

Engineering & Technology

WIT COMP1000

Introduction to Computing

Engineering & Technology

A Bit of History





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What Makes Up a Computer?

Hardware

- » Physical components
- » Wide variety of types and manufacturers
- » Abstracted to a simple set of ideas for Computer Science

Software

- » Programs (i.e., instructions)
- » Wide variety of purposes
- » The focus of this course

High Level Hardware View



Main Memory (RAM)



Running a Program



Compilers



Java Virtual Machine

- Java byte code also can't be executed by a CPU directly
- Instead, the Java Virtual Machine (JVM) is another program that interprets the byte code and translates it into the native CPU language
 - » Allows a program to be compiled once and run on all types of computers (that have a JVM available and installed)
- Other high level languages work differently

Building a Java Program



Running a Java Program



Take Home Points

- Computers have 5 main components: Processor, Main Memory, Input Devices, Output Devices, Storage Devices
- 1 byte = 8 bits (binary digits)
- Main Memory is a sequence of bytes, each with a memory address
- The Java compiler turns source code into byte code
- The JVM uses that byte code along with additional libraries in order to execute your program