

## Activity: von Neumann Model

### A. Why?

The von Neumann model of computer is the kind we use.

### B. Outcomes

By the end of the activity you should

- Be able to trace the execution of a simple von Neumann machine

### C. Questions

These questions refer to the Simple Decimal Computer from the notes.

1. What happens if we execute the instruction at location 00, where location 00 contains 1200?
2. Write some code that takes the contents of memory location 90, doubles it, and stores it back in location 90.
3. Write a branch instruction that jumps to location 10 if memory location 95 contains zero. (Use register 9 as temporary storage.)
4. Branching if you have a non-zero value is a bit harder; fill in the following:
  - Location 25: Load R9 with contents of location 95
    - (We're using register 9 as temporary storage.)
  - Location 26: Jump to location 28 if R9 is zero
  - Location 27: Jump to location 10 unconditionally