



CMSC 150

INTRODUCTION TO COMPUTING

ACKNOWLEDGEMENT: THESE SLIDES ARE ADAPTED FROM SLIDES PROVIDED WITH INTRODUCTION TO PROGRAMMING IN JAVA: AN INTERDISCIPLINARY APPROACH, SEDGEWICK AND WAYNE (PEARSON ADDISON-WESLEY 2007)

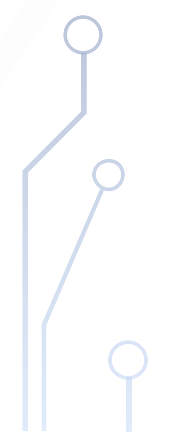
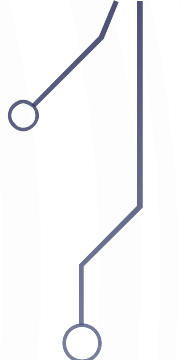
LECTURE 1

- INTRODUCTION TO COURSE
- COMPUTER SCIENCE
- HELLO WORLD
- COMPUTER ORGANIZATION



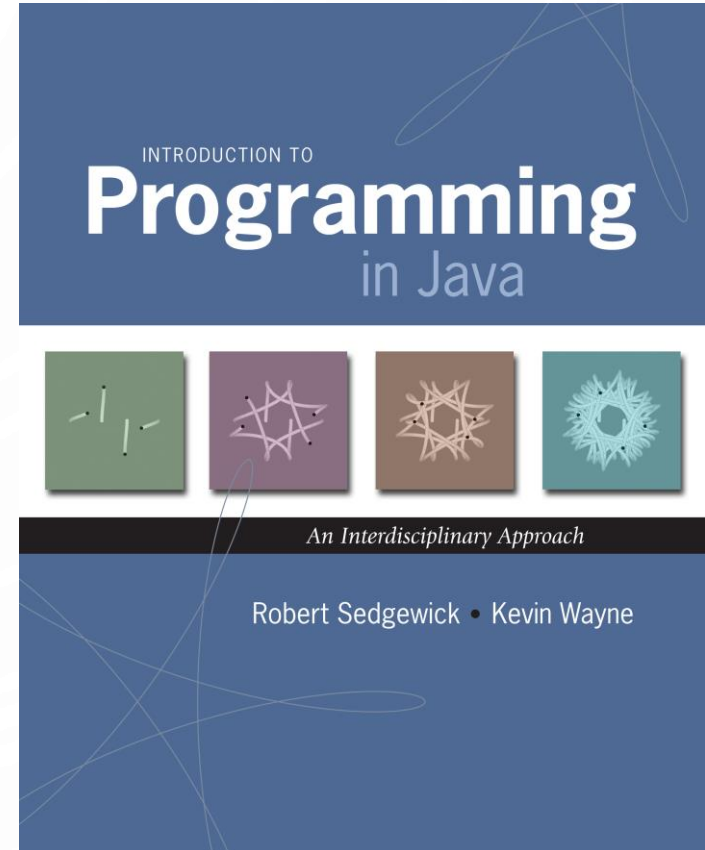
WELCOME

- Questions?
- 



SYLLABUS

- Questions?

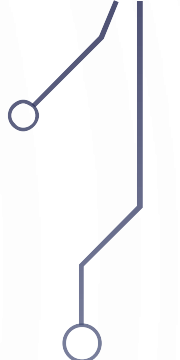


WHAT IS COMPUTER SCIENCE AND COMPUTING?

- Your thoughts?
- Google: “The study of the principles and use of computers”
- Wikipedia: “The scientific and practical approach to computation and its applications”
- Dictionary.com: “The science that deals with the theory and methods of processing information in digital computers, the design of computer hardware and software, and the applications of computers”
- Edsgar Dijkstra: “Computer Science is no more about computers than astronomy is about telescopes”



PROBLEM!

- Work in pairs
 - Create a methodology to “solving” Pokemon Go
 - Put another way...tell a computer how to play Pokemon Go “well”
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WHAT IS COMPUTER SCIENCE AND COMPUTING?

- Study of algorithms
- Study of computing tools
- It is not just:
 - Programming
 - Microsoft office
 - Typing
 - Electronics
 - Etc.

Input



Algorithm

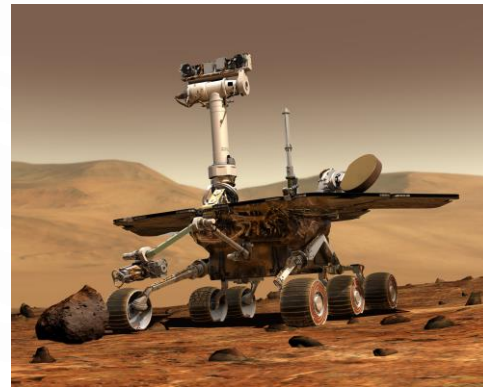


Output




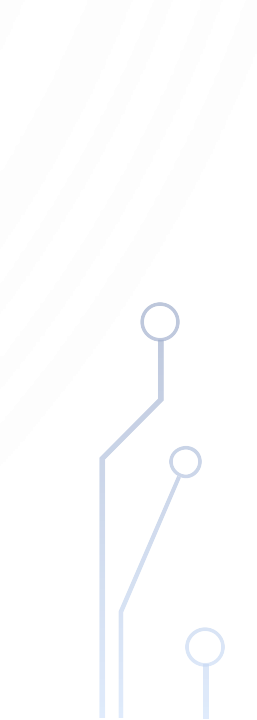
PROGRAMMING

- Even though computer science is not about the computer, we still need to tell the computer what to do!
- We do this by programming the computer!
- Programming allows us to envision our wildest dreams, explore planets, and perform fast and complex operations to improve our lives!



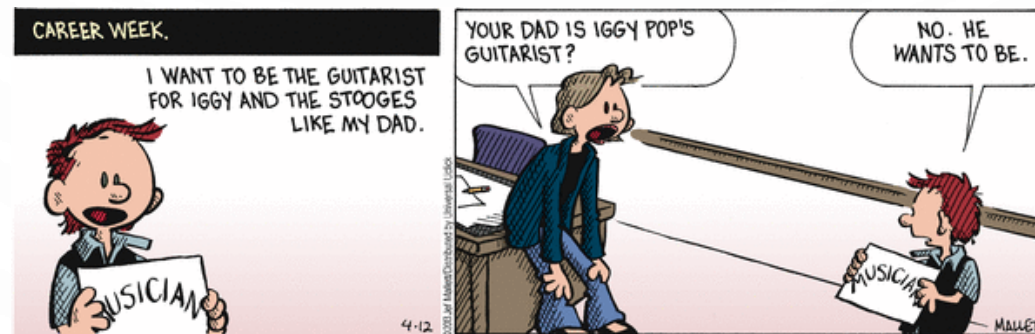


HOW DO WE PROGRAM THE COMPUTER?

- This is what our course will discover!
 - All the building blocks to making algorithms and studying computer science
 - We will use Java
 - NOTE – this is an arbitrary choice. There are many languages out there, and all build on the same basic building blocks discussed in the course. So Java is merely the vessel to our exploration of computing!
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A NOTE ON OTHER OPTIONS

- Machine code – 0's and 1's...or simple commands
 - Error prone and extremely tedious
- Natural language
 - Ambiguous...which vs which or break vs break or run vs run...ah the madness!!!!
- High level languages – Java, C++, Matlab, etc, etc
 - Great option! Simple to learn (simpler than English), extremely expressive



WHY JAVA?

- Java
 - Widely used.
 - Widely available.
 - Embraces full set of modern abstractions.
 - Variety of automatic checks for mistakes in programs.
- Our study will
 - Minimal subset of Java.
 - Develop general programming skills that are applicable to many languages.
 - IT IS NOT ABOUT THE LANGUAGE!!!

“ There are only two kinds of programming languages: those people always [gripe] about and those nobody uses.”

– Bjarne Stroustrup



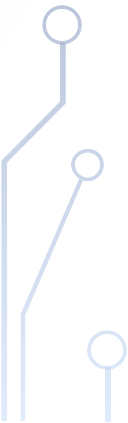


1.1 YOUR FIRST PROGRAM



HELLO WORLD

- Demonstration
- 



HELLO WORLD

Hello.java

```
/* Everyone's first program.
```

```
Prints hello world to the console. */
```

```
public class Hello {
```

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

```
System.out.println("Hello world!"); //Prints string followed by a new line
```

```
}
```

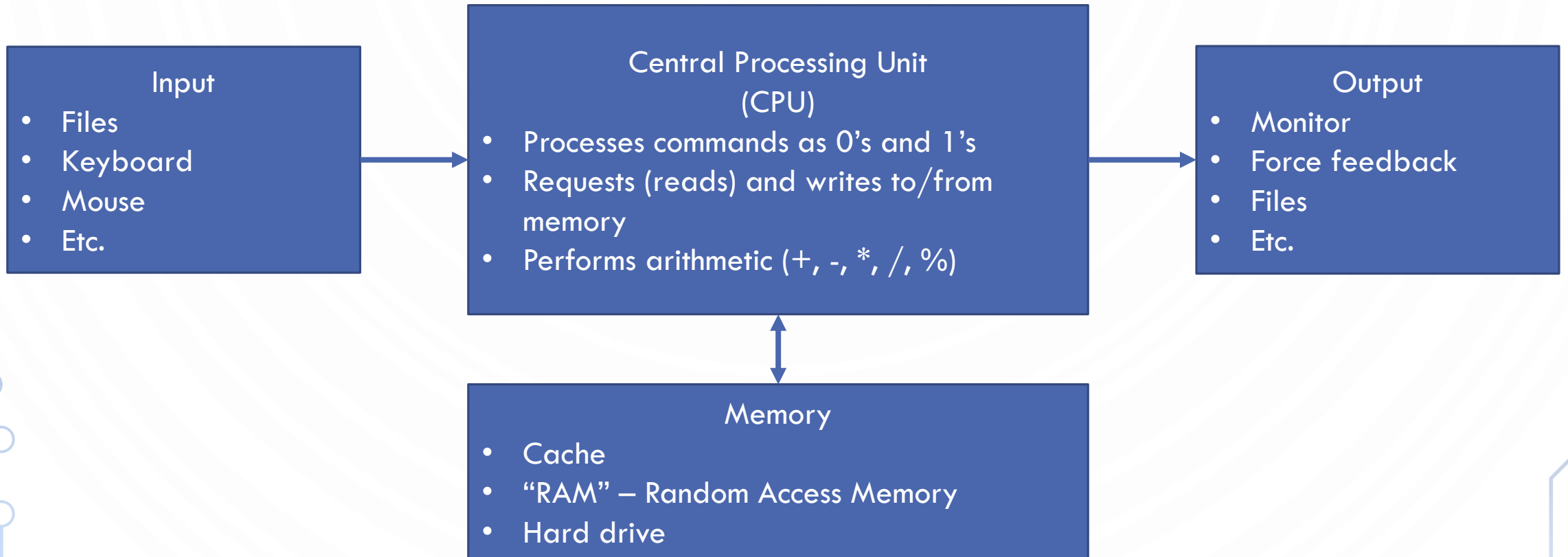
```
}
```

Comments are English notes to another programmer. YOU DON'T ONLY WRITE PROGRAMS ALONE OR FOR YOURSELF!

Java contains keywords which are reserved commands of the language. We will learn more. For now understand that a lot of this stuff is boiler plate.

You get to tell the computer commands of what to do. We will learn many different ways to make creative and genius programs 😊

COMPUTER ORGANIZATION



COMPUTER ORGANIZATION A SECOND LOOK

