we use while loop when we don't know exactly how many time we have to run loop

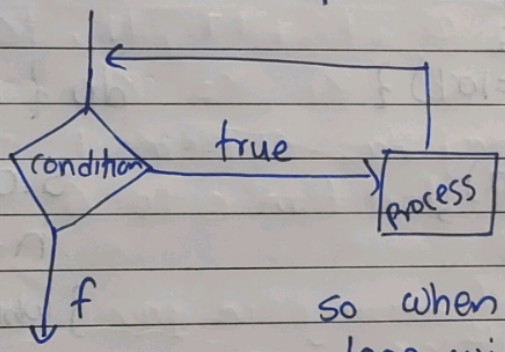
#loops

If we have run particular piece of code again & again & again we use loops.

Type of loops:

(A) Do while loop
(B) While loop
(C) For loop
(D) for each loop (mostly good for array)

while loop ⇒



so when condition == false loop will break

Syntax:

```
while (condition) {
    code
}
```

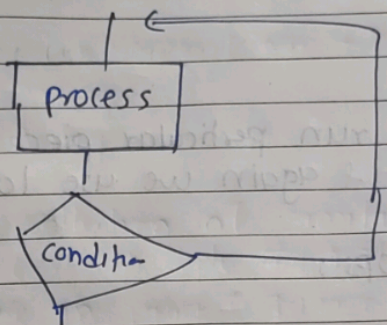
```
do {
    code
} while (condition);
```

Increment / decrement should be done with care as it may leads to infinite loop.

→ do while loop run atleast one time

while → Pretested loop
do while → Post tested loop

All things you can do with while loop can be done with dowhile



Print numbe from 0 to 100 with dowhile & While loop

```
int n=0;
while(n!=101){
S.O.P(n);
n++;
};
```

```
int n=0;
do{
S.O.P(n);
n++;
}while(n!=100);
```

for loop

We use for loop when we know how many time we have to run through instruction

```
for( initialisation ; Condition ; Incrementation){
```

Code checked before start of inner code

Done after execution of all code & before condition check for next iteration

Done only at start of loop

Q) when to use while & when to use for loop

initialisation → condition → inner code
inner code ← condition ← Incrementation

→ while using loops we have be ~~curious~~ observative about loop as it has chances to go inside infinite loops

→ ~~for~~ initialisation, conditon & incrementation all are optional.

#Solve problems

#Nested loops

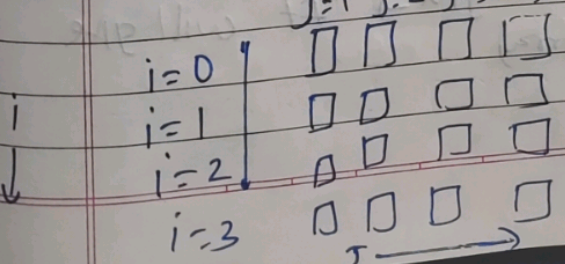
* loop inside loop is called as nested loop

you can yse any loop inside any other loop

```
for(int i=0 ; i<n); i++) {
    loop  for (int j =0 ; j<N ; j++) {
              code
          }
}
```

n^2 time complexity

nested loop work like 2Dimension behaviour



such like structure we will get