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

```c
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

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

**The do/while loop**

- Format:
  ```c
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

```c
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