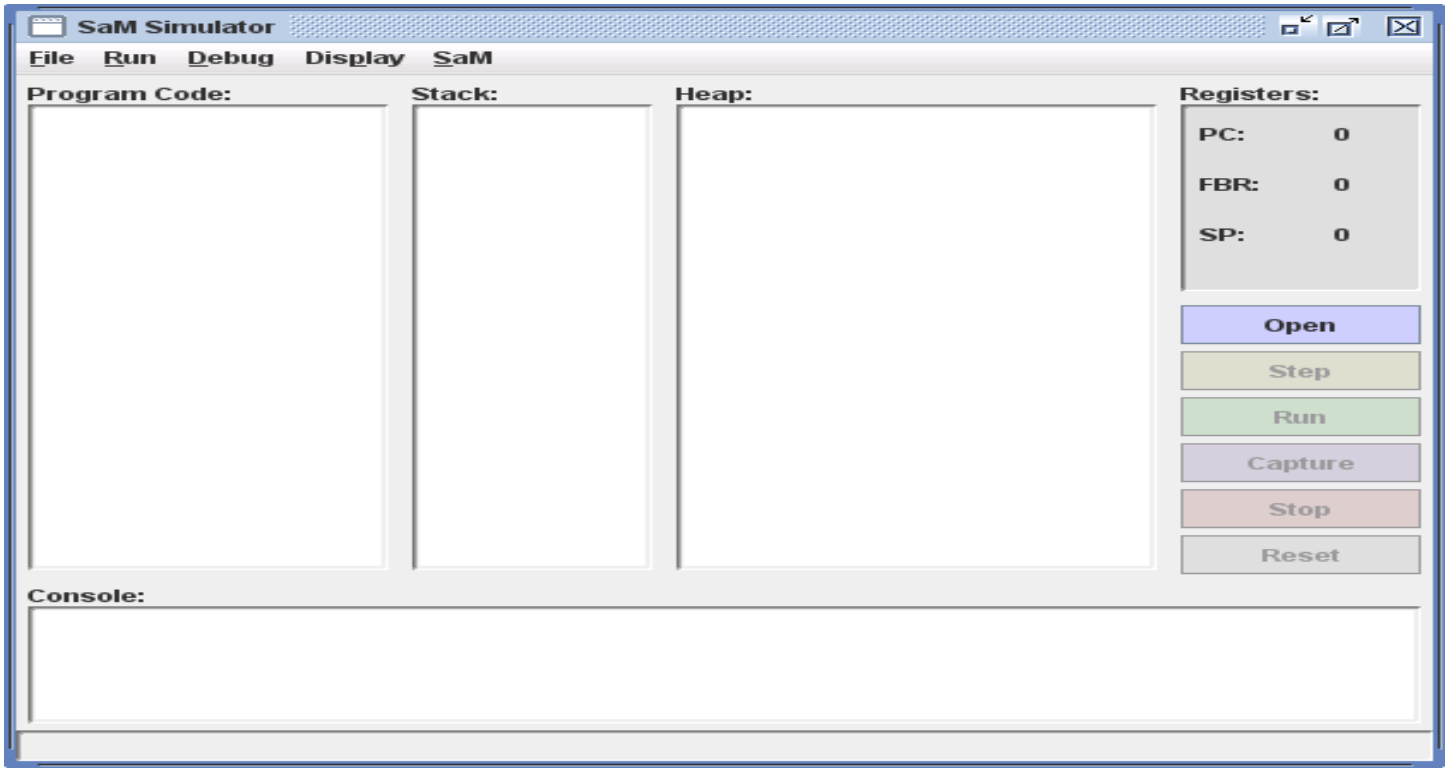
Introduction

- SaM is a simple stack machine, similar in spirit to the Java Virtual Machine and other similar endeavors, designed as a clean target machine for teaching compilers.
  - SaM v1: Original version by Keshav Pingali, Cornell, c. 2000.
  - SaM v2: Complete reimplementation and major major extensions, Ivan Gyurdiev and David Levitan, Cornell, 2003-2005.
  - Current version 2.6.3.

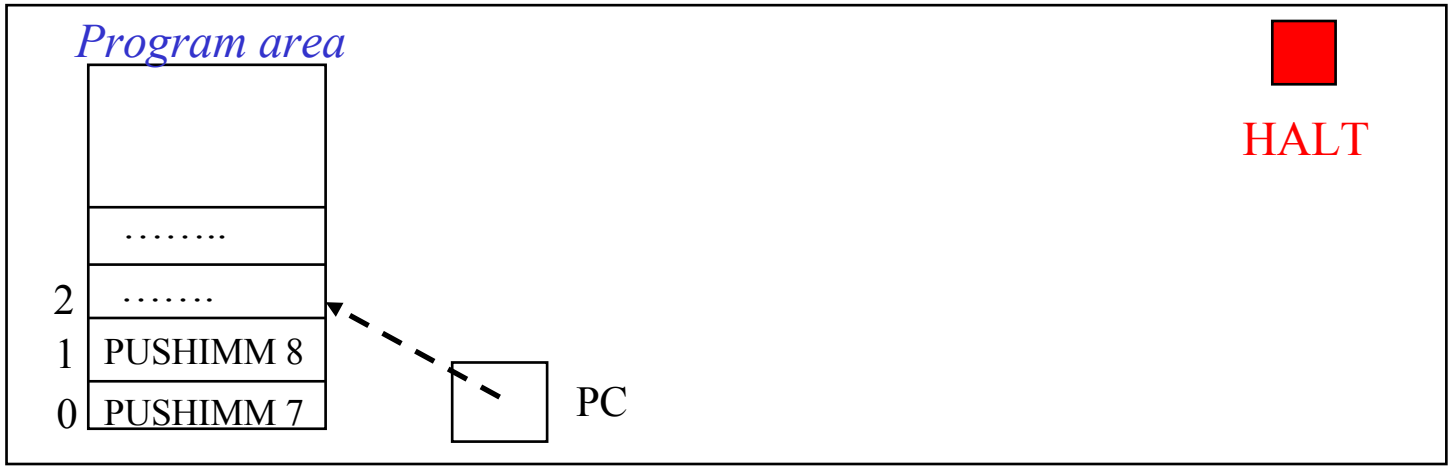
- Course home page has
  - SaM `jar` file
  - SaM instruction set manual
  - SaM source code

- Start up with `java -jar SaM-2.6.3.jar`

SaM Screen Shot



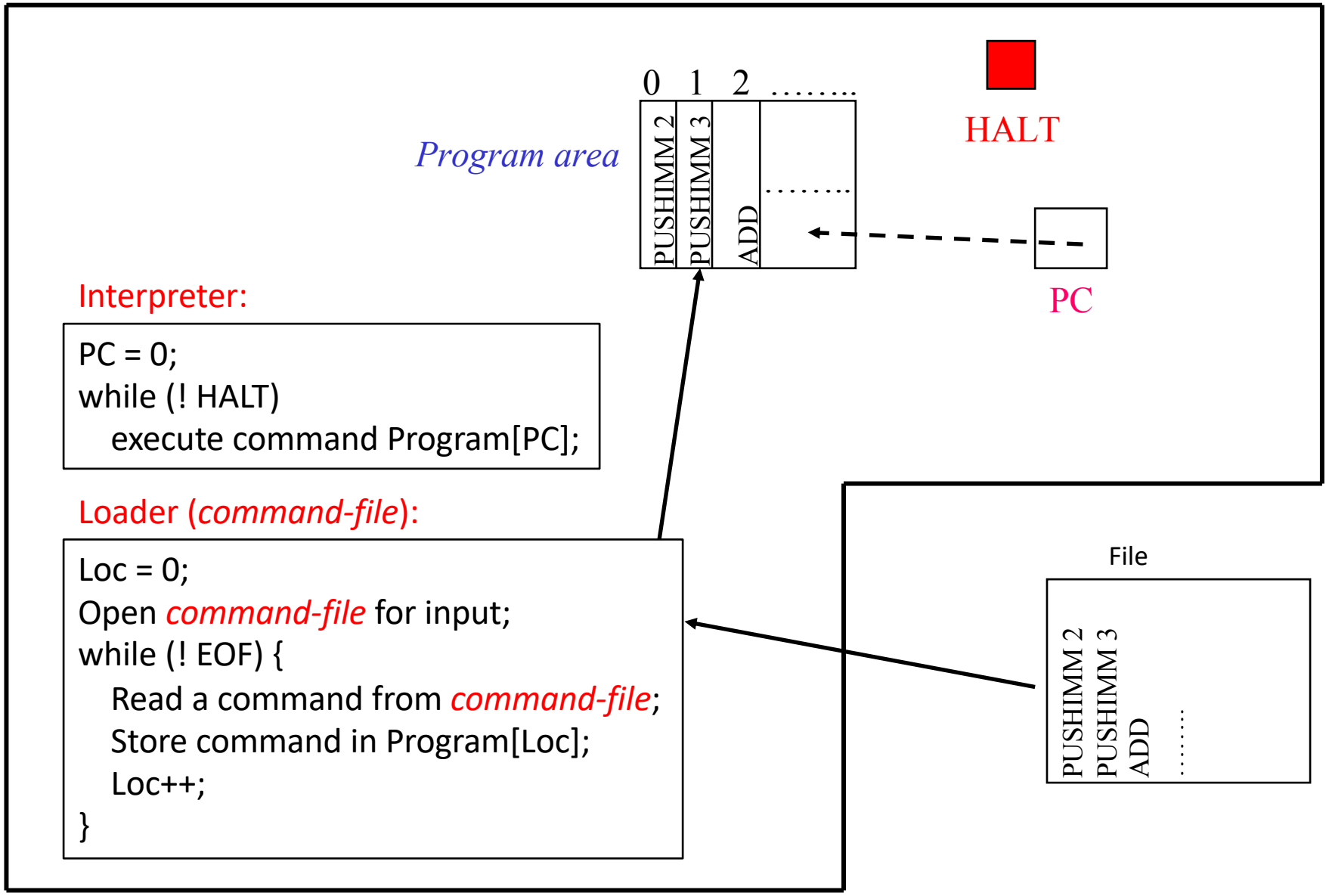
Program Execution in SaM



Interpreter:

```
PC = 0;                                  // initialization
while (! HALT)                           // STOP command sets HALT to 1
   Execute command Program[PC];  // PC update is part of command execution
```

Program Loading and Execution in SaM



Symbolic Labels

- SaM assembly instructions in program file can be given symbolic labels.

```
foo: PUSHIMM 1
     …
     JUMP foo
```

- SaM loader resolves labels and replaces jump targets with addresses.