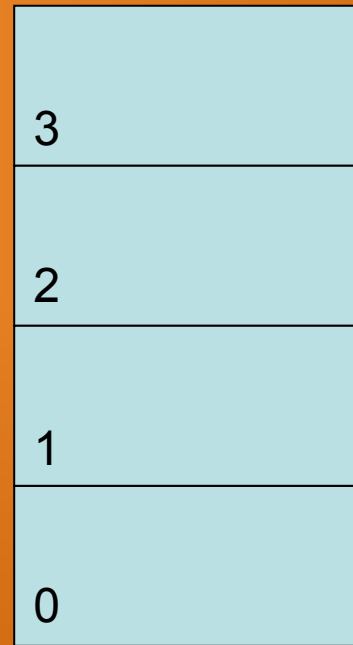


count → 1

Pop

MAX = 4

5

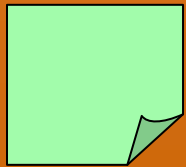


count → 0

Pop

Stack masih kosong!

MAX = 4



count → 0

Penyajian Stack dengan Linked List

- Single Linked List
- Double Linked List