Short-term Hands-on Supplementary Course on C Programming

SESSION 3: Looping Statements

NIVEDHITHA D
KARTHIK D

Time: 6:30 - 8:00 PM
Date: 21 May 2022
Location: Online

Agenda

1. Administrative Instructions
2. Flow of Control - previous class
3. What are loops?
4. Entry and Exit-controlled loops
5. Looping constructs in C using Live Code Demo - sum of n numbers
    a. for
    b. while-do
    c. do-while
6. Interactive Solving: factorial
7. while-do VS do-while
8. Nested Loops
9. Live Code Demo: Pattern Printing using number
10. Interactive Solving: step-up of pattern printing
11. Interactive Solving: alpha pattern printing
12. Interrupting Looping Flow
    a. break
    b. continue
    c. goto
13. Tutorial: Trapezium pattern
14. Next Session

Administrative Instructions

- Please fill out the feedback form - will be shared in the chat
- Join us on Microsoft Teams,
  Team Code: **rzlaicv**

GITHUB REPOSITORY! ⭐🌟

Flow of Control

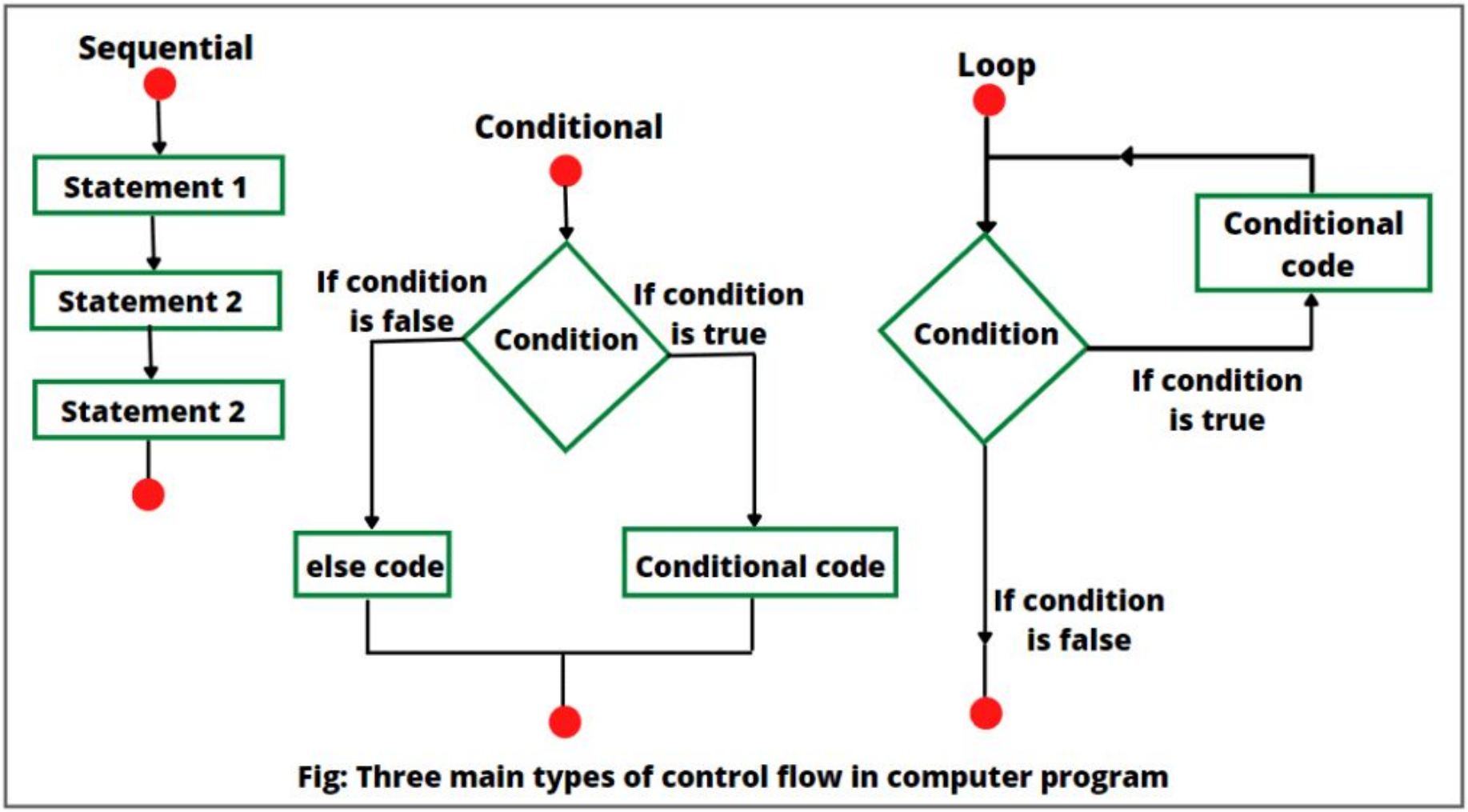
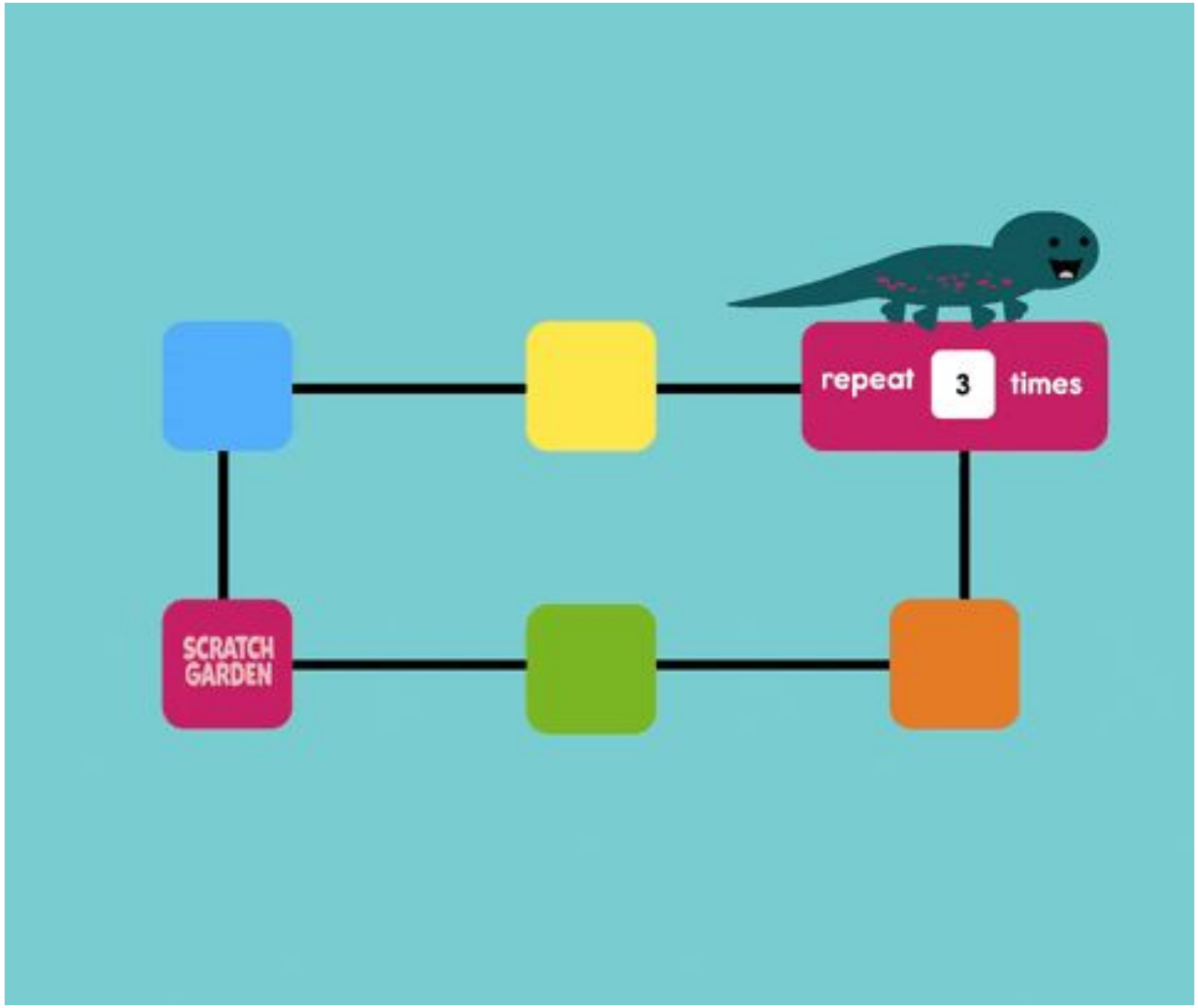
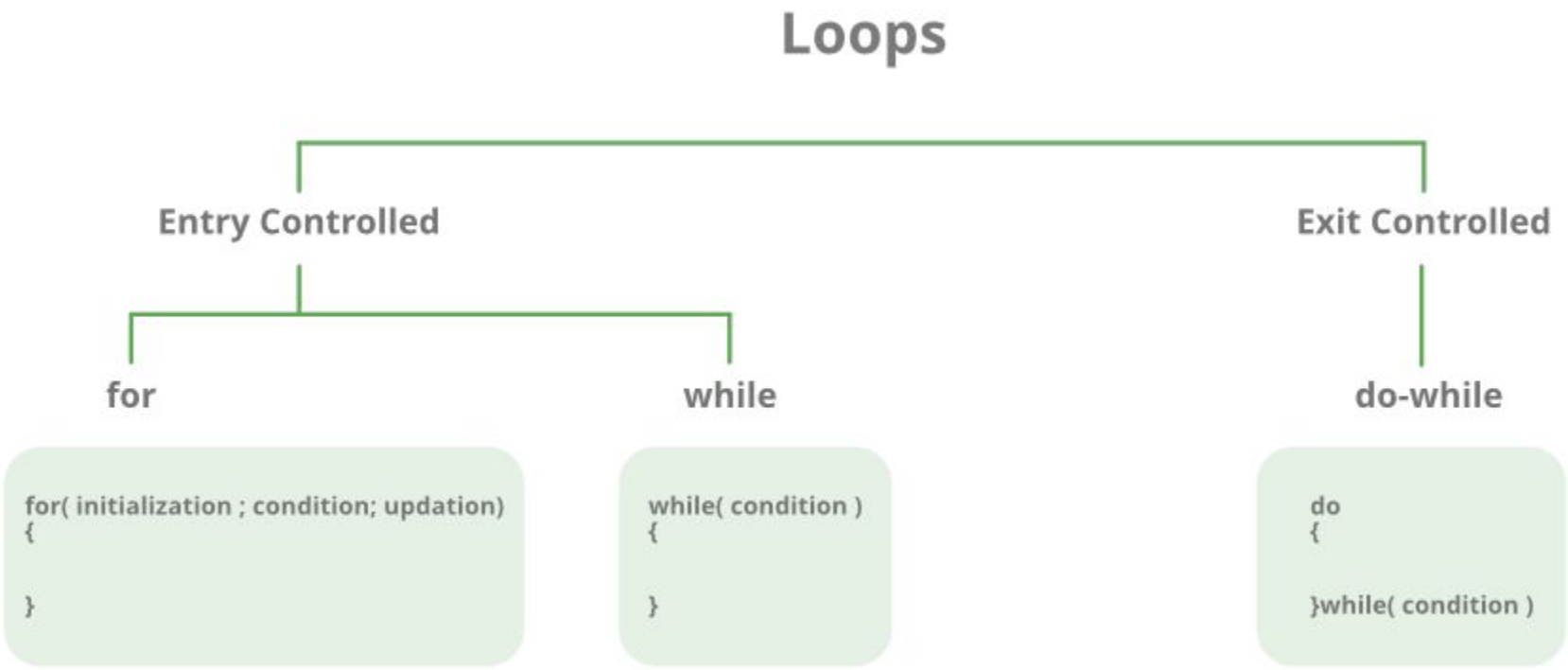


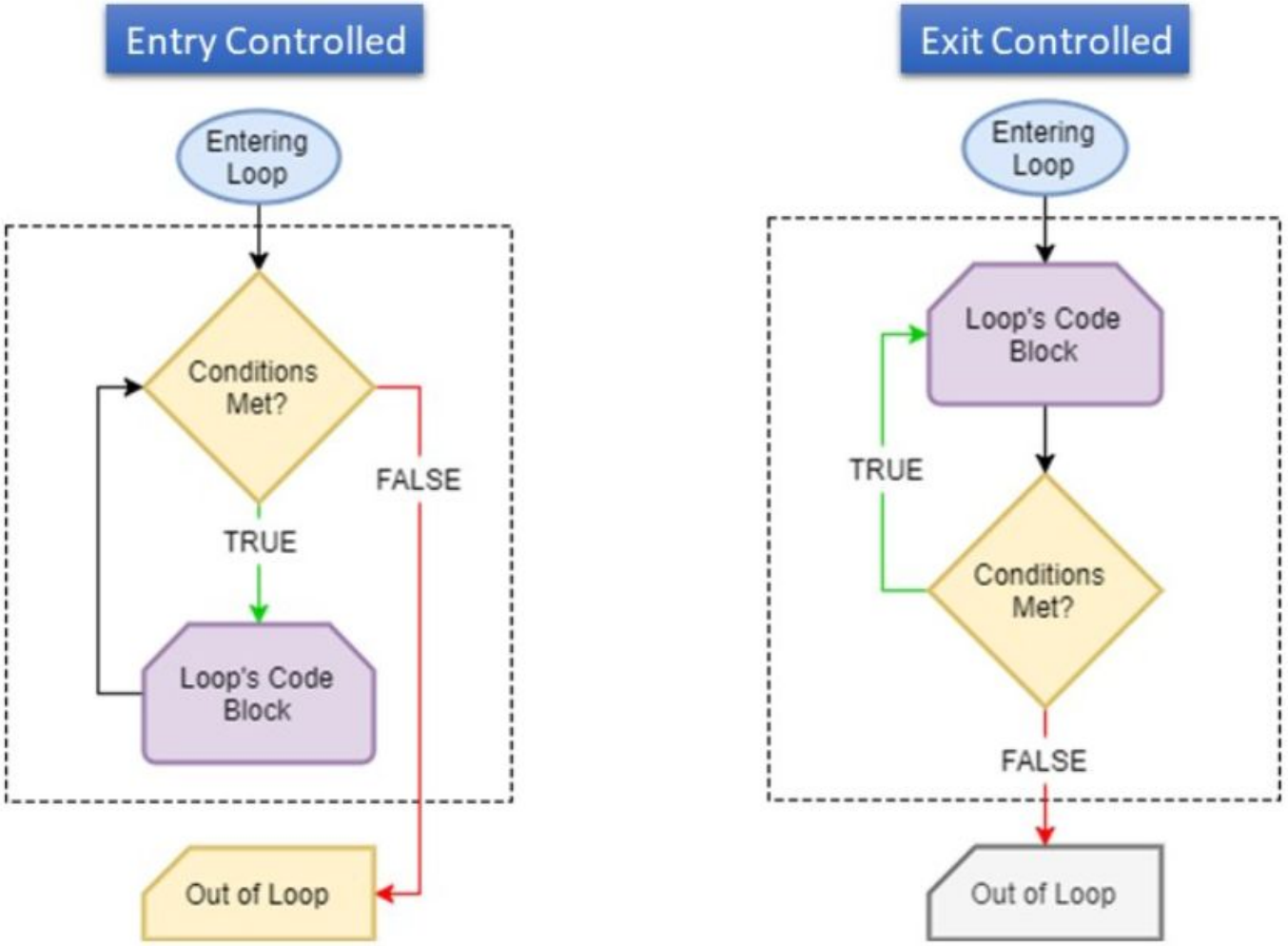
Fig: Three main types of control flow in computer program


repeat
3
times
SCRATCH
GARDEN

Loops in C

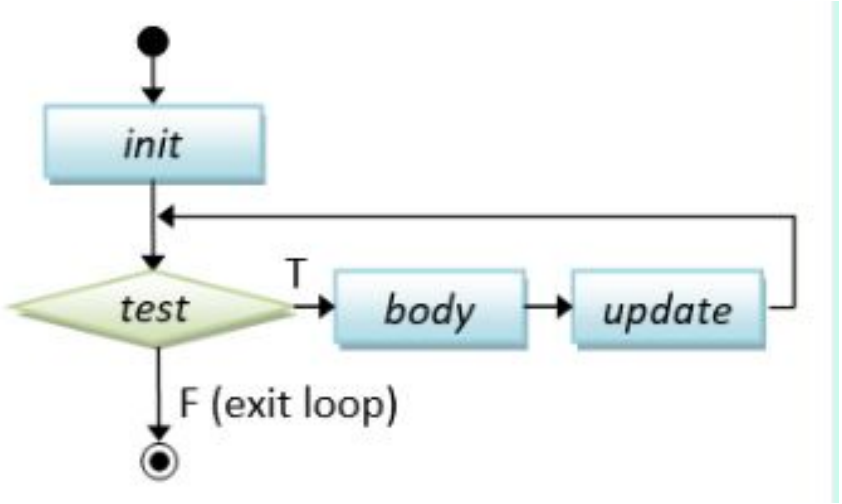

Loops
Entry Controlled
Exit Controlled
for
while
do-while
for(initialization ; condition; updation)
{
}
while(condition)
{
}
do
{
}while(condition)

Entry VS Exit Controlled Loops



for loop

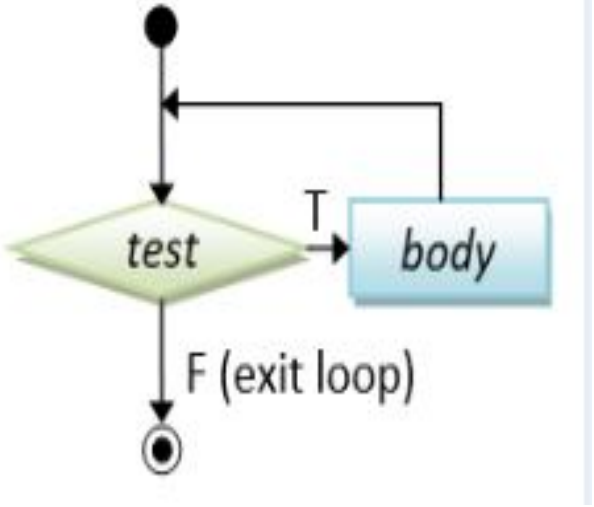
```
// for-loop
for (init; test; post-proc) {
   body ;
}
```



DEMO!

while-do loop

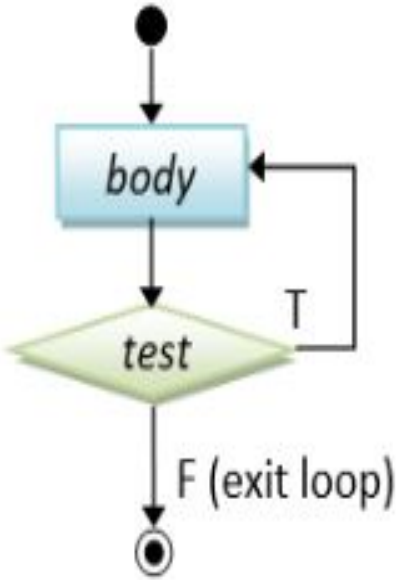
```
// while-do
while ( condition ) {
   body ;
}
```



DEMO!

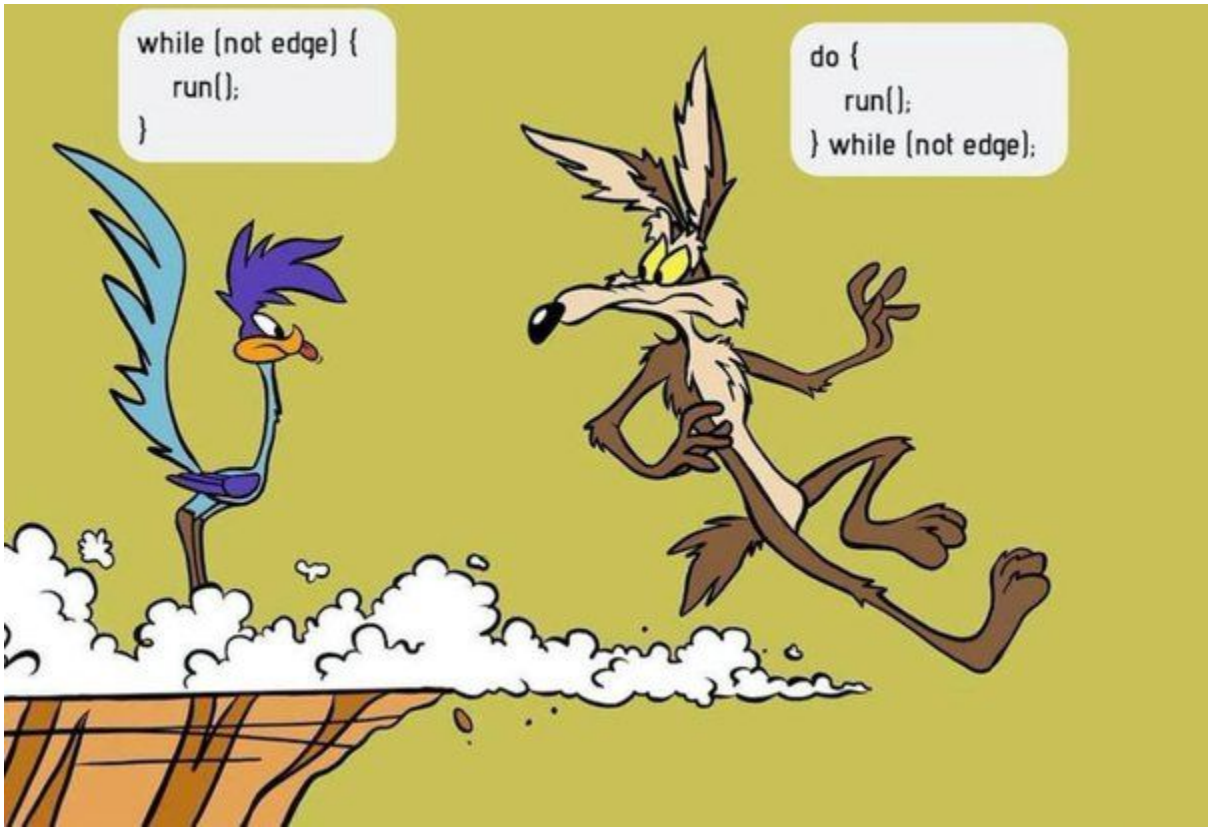
do-while loop

```
// do-while
do {
   body ;
}
while ( condition ) ;
```

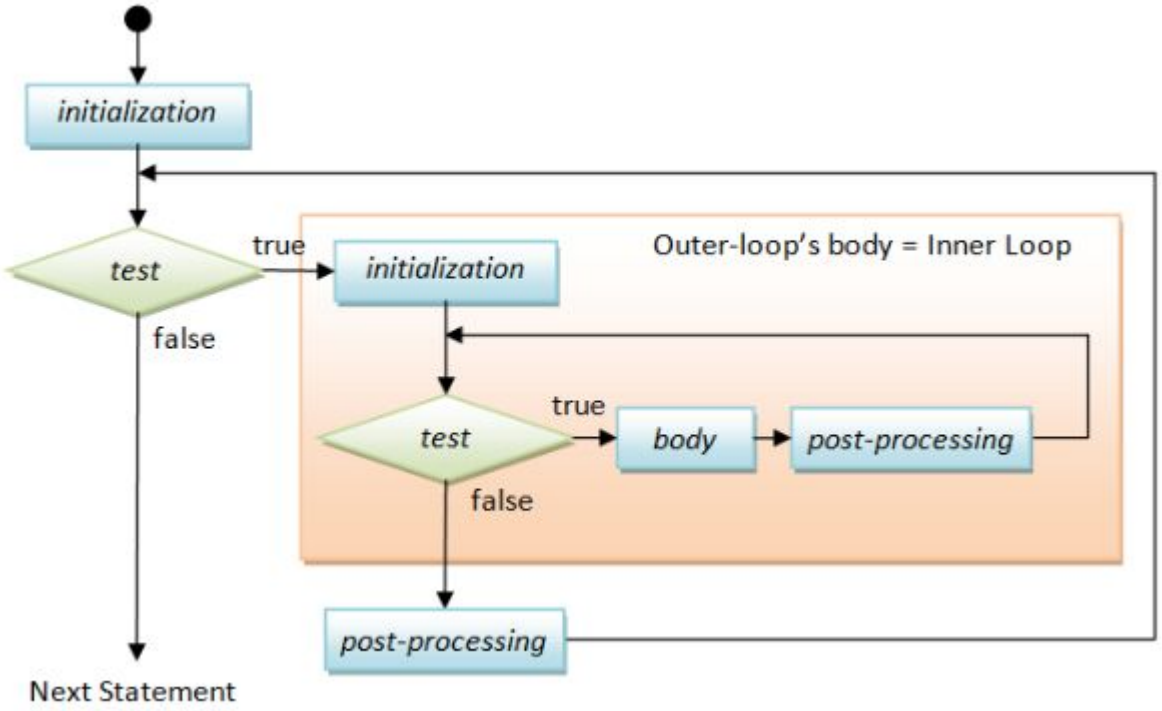


DEMO!

while-do VS do-while

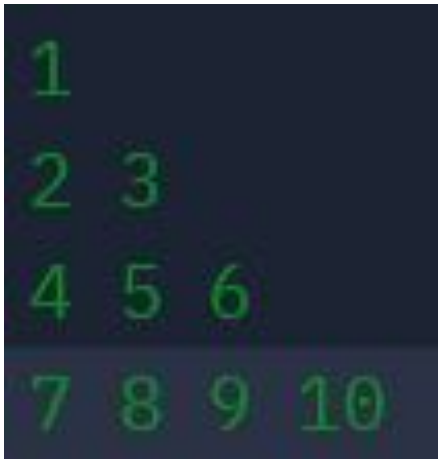


Nested Loops



DEMO!

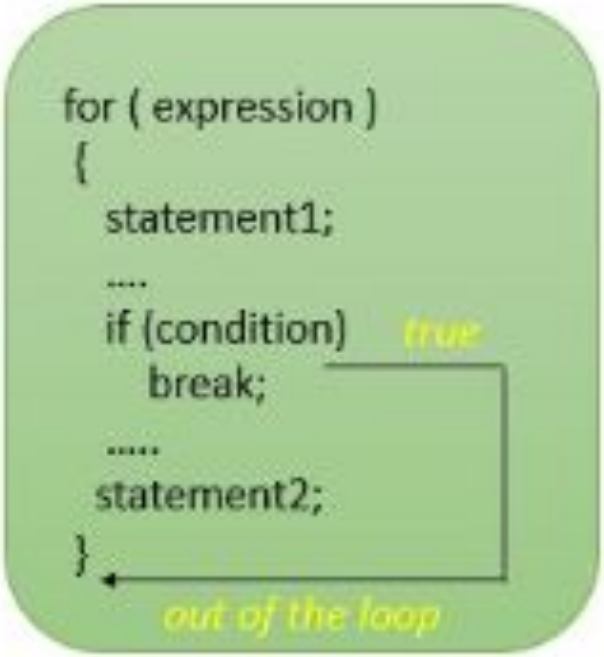
Pattern Printing

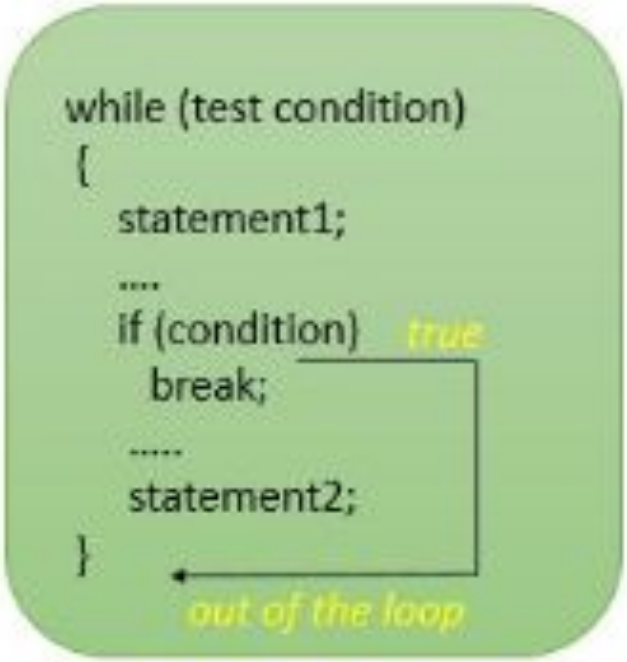


Tutorial!

KARTHIK!!!!!!!

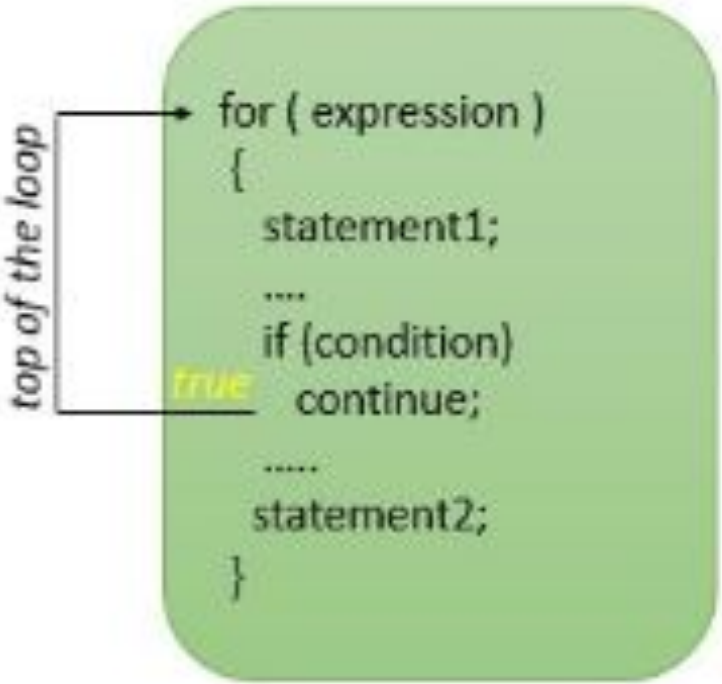
break

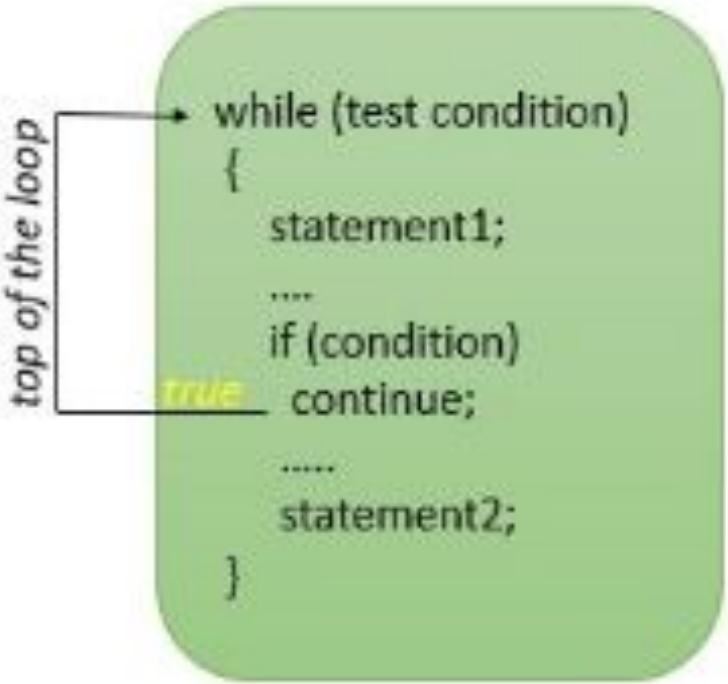

for (expression)
{
statement1;
....
if (condition)
break;
.....
statement2;
}
true
out of the loop


while (test condition)
{
statement1;
....
if (condition)
break;
.....
statement2;
}
true
out of the loop

DEMO!

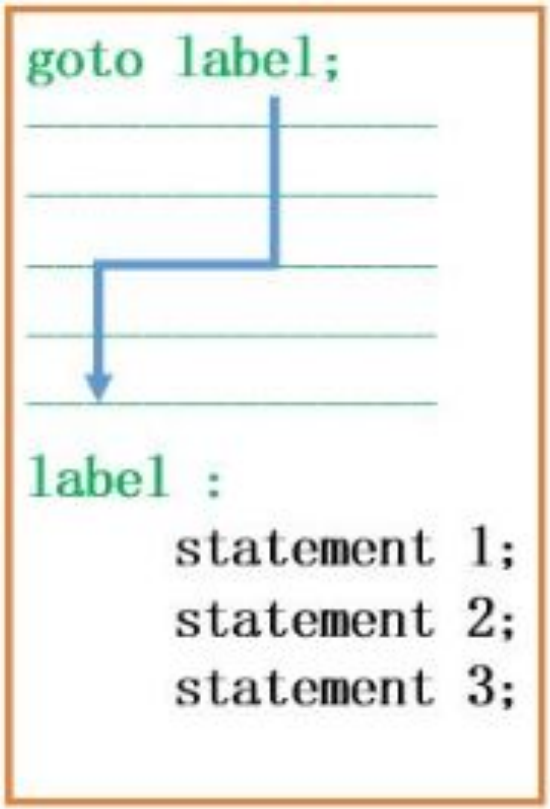
continue



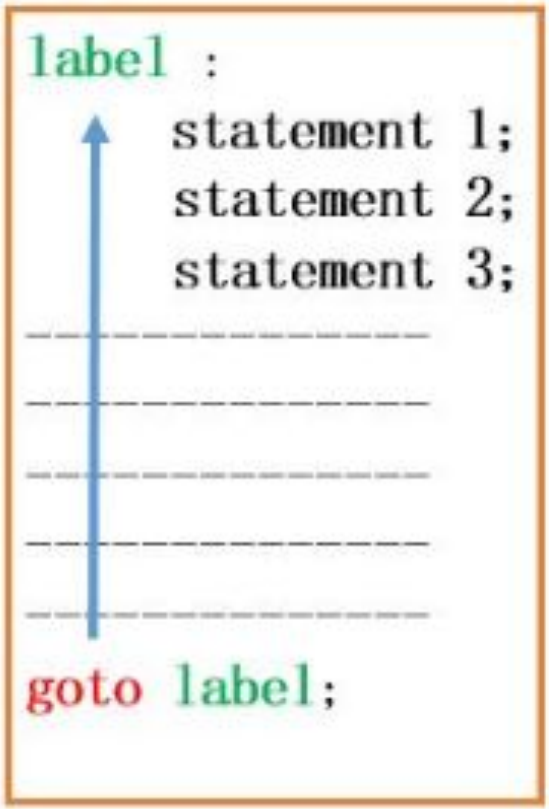


DEMO!

goto-label



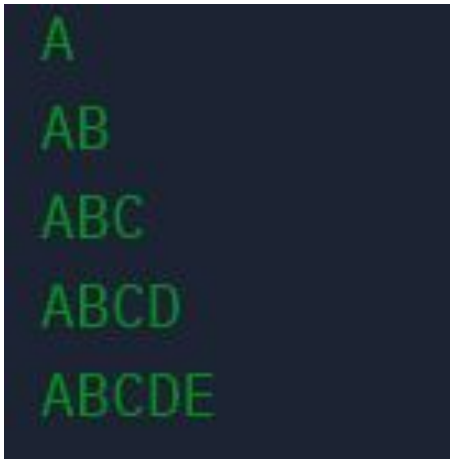
Forward Reference



Backward Reference

DEMO!

TUTORIAL



DEMO - 09!

TUTORIAL:Interview Question

```
Input  : 4
Output :
1*2*3*4*17*18*19*20
  5*6*7*14*15*16
    8*9*12*13
      10*11


Input : 2
Output :
1*2*5*6
  3*4
```

Next Session

ARRAYS!!

INTERVIEWER : Write a program to sort the array

ME : `arr = [1, 3, 4, 2]`
`arr.sort()`

Any Questions