Exercise 6: Method Call

Consider the following method declaration:

```
void foo (char ch, int n) {
        int x;
{ ... }
```

a) Specify the MicroJava bytecode for this method (enter, exit and return), where the method body can be expressed by ....

b) Specify the MicroJava bytecode for the method call foo('x', i+1);, where i is a local int variable at address 0.

Solution

a) Bytecode for the method declaration

```
100  enter 2, 3
103  ...
120  exit
121  return
```

The method foo() has 2 parameters and a total of 3 local variables. The enter instruction creates a stack frame with 3 words and copies the two parameters from the EStack to the beginning of the frame.

b) Bytecode for the method call

```
200  const 120            // ASCII value of 'x'
205  load0                // i + 1
206  const1
207  add
208  call -108 (=> 100)
```

The two actual parameters are loaded onto the EStack. The method foo('x', i+1) is then called. Assuming that foo() is at address 100, the call distance is 100 - 208 = -108.