Looping → For
↳ No of Count

While
↳ under Condition
Check Condition

do ....while
↳ under Condition
do
Check cond
at least 1 time

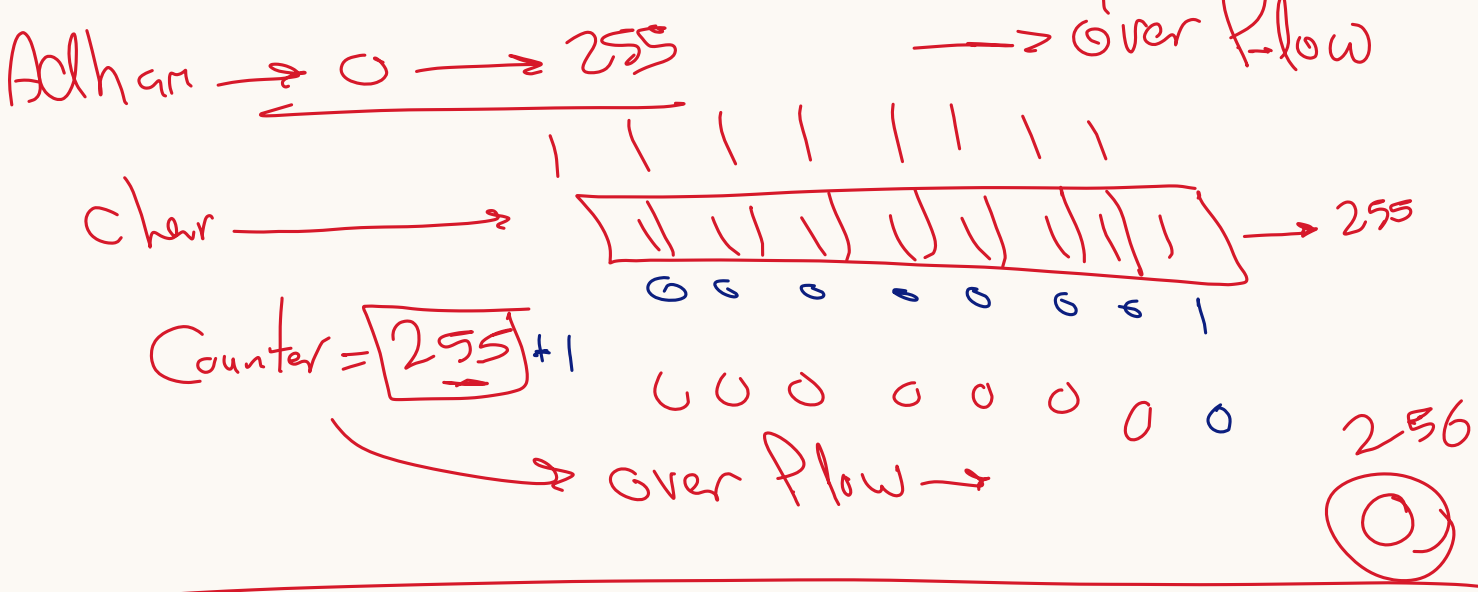
For loop

```
For (start ; Condition; Increament)
  {
    Action;
  }
```

```
int Counter = 0
for(Counter=0; Counter<10; Counter++)
  {
    Printf("Counter = %d\n", Counter);
  }
For(Counter=0; Counter<3; Counter++)
  { Printf ("Hesham");
  }
Printf ("Hesham");
Printf ("Hesham");
Printf ("Hesham");
```

```
Char Counter = 0;
for (Counter=0; Counter<256, Counter++)
  { Printf ("Counter = %d\n", Counter);
```

0
++
255



while loop → under Condition

5x5-

```
while (Condition)
{
    Action
}
```

```
Result → 0
Printf("5 X 5 = ");
Scanf("%d", &Result);
while (Result != 25)
{
    Printf try Again
    Printf("5 x 5 = ");
    Scanf("%d", &Re);
}
```

Array

↳ Datastructre → static

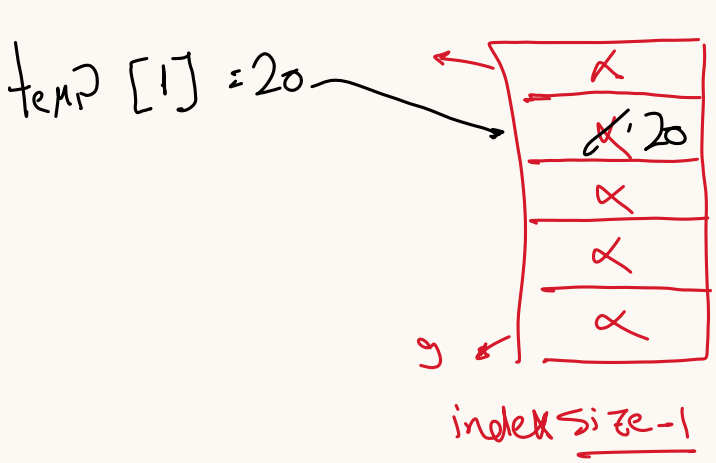
↳ one Dimension array

Dec → Datatype arrayName [sizearray] ;

Definition → Datatype arrayName [sizearray] = { , , , , }

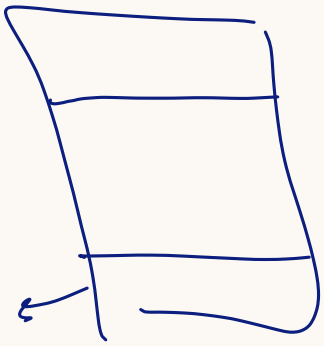
Declartion

char temp [10] ;



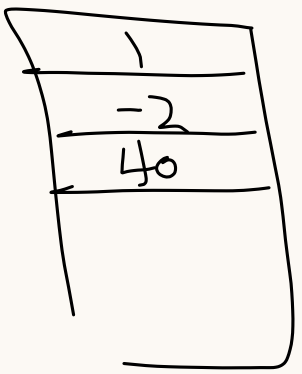
index 0

index size - 1

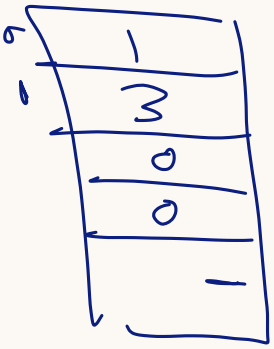


Definition

char temp [10] = {1, -2, 40 . . . -5};



char temp [4] = {1, 3};



char temp [1000] = {0};

↳ char temp [ ]; → error → Size.

↳ char temp [ ] = { 1, 3 }; ← Compile

↳ int X = 5;

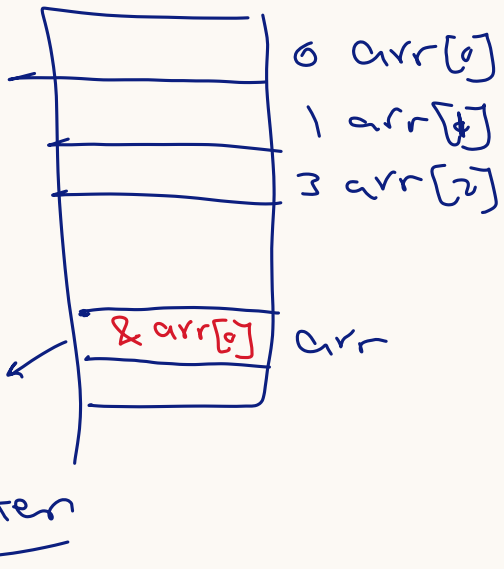
char temp [X]; → error

↳ linkedlist → Dynamic allocate

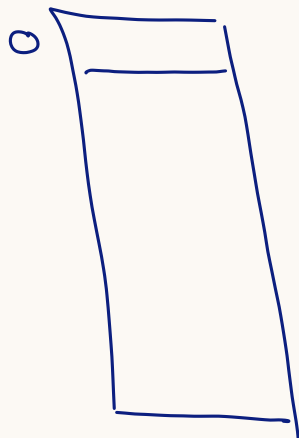
Compiler

char arr [3];

&arr[0] = arr



For → Repeat for code with Number

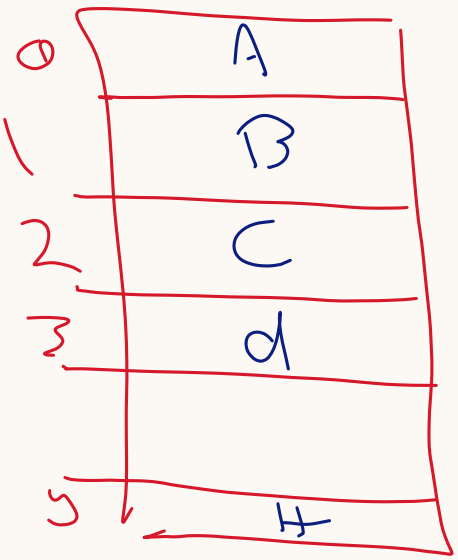



```
char temp [20] = {0};
int Counter = 0;
for(Counter=0; Counter < 20; Counter++)
{
printf("temp [%d] = %d \n", Counter, temp [Counter]);
}
```

output → temp [0] = 0

```
for (counter=0; counter<20; counter++)
{
    printf("Enter temp[%d]", counter);
    scanf("%d", &temp[counter]);
```

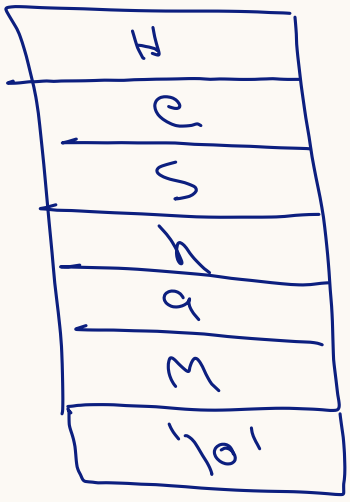
```
char temp[10] = "gog";
int index=0;
printf("Enter the char");
for(index=0; index<10; index++)
{
    scanf("%c", &temp[index]);
}
printf("Your char is \n");
for(index=0; index<10; index++)
{
    printf("%c", temp[index]);
}
```



string

Char Name [ ] = "Hesham" ;

string → by default → Null Char '\0'



→ Scan string
- Char Name [20];
- ScanF("%s", Name);

→ Print string
- PrintF("%s", Name); work ✓✓

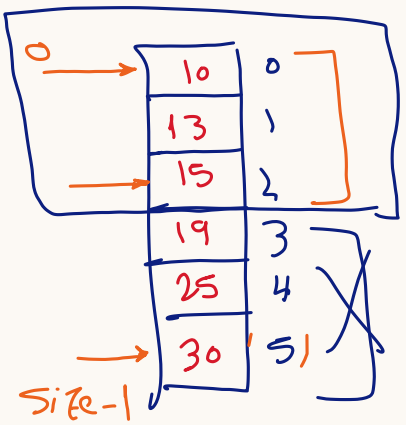
- Creat Array of Number
  Array of Char
  Array of string

Binary search

size → 6

→ start = 0 → Mid = $\frac{start + End}{2} = 2$

→ End = 5

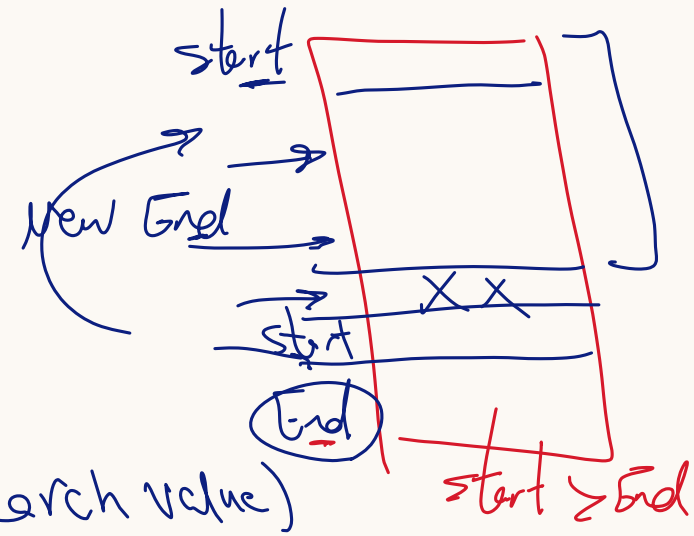



```
if (arr[Mid] == 5)
{
    → index = mid
    break;
}
```

```
else if (arr[mid] > 5)
{
    start = 0
    End = Mid - 1
}
```

```
else if (arr[Mid] < 5)
    start = Mid + 1
```

```
start = 0
End = size - 1;
while ( start <= End )
{
    Mid = (start + End) / 2 ;
    if ( arr [Mid] == search value)
    {
        Printf(" the index = %d \n", Mid);
        break;
    }
    else if ( arr [Mid] > search value)
    {
        End = Mid - 1;
    }
    else if( arr [Mid] < search value)
    {
        start = Mid + 1;
    }
}
```



else if (arr [mid] > 5)

{ End = mid - 1 }

else if (arr [mid] < 5)

{ start = mid + 1 }