



CMSC 106 Lecture Set #5

Set Started:
Thursday, September 27, 2007



loops also called "repetition statements"

■ **The While Statement**

**while (condition)
statement;**

■ action:

- 1) condition is tested
- 2) if the condition is true the statement is performed; if the condition is false, continue after the loop
- 3) after completing the loop's body, go back to number 1

■ **iteration** = one execution of the subsidiary statement



Trace

```
int var= 1;
while (var < 5) {
    printf("%d\n", var);
    var = var + 1;
}
```



Infinite Loops

- The loop will never terminate on its own.
- In UNIX, to stop a program with an infinite loop
 - Control-c
 - there can be a delay

```
int var= 1;
while (var < 5) {
    printf("%d\n", var);
}
```



The do/while loop

- Format:
do {
 statements
} while (condition);
- the curly braces are not required, but good style otherwise the line with "while" can be easily confused with the beginning of a while loop.
- Action:
 - 1) execute the body
 - 2) test the condition
 - 3) if the condition is true, go back to #1; if the condition is false, continue with the line after the loop



```
sum = 0;
do {
    j--;
    sum += j;
} while (j > 0);
-----
sum = 0;
while (j > 0){
    j--;
    sum += j;
}
```

- Same or Different?
- Trace both with different starting values for j



Types of repetition:

- counter-controlled repetition
- indefinite repetition
- examples

end of exam #1 materials
