

Lecture 13 Worksheet

Question 1

How would you implement the following function in the Hack Virtual Machine language ?

```
function int iterativefib(int x)
{
```

```
    var int fib, fm1, fm2 ;
```

```
    let fib = 1 ;
```

```
    let fm1 = 1 ;
```

```
    let fm2 = 1 ;
```

```
    while ( x > 1 )
    {
```

```
        let fib = fm1 + fm2 ;
```

```
        let fm2 = fm1 ;
```

```
        let fm1 = fib ;
```

```
        let x = x - 1;
```

```
    }
```

```
    return fib ;
```

```
}
```

```
function iterativefib 3
```

```
// initialise the local variables
```

```
// your loop
```

```
// put result on the stack
```

```
push local 0  
return
```

Question 2

How would you implement the following Hack Virtual Machine language operations in Hack assembly language ? You may use R13, R14 and R15 as temporary variables.

1. push constant 1

2. pop static 7 (in a VM file named bob)

3. push constant 5

4. add

5. pop local 2

6. eq