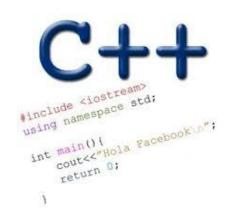
INTRO TO LAB02, MAKEFILES, REVIEW LOOPS/FUNCTIONS

Problem Solving with Computers-I

https://ucsb-cs16-sp17.github.io/





Clickers out – frequency AB

Demo

- Basics of code compilation in C++ (review)
- Makefiles (used to automate compilation of medium to large projects) consisting of many files
- We will start by using a makefile to compile just a single program
- Extend to the case where your program is split between multiple files
- By the end of this you should know what each of the following are and how they are used in program compilation
 - Header file (.h)
 - Source file (.cpp)
 - Object file (.o)
 - Executable
 - Makefile

Control Flow: while and do while loops

```
while (Boolean expression) {
    //statement 1
    //statement 2
do{
    //statement 1
    //statement 2
  }while (Boolean expression);
```

Identify the code that is not equivalent to the other two?

Assume 'n' is an integer that has already been declared (may be positive or negative)

```
A. for( int x = 0; x < n; x++ ) {
    cout<<x <<endl;
}</pre>
```

```
B.
```

```
int x = 0;
while(x < n) {
   cout << x << endl;
   x++;
}</pre>
```

```
int x = 0;
do{
   cout << x << endl;
   x++;
} while (x < n);</pre>
```

D. They are ALL equivalent

Infinite loops

```
for (int y=0; y<10; y--)
    cout<<"Print forever\n";</pre>
int y=0;
for(;;y++)
    cout<<"Print forever\n";</pre>
int y=0;
for(;y<10;);
    y++;
int y=0;
while (y<10)
    cout<<"Print forever\n";</pre>
int y=0;
while (y=2)
     y++;
```

Function call mechanics

```
What is the output of the following code
int sum(int a, int b){
         cout<< a+b;</pre>
int main(){
         int result =0;
         int x = 10, y = 20;
         result = sum(x, y);
         cout<<result+30;</pre>
```

Function call mechanics

```
What is the output of the following code
int sum(int a, int b){
         return a+b;
int main(){
         int result =0;
         int x = 10, y = 20;
         result = sum(x, y);
         cout<<result+30;</pre>
```

Function call mechanics

```
What is the output of the following code
int sum(int a, int b){
         int result= a+b;
         exit(0);
int main(){
         int result =0;
         int x = 10, y = 20;
         result = sum(x, y);
         cout<<result+30;</pre>
```

for loop OR while loop? Which one should you use?

```
for (int i = 0; i < 15; i++) {
  cout << i << endl ;</pre>
int j = 0;
int n;
while (j < 15) {
  cout << "Enter a number" << endl ;</pre>
  cin>>n;
  j = j+n;
  cout<<"Current value of j is:"<<endl;</pre>
```

Next time

- File IO
- Intro to lab03