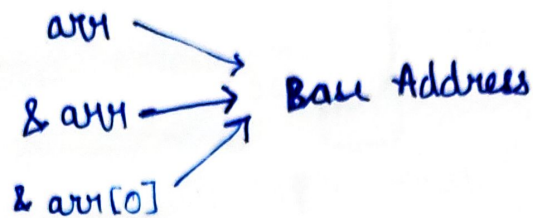


Week 6 - Lecture 2

Array



$\&arr \rightarrow$ Base address

$*arr \rightarrow$ value at Base address

\downarrow
 $arr[0]$

```
int main() {
```

```
    int arr[4] = {12, 14, 16, 18}
```

```
    cout << *arr << endl;
```

```
    cout << *arr + 1 << endl;
```

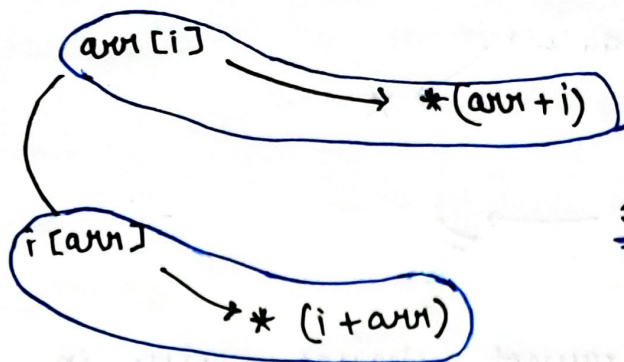
```
    cout << *(arr) + 1 << endl;
```

```
    cout << *(arr + 1) << endl;
```

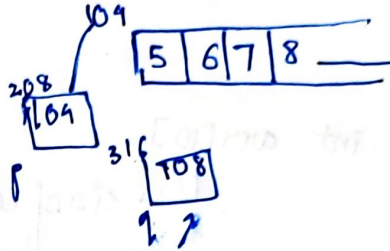
```
    cout << arr[1] << endl;
```

```
}
```

Output



```
int arr[4] = {5, 6, 7, 8};
int *p = arr;
int *q = arr + 1;
```



cout → arr — 104	&q — 316
&arr — 104	*q → 6
arr[0] — 5	*p + 1 → 6
&arr[0] — 104	*p + 2 → 7
p — 104	*q + 3 — 9
&p — 208	* (q + 4) → Error
*p — 5	
q — 108	

array

array k name → $\frac{\text{sizeof}(\)}{\text{total space taken by array}}$

pointer

sizeof() → 8

$p = p + 1$

104 → 108

② $arr = arr + 1$ \rightarrow X

$p = p + 1 \rightarrow //$

Because we cannot change value in symbol table.

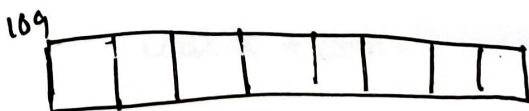
① `int arr[10]`

$\rightarrow \text{sizeof}(arr) \rightarrow 4 \times 10 = 40$

`int *p = arr`

$\rightarrow \text{size of } (p) \rightarrow 8/4$

\rightarrow total space taken by pointer.



$arr + 1 \rightarrow 108 \rightarrow 104 + 1 \times 4 = 108$

$arr + 3 \rightarrow 116 \rightarrow 104 + 3 \times 4 = 116$

$arr + 5 \rightarrow 124 \rightarrow 104 + 5 \times 4 = 124$



`arr = arr + 1`

नहीं

कर सकते !

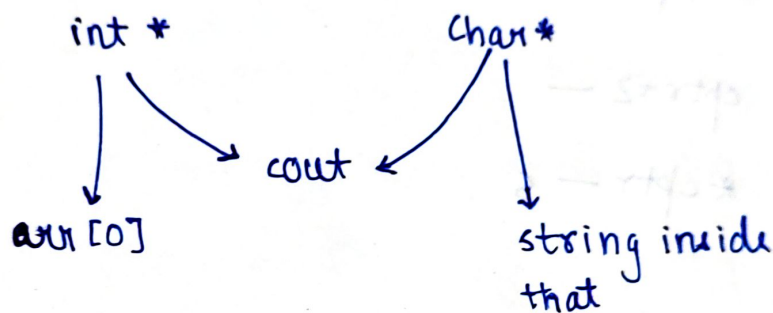
→ Because arr is a constant pointer.

• Char array:-

```
char ch[10] = "Babbar";
```

```
char * c = ch
```

```
cout << c;
```



```
char ch[10] = "Babbar";
```

```
char * c = ch;
```

```
cout — ch — Babbar
      &ch — B, A
      ch[0] — B
      &c — iss ka address
      *c — B
      c — Babbar
```

```
*c == *(c+0)
```

```
= c[0] → 0th index
           ↓
          B
```



```
char name[10] = "SherBano";
```

```
char * cptr = &name[0];
```

cout \rightarrow name — SherBano

&name — 104

* (name+3) — name[3] = r

* cptr — SherBano

&cptr — 216

* (cptr+3) — r

cptr+2 —

* cptr — s

cptr+2

s	h	e	r	b	a	n	o
0	1	2	3	4	5	6	7

cout << c << endl; \rightarrow SherBano

cout << cptr+2 << endl; \rightarrow erbano

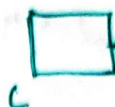
Back Practice

char * p = "Akshat";

① temp storage → "Akshat"

char name[10] = "Babbar";

②



① temp storage = "Babbar"

② memory change → copy
to name
array ki
storage

Pointer with function:-

```
main(){  
    int arr[10];  
    sizeof(arr); 4*10 → 40  
    solve(arr)  
}
```

```
{  
    solve(int arr[])  
    {  
        arr[0] = 50;  
        ↓  
        *(arr+0) → actual array  
    }  
}
```

main()

{

int arr[10] = {1, 2, 3, 4}

// print

solve(arr)

// print

}

solve (int arr[])

{

// size

//

// &arr

arr[0] = 50;

}

main()

{

int a = 5; 104
5
a

int * ptr = &a 104
ptr

solve(ptr)

}

solve (int * p)

{

104
p

*p = *p + 10;

*(104) = *(104) + 10

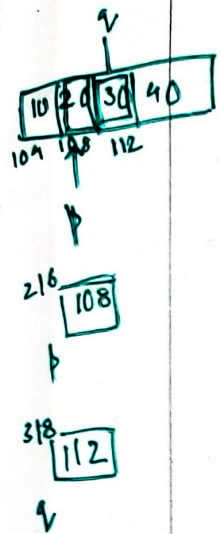
= 5 + 10

↓

*(104) = 15

}

H.W



`main() {`

`int arr[4] = {10, 20, 30, 40}`

`int *p = &arr[1];`

`int *q = &arr[2];`

`update(p, q);`

`// print entire array;`

`}`

`update(int *a, int *b)`

`{`

`*a = 100;`

`*b = 200;`

`}`

`* (108) = 100`

`* (112) = 200`

10, 100, 200, 40

① Benefits

H.W. ② Pointer to function topic — function k andar
function pass kaise kr skta hai
— iski need kya hai

③ Pointer is confusing so it needs more and more revision.