

EXAM #1 10/3/WED

9/28/18 ①

```
. i = 0;
while (i < 5)
{
    printf("%d", i);
    i = i + 1;
}
```

← initializer
← Test
Body (may be many statements)
loop alter

i

0	1	2	3
4	5		

0 1 2 3 4

~~0 1 2 3 4 5~~

~~1 2 3 4 5~~

Screen

```
┌───────────┐
│ 0 1 2 3 4 │
└───────────┘
```

```
for (initializer; Test; loop alter)
{
```

```
    Body
}
```

← If Body is a single statement the { } are optional

(2)

```
for (i=0; i < 5; i++)  
{  
    printf("%d", i);  
}
```

$i = i + 1$

// get a 1 or 2 response from user
// value checked

```
printf("Enter 1 for yes, 2 for no: ");  
scanf("%d", &ans);  
while (!(ans == 1 || ans == 2))  
{  
    printf("Learn to read - BONEHEAD\n");  
    printf("Enter 1 for yes, 2 for no: ");  
    scanf("%d", &ans);  
}
```

// if here, 1 or 2 entered

// while loop is executed 0 or more times

ans	ans==1	ans==2	(ans==1) (ans==2)	!
0	F	F	F	T
1	T	F	T	F
2	F	T	T	F
74	F	F	F	T

// write a program to produce a chart
// of squares and cubes of ~~a~~ values
// user enters high and low values
// Program repeats until ~~high~~ entered
// values are ~~a~~ both 0.

```
1 #define _CRT_SECURE_NO_WARNINGS
2 #include <stdio.h>
3
4 void main()
5 {
6     int lo, hi, sq, cb, x; // low val, hi val, square, cube, loop value
7
8     printf("Enter lo val: ");
9     scanf("%d", &lo);
10    printf("Enter hi val: ");
11    scanf("%d", &hi);
12
13    while ((hi != 0) && (lo != 0))
14    {
15        // THIS IS BLOCK OF CODE TO PRINT CHART, GIVEN lo AND hi
16        //      .... / .....1.... / .....2.... / .....3
17        printf("      x      square      cube\n");
18        for (x = lo; x <= hi; x++)
19        {
20            sq = x * x;
21            cb = x * x * x;
22            printf("%10d%10d%10d\n", x, sq, cb);
23            // NOTE NOTE NOTE - even though x++ is at top of loop
24            // it is executed at end of loop (i.e. here)
25        }
26        // END BLOCK OF CODE TO PRINT CHART
27
28        // change condition of loop (alter values of hi and/or lo)
29        printf("Enter lo val: ");
30        scanf("%d", &lo);
31        printf("Enter hi val: ");
32        scanf("%d", &hi);
33    }
34 }
```