CS 161
Intro to CS I
Looping/Repetition
Odds and Ends...

• Read loops/repetition
• Assignment #3 posted, due next Sunday 1/31
• Exercise #3 posted, due Friday 1/22
• Lab #3 make-up, KEC 1003 Friday, 1/22, 3-5pm
• Demo assignment #2, 1/19-1/25
Multiple Decisions

• What if I want to make these same decisions for the whole year?
  
  If it is sunny today
  then I’ll go to the beach
  if it is windy at the beach
    then I’ll fly a kite
  else if it is not windy at the beach
    then I’ll walk on the shore
Else if it is raining today
  then I’ll stay inside and read a book
Else if it is snowing
  then I’ll go to the mountains to ski

• Repeat the process for 365 days
How do we do this?

• Repetition: for loops
  – Semantics
    • Repeat for a specific # of iterations w/ starting point, ending point, and an increment
  – Syntax
    for(x=1; x <= 365; x++) {
      <statement>;
      <statement>;
      ...
    }
The for Loop

for(x=1; x <= 365; x++) {
    <statement>;
    <statement>;
    ...
}

Starting point:
Initialization
The for Loop

for(x=1; x <= 365; x++) {
    <statement>;
    <statement>;
    ...
}

Ending point: Continuation Test
The for Loop

```java
for(x=1; x <= 365; x++) {
    <statement>;
    <statement>;
    ...
}
```

• What do you notice about order?
The for Loop

```java
for(x=1; x <= 365; x++) {
    <statement>;
    <statement>;
...
}
```

- Same as `x = x + 1`
- What about `x = x + 2`?
The for Loop

for(x=1; x <= 365; x++) {
  <statement>;
  <statement>;
  ...
}

• What do you notice about order?
The for Loop

for(x=1; x <= 365; x++) {
    <statement>;
    <statement>;
    ...
}

Test is False: Execution after loop
The while loop

for(x=1; x <= 100; x++)
    cout << “hello world\n”;  

VS.

int x=1;
while(x<=100) {
    cout << “hello world\n”;  
    x++;  
}
Common Mistakes

```cpp
int x=1;
while(x<=100) {
    cout << "hello world\n";
    x++;
}
```

What if we forget this?

What if we forget this?
The do/while loop

```cpp
int x=1;
do {
    cout << "hello world\n";
    x++;
} while(x<=100);
```

• Difference b/w while and do/while?
Looping ...

• for loops
  – Repeat for specific number of times
  – Example?

• while loops
  – Repeat while a condition is being met
  – Example?

• do while loops
  – Always do once, and repeat while condition is met
  – Example?
for Demo...
while Demo...