**Java Virtual Machine**

**Stack-based VM**

* Allows for more compact programs
* Operands are implicit

**Variable Length Instructions**

* iadd – one byte (opcode)
* Dstore 4 – two bytes (opcode & local slot)

**Key run-time data structures**

* PC – address of instruction currently being executed
* Stack
  + It has:

1. Stock frames
   1. Block of memory created for a method invocation
      1. Contains
         1. Local Variables
         2. Partial Results
         3. Return Address

* Think about recursion
* Heap
  + Stores object (garbage collector)
  + Constant pool
    - stores constant data & meta-data
    - Field names & types, etc, available to program via reflection
  + Method area
    - stores instructions for methods

**JVM**

* All instructions start with a one-byte opcode.
* The JVM has a register, the program counter, which contains the address of the instruction currently being executed.