Lecture 4
CS 137
Fall 2014
by Chantelle Gellert

Announcments

- chapter: 5,6

- No Class Friday September 19th

- Assignment 1 available now, due Sept. 24th 8:59pm

- Midterm: Question 1: Print your name, Question 2: Like the quizzes done in class

Quiz Solution

```
#include <stdio.h>

int main(void){
 int a = 1000;
 int b = 1001;
 int c = 8;
 int d = 10;

 printf("%d\n", 23/7);                   //3
 printf("%d\n", 23%7);                   //2
 printf("%d\n", a);                      //1000
 printf("%d\n" b - a);                   //1
 printf("%d\n", 3*c + d-1);              //33
 printf("%d - %d = %d\n", c, d, d - c);  //8 - 10 = 2
 c++;
 printf("%d\n", c);                      //9
 d /= 3;
 printf("%d\n", d);                      //3
 a = --d + c++;
 printf("%d %d %d\n", a, c, d);          //11 10 2
 a = b = 6;
 printf("%d %d\n", a, b);                //6 6

 return 0;
}
```

Logical/Boolean

Logical values: True or False
In C/C++: zero represents False and non-zero is True
True: 1
False: 0

Logical operators:

```
logical Not: !
logical or: ||
logical and: &&
```

True or False

```
(100 > 700) || (2 <= 7) //True
(100 > 700) && (2 <= 7) //False
!(100 > 700) && (2 <= 7) //True
```

De Morgan's Laws (in C notation)

```
!(P && Q) == !P || !Q
!(P || Q) == !P && !Q
//P, Q - can be any expression
```

```
++b > 1 && --b < 6
```

if statement

```c
if(expression){
    statement
}
```

```c
if(expression){
  statement
}else{
  statement
}
```

```c
if(expression){
  statement
}else if(expression){
  statement
}else if(...){
  statement
}else{
  statement
}
```

Don't need to put braces you can just indent and C/C++ will understand.

```c
if(i == 0)
      printf("zero\n";
else{
      printf("even");
      printf(" or ");
      printf("odd\n");
}
```

```c
i = 3;
if(i%2 == 0){
      if(i ==0)
            printf("zero\n");
else
      printf("now odd\n");
```

else associates with the closest if before it

while Statement

```
while(expression) //(i < 10)
       statement    //(example i++)
       //temp = b
       //b = a % b
       // a = temp
```

Problem

Add up the digits in a int
input: 123
output: 6

```c
#include <stdio.h>

int main(void){
 int number;
 int sum = 0;

 scanf("%d", &number);
 //number could be negative (ambiguous)

 if(number < 0){
  number =- number;
  }

 while(number != 0){
       sum += number %10;
       number /= 10;
  }

 printf("%d\n", sum);

 return 0;
}
```