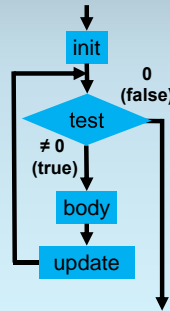


Set Up for the Later Iterations with Update

3. What should be done when iteration stops?
4. How do you set up for the loop (what is “init”)?
5. How do you update between iterations (what is “update”)?

Update must ensure that invariants hold for next iteration.



Example: Dump LC-3 Memory

Let's do an example. In the LC-3 simulator,

- one can **examine the contents of memory**
- using the **dump** command.

Recall that LC-3 memory uses

- **16-bit addresses** with
- **16-bit addressable** memory.
- For each, we can use **four hex digits**.

Formatting for Dump Command Output

Look at a sample of the output...

address of first location on line

twelve locations per line

```

01F8: 0057 005E 006C 0063 006F 006D 0065 0020 0074 006F 0020 0074
0200: 0068 0065 0020 004C 0043 002D 0033 0020 0073 0069 006D 0075
021C: 006C 0061 0074 006F 0072
  
```

contents of a memory location

contents not requested for these addresses

each address is a multiple of 12

Function Signatures for Dumping and Reading Memory

What information is needed for this output?

- Starting address and
- ending address.

```
void dump_memory
(int addr_s, int addr_e);
```

We also need access to LC-3 memory contents:

```
int read_memory (int addr);
```