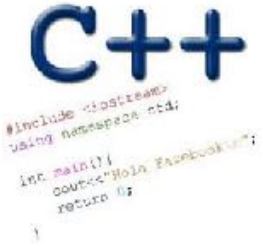
INTRO TO GIT
FLOATS AND LOOPS

Problem Solving with Computers-I



About you!

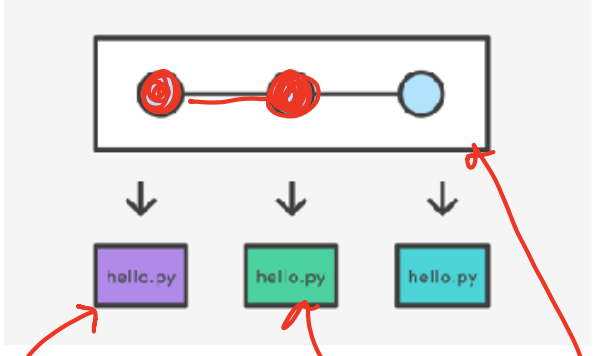
EE	35%
STSCI/ACTSC	49%
CMPEN	10%
CS	2%
OTHER	2%

What is git?

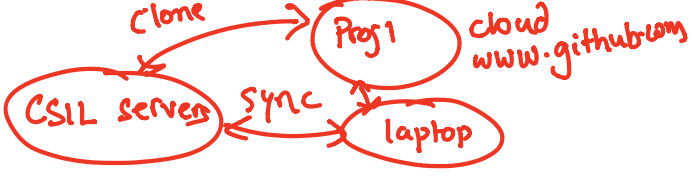
Git is a version control system (VCS).

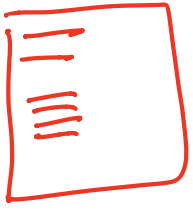
A VCS allows you to keep track of changes in a file (or groups of files) over time

- shared ownership



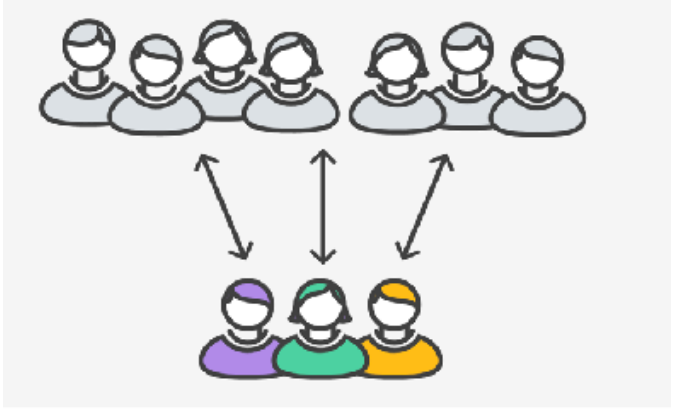
Git allows you to store code on different computers and keep all these different "copies" in sync





Why are we learning git in this class?

- Collaborate
- Share code ownership
- Work on larger projects
- Provide feedback on work in progress
- Learn professional software development tools

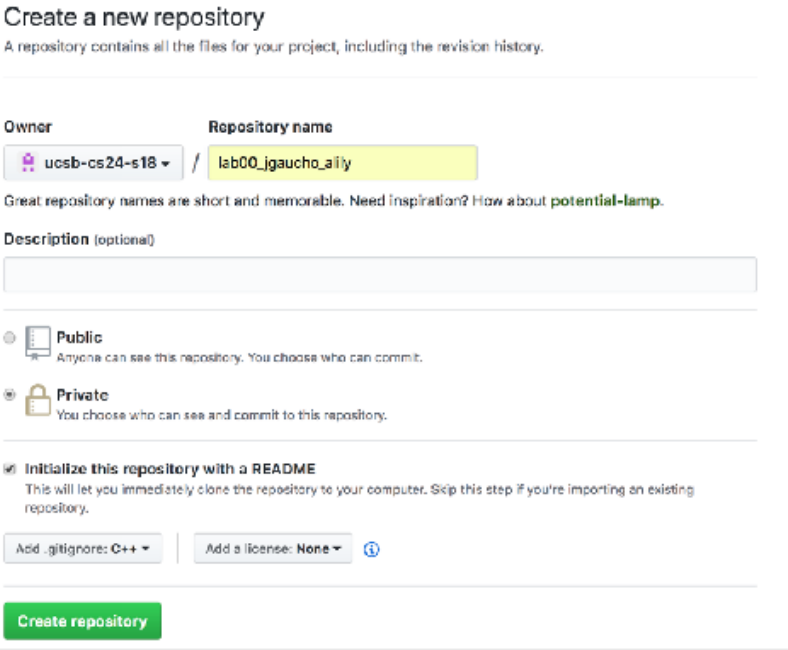


Git Concepts

repo (short for repository): a place where all your code and its history is stored

Creating a repo on the cloud (www.github.com)

Navigate to www.github.com and create a repo on the internet



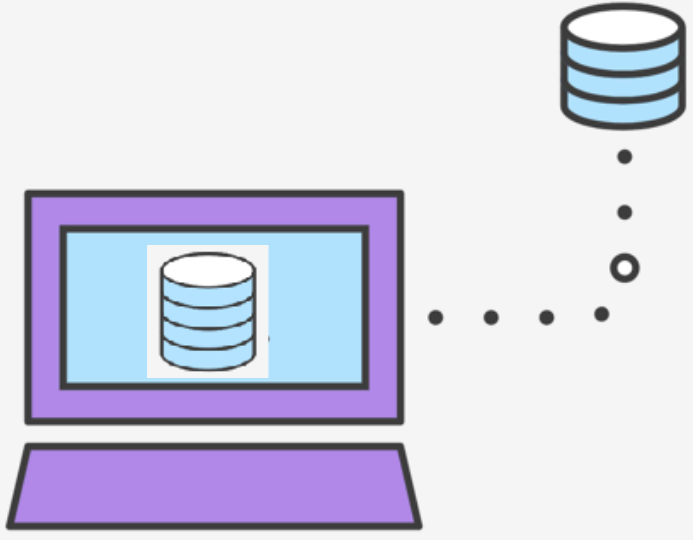
Remote repo

You may submit new versions of your code via www.github.com.
Git will remember all the different version

Cloning a repo

```
git clone <repo>
```

To get a copy of your code on your local machine, you may either download the zip file or clone the repo



Git Concepts: REPO

How is a directory different/similar to a git repository?

A. Files are tracked in a directory but not in a repository

B. Files are tracked in a repository but not in a directory

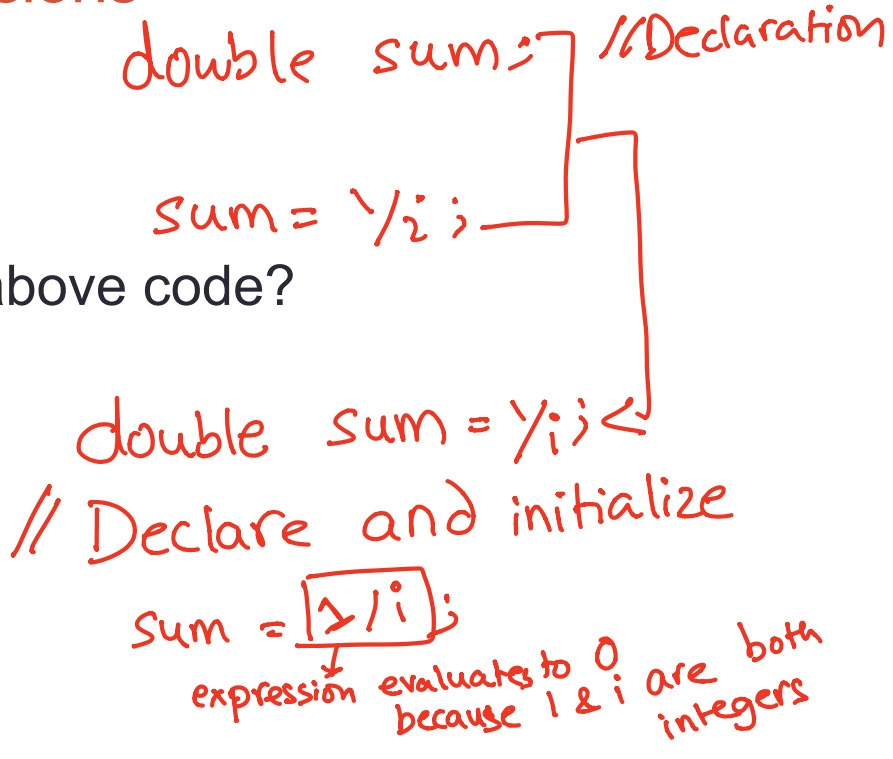
C. Files are tracked in both a directory and repository

C++ types in expressions

```
int i =10;
double sum = 1/i;
cout<< sum ;
```

What is printed by the above code?

A. 0
B. 0.1
C. 1
D. None of the above



Setting up output when printing doubles

```
See pages 91 and 190 of textbook
int i =10;
double j = 1/static_cast<double>(i);
cout.setf(ios::fixed);      // Using a fixed point representation
cout.setf(ios::showpoint); //Show the decimal point
cout.precision(3);
cout<<j;
```

explicit cast + type

double casting

number of digits after the decimal point

What is printed by the above code?

A. 0
B. 0.1
C. 0.10
D. 0.100
E. None of the above

1.0/i;

double, i is automatically promoted to a double

x/y

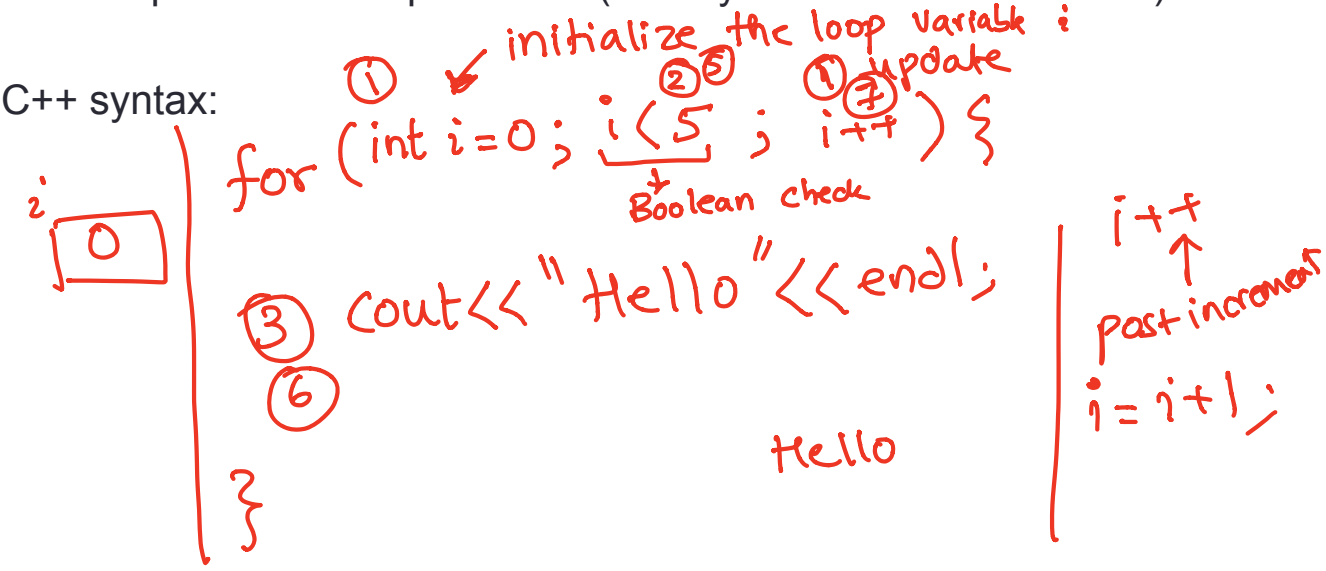
Suppose x & y are both integers x/y will be rounded to an int

To avoid rounding cast either x or y

C++ for loops

A for loop is used to repeat code (usually a fixed number of time)

C++ syntax:

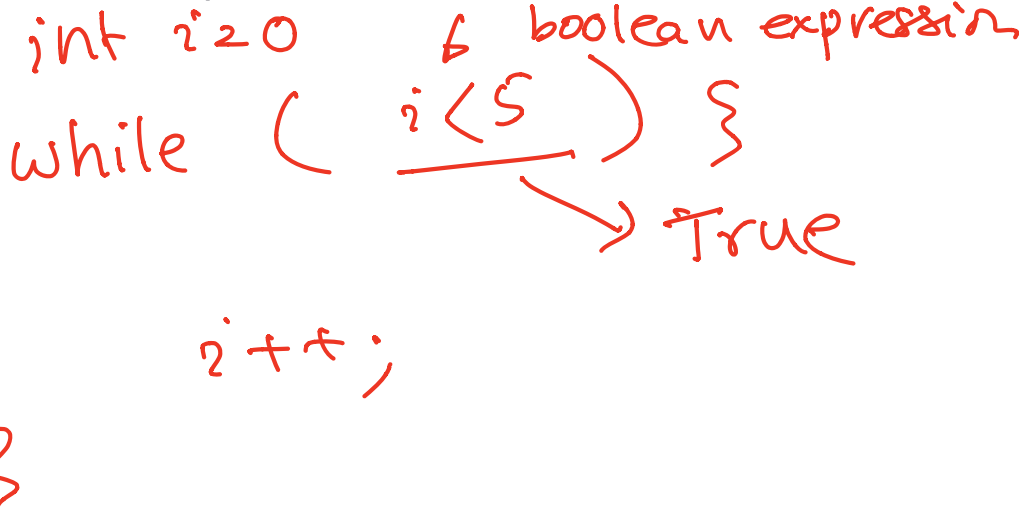


Write a program that calculates the series:
1+ 1/2+ 1/3+ ….1/n,
where `n` is specified by the user

While loops

A while loop is used to repeat code while some condition is true

C++ syntax:



do-while loops

A while loop is used to repeat code until some condition is no longer true

C++ syntax:

```
do {
    // code
} while (condition);
```

Nested for loops – ASCII art!

Write a program that draws a square of a given width

```
./drawSquare 5

* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

Draw a triangle

Which line of the drawSquare code (show on the right) would you modify to draw a right angled triangle

```
./drawTriangle 5

*
* *
* * *
* * * *
* * * * *
```

```
6    for(int j = 0;  j < n;  j++){ //A
7        for(int i=0; i < n; i++){ //B
8            cout<<"* ";   //C
9        }
10       cout<<endl;    //D
11   }
12   cout<<endl;      //E
13
```

Infinite loops

```
for(int y=0;y<10;y--)
    cout<<"Print forever\n";
```

```
int y=0;
for(;;y++)
    cout<<"Print forever\n";
```

```
int y=0;
for(;y<10;);
    y++;
```

```
int y=0;
while(y<10)
    cout<<"Print forever\n";
```

```
int y=0;
while(y=2)
    y++;
```

How is the pace of the class?

A. Too fast
B. Fast, but I am able to catch up once I do the labs
C. Slow
D. Too slow
E. Its fine for me

Next time

- C++ functions and function call mechanics
- Passing parameters to programs