



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