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Assignment No. - 9

1. what is NULL Pointer & why we initialize it for uninitialized pointer to NULL?

→ • when we initialize pointer with NULL (0) then it is considered as NULL pointer.

• NULL is considered as macro which is defined in a stdio.h header file.

• The value of that macro is zero (0).

- when we create any type of pointer & that pointer is not initialize then it may contains garbage values in it.

• Due to this uncoanted garbage value created & it may leads to run time failure. (Run time accident) (segmentation fault).

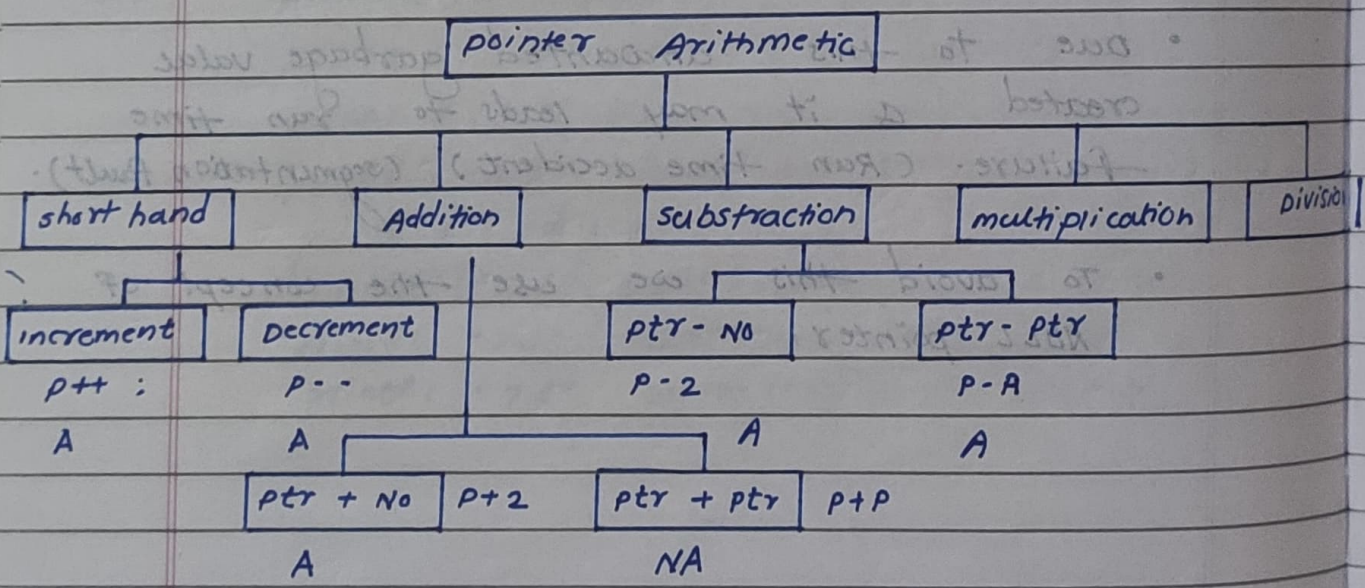
• To avoid this we use the concept of NULL pointer.

2. what is pointer Arithmetic? Explain in detail?

→ • Pointer is variable which is of 8 byte & it stores address of anything/ a variable.

• Arithmetic operaters operations are normally performed every where i.e (+, -, *, /) but in pointer arithmetic it only supports addition and substraction.

- In case of pointer this arithmetic operations are not like normal arithmetic operations that we perform on numeric values.



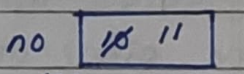
3. what are the task of OS?

-> 1. File management
2. Process management
3. Memory management
4. CPU scheduling
5. Hardware Abstraction

4. what is increment and decrement operator?

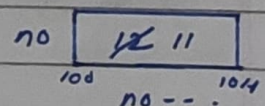
- Increment operator means "++" i.e value +1;
- Increment operator increments the value by 1.

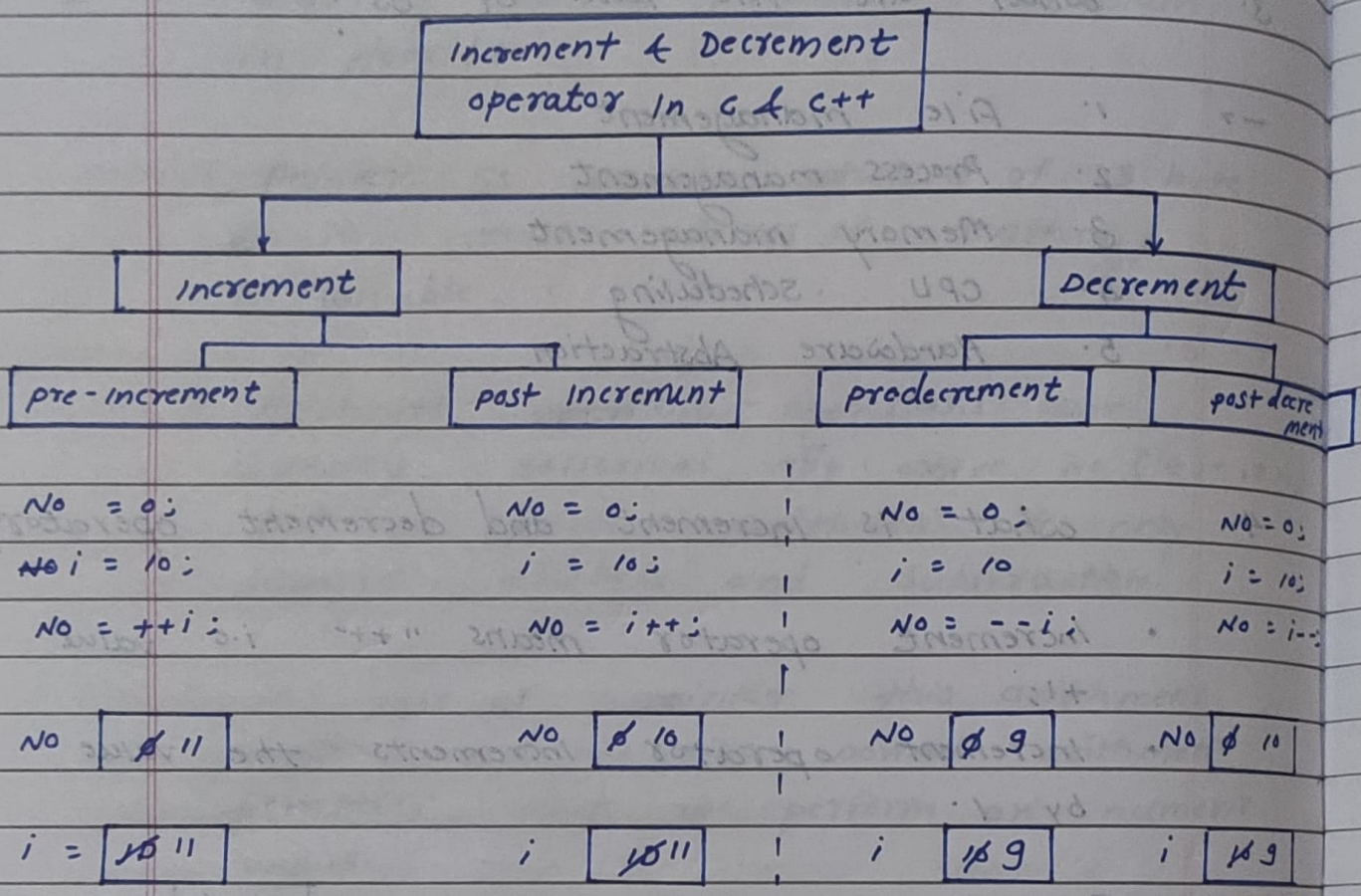
e.g
```
int no = 10;
no++;
```
output -> 11



- Decrement operator means "--" i.e value -1;
- Decrement operator decrements the value by 1.

e.g
```
int no = 12;
no--;
```
o/p -> 11





- All above operators are considered as short-hand operators.

If we not used assignment operator then pre & post concept not work its just increment & decrement.

5. why we cannot perform addition of two pointer.

- while performing addition of two pointers it will generate big number or address which is may not be present in a process, therefore it may leads to errors or garbage, so we cannot use addition of two pointers.

6. what are rules to perform substraction of two pointer.

→
- The pointer which having big value should be used to sub-stract the smaller value from big value. i.e
- p = 100, q = 116 then we will do q-p i.e 16 here, after substraction we need to divide the ic by the size of (data type) used.
- so we can get the no. of blocks present between p & q.

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7. what is declaration, defination initialization?

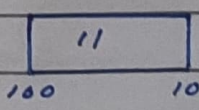
- **Declaration** -
declaration is considered as a place where, there is no memory allocation.
- At the point of declaration the compiler consider name of variable only.

for e.g int x ;

- **Defination** -
Defination is a concept where memory for the variable gets allocated as well as its names gets register by the compiler.

- **Initialization** -
is the place where memory gets allocated as well as the value of that variable gets initialized.

e.g int no = 11 ;



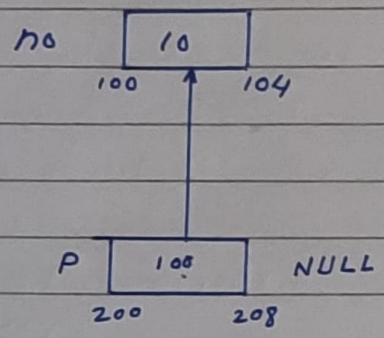
8. **Predict output**

```
int no = 10;
int *p = NULL;
p = &no;
```

```
printf("%d", &p);
printf("%d", no);
printf("%d", *p);
```

output :

→ 10
100



9. **Predict the output**

→ NULL

10. Explain how array is considered as pointer & pointer can be treated as array.

→ • As a programmer when we access any elements of array the compiler will internally convert the syntax into its corresponding pointers representation.

- As array contains Index which helps to retrive the data at that location so, we can say that array is considered as pointer.

- If we want to access data by using pointers then we need to store the address of data & by incrementing or performing different pointer arithmetic, we access the data like array.