Words
COMS 4115 Final Project Presentation

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Overview
Hello World?

```c
#include <stdio.h>

int main(int argc, char **argv) {
    printf("Hello World");
    return 0;
}
```
Hello World?

```c
#include <stdio.h>

int main(int argc, char **argv) {
    printf("Hello World\n");
    return 0;
}
```
class HelloWorldApp {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
Hello World!

Fred is a person at 0,0.
Make Fred say "Hello World".
Hello World!

Fred is a person at 0,0.
Make Fred say "Hello World".
Buzzwords!

Experimental
Natural
Educational
Object-oriented
2D animations
Language Intro

Class Definition

A person is a thing.

Object Creation

Alex is a person at 0,0.

Properties

Alex's height is 74.

Actions

Make Alex move up 2.
Make Alex say "Hi".
Quick Demo
Project Management

GitHub

Google Drive

ISSUES

AGILE
Under the Hood
What’s Happening Here?

Alex is a thing at 0,0.
Bob is a thing at -1,4.

Make Bob move down 8.

Repeat 8 times {
    Make Alex say Bob's row.
}
What’s Happening Here?

Fred is a thing at 0,0.
Make Fred wait 4.
Repeat 3 times {
    Star is a thing at 0,0.
    Make Star move anywhere 4.
    Make Fred say "A star at:\n" + Star's column + "\n" + Star's row.
}

Unit/Integration Testing

JUnit

Every method, every exception, every programmer

Try to think of and cover edge cases:

Bob's friend is Bob.

Remove Bob's friend.
System Testing

Test end-to-end every language feature...
...but how can we test visual output?

Logs!

Easy to diff
Fast to run
Captures errors too
Statistics and Demo

200+ Unit tests

3,000+ lines of testing code

15,000+ lines of logs

Simply run ant test
Marco Polo with Bob & Alice

Whenever Bob says "Marco" {
  Stop Alice.
  Make Alice say "Polo".
  Make Alice say "".
  Repeat 3 times {
    Make Alice move anywhere 2.
  }
}

Whenever Alice says "Polo" {
  Stop Bob.
  Bob's xMove is Alice's column - Bob's column.
  Bob's yMove is Alice's row - Bob's row.
  Make Bob move right Bob's xMove.
  Make Bob move up Bob's yMove.
  Make Bob say "Marco".
  Make Bob say "".
}
Lessons Learned

Write good tests
Don’t be afraid to change code/architecture you’ve already developed
Seriously, write good tests
Be ambitious, reasonable, and steady
Don’t be too clever
One More Demo