

## Breakout Activity: while Loop in Assembly Language

Please consult the document “Notes on Assembly Language.pdf” on Courseworks.

Here we have a “while” loop written in C:

```
// earlier part of program

while (a != b) {

    // do something - can be nop

    a = a + 1;
}

// later part of program
```

Translate this “while” loop into assembly language. Specifically, consider the following questions.

1. Where do variables a, b need to be located?

2. Where does the constant “1” need to be located?

3. How do we check if  $a \neq b$  (a is not equal to b)? What do we do if they are equal? Fill in line 1 below with the assembly language instruction
4. How do we get back to the beginning of the program? Fill in line 4 below with the assembly language instruction
5. Fill in lines 2 and 3 with assembly language instructions for the body of the loop (the part inside the `{ }` ).

Line 0	// previous instruction
Line 1	
Line 2	
Line 3	
Line 4	
Line 5	// next instruction