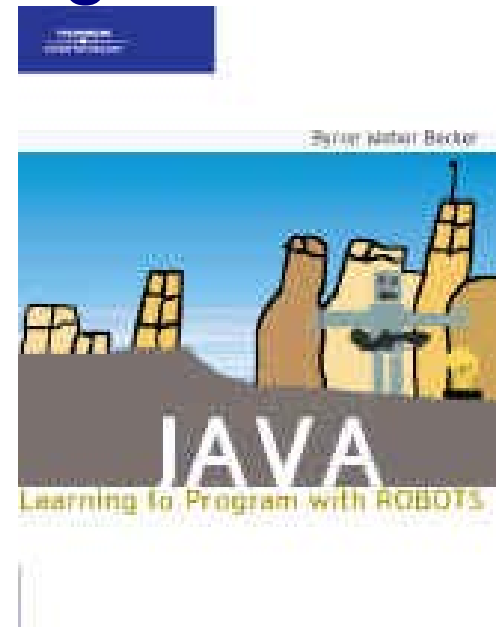


# BIT 115 Lecture 1

- Log into a computer
- Look at webpage:  
<http://faculty.cascadia.edu/mhazen/BIT115/>
- Introduce your selves to your neighbors



# Today

- Who am I?
- About this class
- Why Java?
- Who is Karel?

# Your section, your instructor

- Class meets from 11:00-1:05, on Mondays and Wednesdays
- Class will involve some lecture, but more practice, and attendance is important.
- I am Megan Hazen
  - BS/ME Mechanical Engineering
  - Phd Electrical Engineering
  - 10 years software engineering at APL-UW
  - Machine learning scientist a local startup.

# Who should take this class

- For people who have no prior programming experience:
  - Curious about programming
  - Other fields (web, networking, business, design, etc)
  - Plan to transfer to UW Bothell, but no prior experience
- Pre-Requisite:
  - Enjoy figuring out how things work
  - Comfortable using Windows/Mac and new programs
  - Math 85 (or Math 95)
- Won't do a lot of math, but you'll need more the higher you go. There is a lot of *logic* and *decision-making*.

# Class Specifics

1. Read the syllabus, on-line
2. Ask your neighbors any questions you have.
3. Class discussion

# Why Java?

- Programming can use a wide variety of tools.
  - Name some programming languages you've heard of.
  - First computers were hard-wired. FORTRAN (still in use) was one of the first readable languages.
- Knowing how to program involves learning how to design algorithms, how to think logically, and how to solve problems, and how to use operations efficiently. Java is just one of many systems to help you do that.

# Fortran v. Java

```
program main
```

```
c*****72
```

```
cc MAIN is the main program for HELLO.
```

```
implicit none
```

```
write ( *, '(a)' ) ' Hello, world!'
```

```
stop
```

```
end
```

```
class HelloWorldApp {
```

```
public static void main(String[] args) {
```

```
    System.out.println("Hello World!"); // Display the string.
```

```
}
```

```
}
```

# Why Java?

- Java has a simple and familiar grammar (similar to predecessors, easy to read)
- Portable – the Java virtual machine is highly optimized to run efficiently on most platforms
- Many standard libraries – Java is the most common (or close, depending on measure) language in use today.
- Excellent support and tools available (see above).



# Still Why Java?

- Java has nice 'language theoretic' attributes
  - It is a mature language, unlike FORTRAN
  - It is a safe language, using type-checking, garbage collection, and strong object orientedness to make it readable, maintainable, and predictable.
  - Language design encourages good programming practices
- Once you know Java, most modern language will look at least a little familiar.

# Will I use it?

## How to Pick Your First Programming Language Based on the Life You Want



There are a lot of opportunities and possibilities out there in the programming world! We found some useful trends that make it easier to decide where to start.

— Data is based on IEEE Spectrum's Top 50 Programming Languages 2014 Rankings —

### APPLICATION

If career flexibility is important to you, learning Python or C++ allows you to work in most major types of programming, from creating games to building embedded systems. If you choose JavaScript or PHP, however, be prepared for a career in web development. Likewise, studying Matlab or R generally qualifies you for a career in data analysis.



### SALARY

If money drives you, study Ruby, Matlab, or Python. They have the three highest average salaries of the top ten languages, and are the only languages that pay over \$100,000 per year on average. If you study PHP or C#, expect a lower (though still) total (net) salary — both average a little below \$90,000 per year.



### GEOGRAPHY

The five states shown here have the highest number of job openings in the country for programmers according to Indeed.com. Java and JavaScript are the top languages listed for in most states, making them good choices if you prefer that your career doesn't dictate your location.

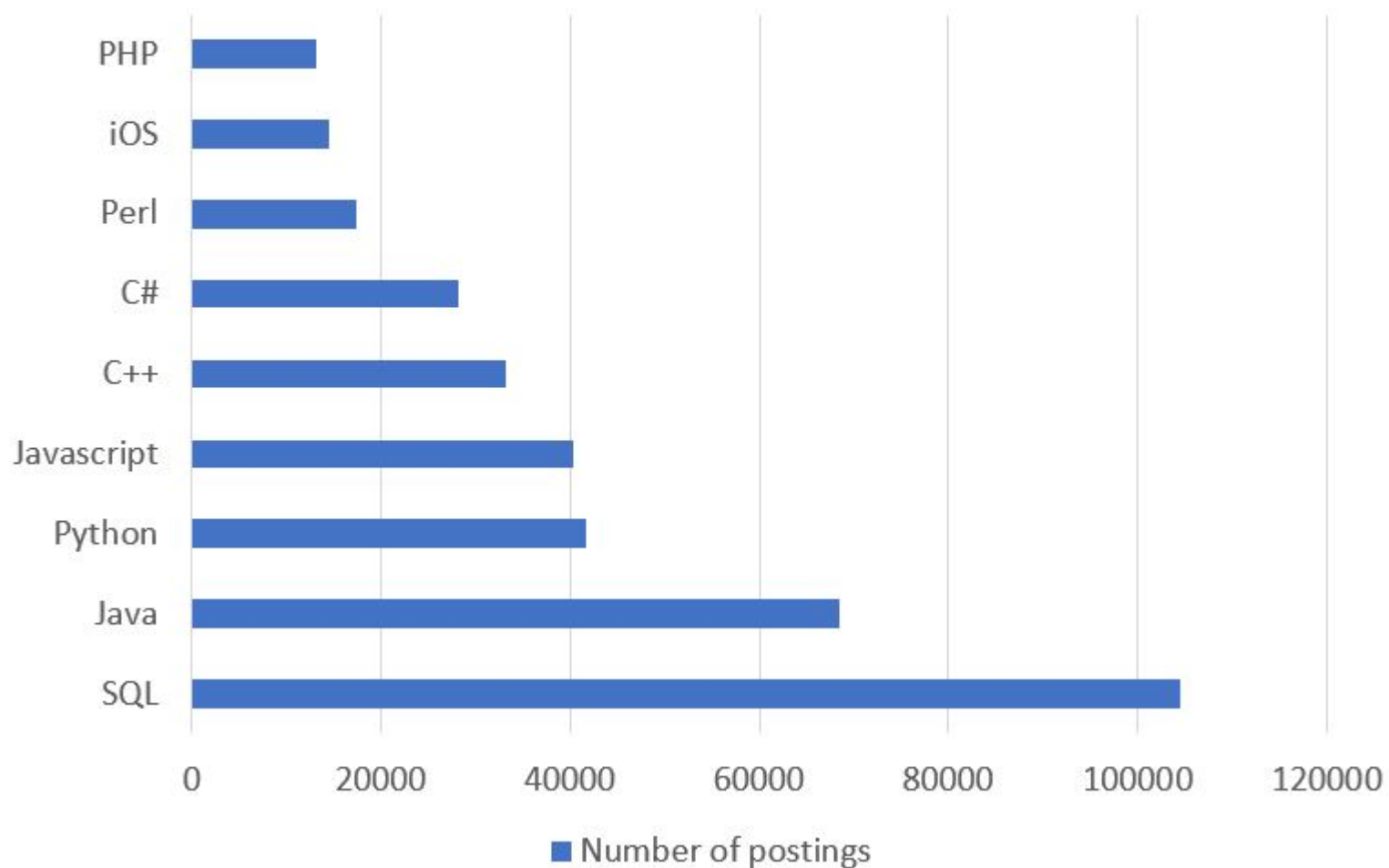
California, of course, has job openings aplenty for programmers of all stripes, though that abundance comes with a high cost of living. Python and Ruby jobs are especially concentrated in California, where companies like Google use Python and Airbnb uses Ruby, but the state is comparatively low in C# jobs.

1000 job openings



# Will I use it?

Number of Indeed Job Postings by Programming Language



# Who is Karel?

- Karel is a Robot.
  - BIT 115 uses a pre-packaged world that allows users to create and manipulate virtual robots.
  - Advantages include a running start and easy visual feedback on code behavior
  - Robot and supporting classes are found in Becker.jar – available for free on line.
- You can create a Karel object – one instance of the Robot class.

# Getting Started

- The first step is to install the appropriate software. You can do this on your personal machine, or you can find the appropriate programs on a school machine and just download the Karel files.
- You will want to have this done before the next class.
- Play around with `Starting_Template.java`