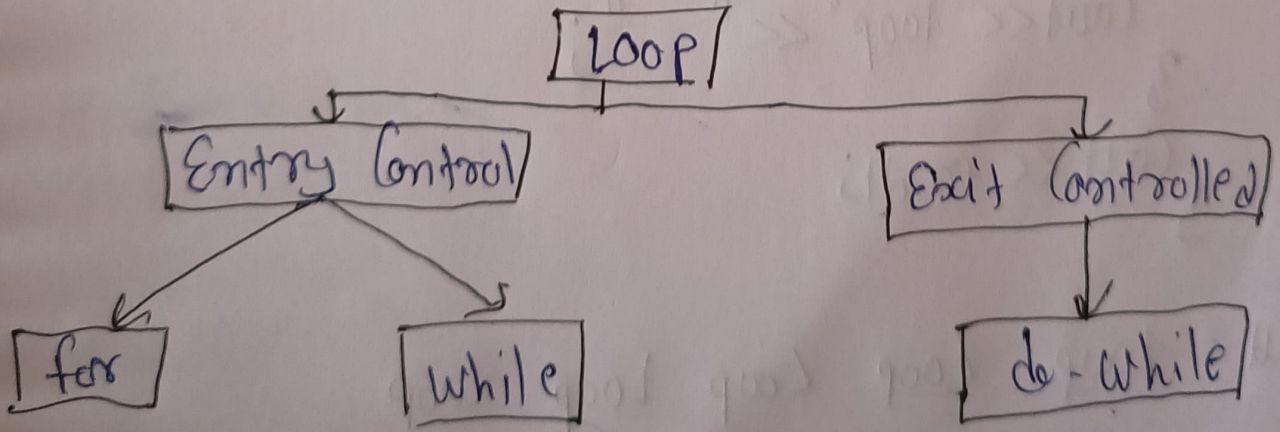
* Loops ->

↳ There is need to perform some operation more then once, then, Loops come into use when we need to repeatedly execute a block of statements

↳ for instance, we want to print "Namaste Dunia" 100 times, we will use loop.



→ Entry Controlled loops :-

The test condition is tested before entering the loop body. for loop and while loop are entry controlled loops.

→ Exit Controlled Loops :-

The test condition is tested at the end of the loop body. Therefore, the loop body will execute at least once irrespective of whether the condition is true or false. the do-while loop is exit-controlled loop.

→ For Loop →

Syntax →

```
for (initialization; condition; updation)
{
  // loop body
}
```

Program →

```
int main()
{
  for (int i=1; i<=5; i++){
    cout<<"loop"<<"  ";
  }
  cout<<endl;
}
```

output = Loop Loop Loop Loop Loop

—> Nested for loop :-

Syntax = for(initialization; condition; updation) {
    // logic
    for(initialization; condition; updation) {
        // logic
    }
}

Program :- int main() {
    for(int i=0; i<2; i++) {
        cout << endl << "outer loop" << i << endl << endl;
        for(int j=0; j<2; j++) {
            cout << "inner loop" << j << endl;
        }
    }

output :-

outer loop 0

inner loop 0
inner loop 1

outer loop 1

inner loop 0
inner loop 1

* PATTERN PRINTING

Step 1:- Count the number of rows (outer loop)

Step 2:- See what is happening in each row (inner loop)

for Example

1 Square Pattern ->

No of Rows -> 4

R_0 = 4 *
R_1 = 4 *
R_2 = 4 *
R_3 = 4 *

* * * * -> R_0
* * * * -> R_1
* * * * -> R_2
* * * * -> R_3