Virtual Machine Function Stack Example

-2: SP = 256
-1: goto Sys.init
0: function Add.add 0
1: push argument 0
2: push argument 1
3: add
4: return
5: function Main.main 2
6: push constant 7
7: pop local 0
8: push constant 8
9: pop local 1
10: push local 0
11: push local 1
12: call Add.add 2
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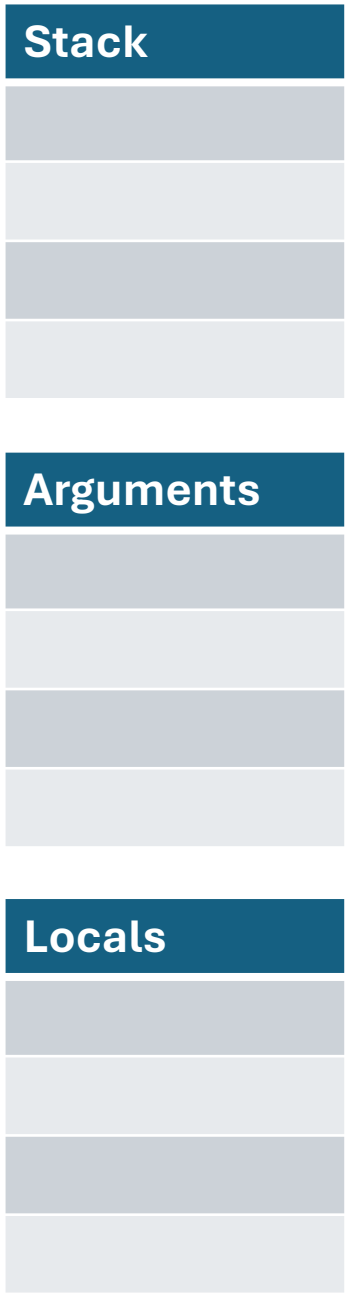

RAM

Address	Value
0	
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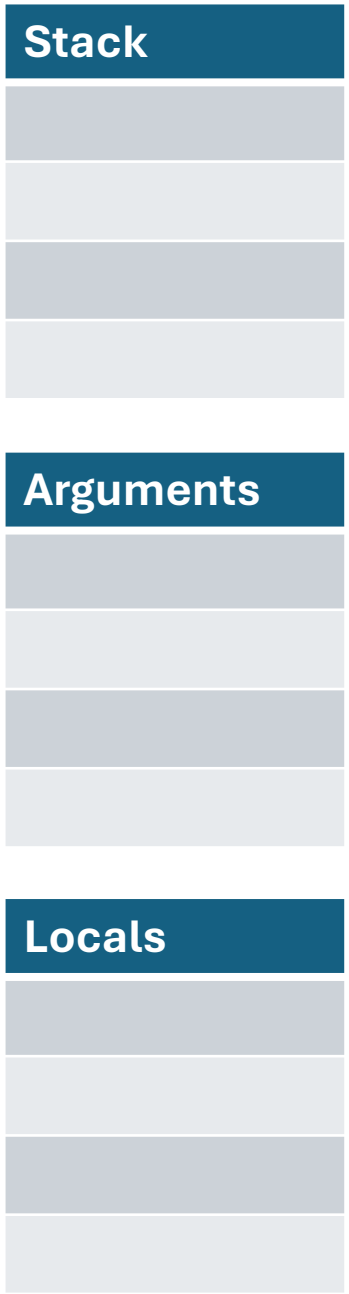
```

```
push return-address
push LCL
push ARG
push THIS
push THAT
ARG = SP - numArgs - 5
LCL = SP
goto f
```



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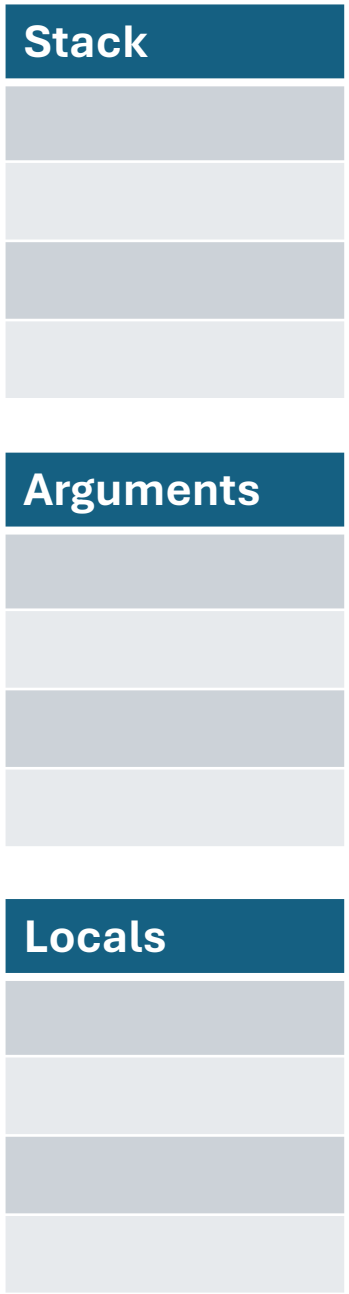
```
repeat numLocals times:
  push 0
```



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Stack

Arguments

Locals

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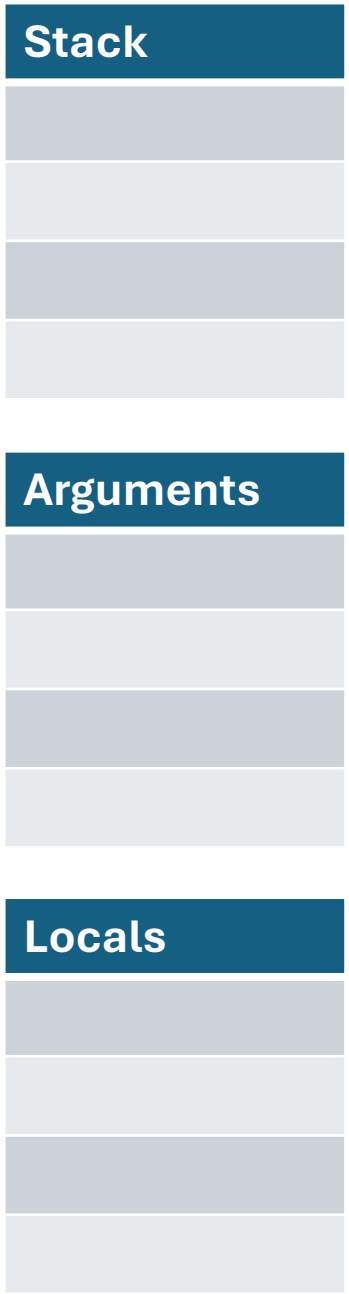

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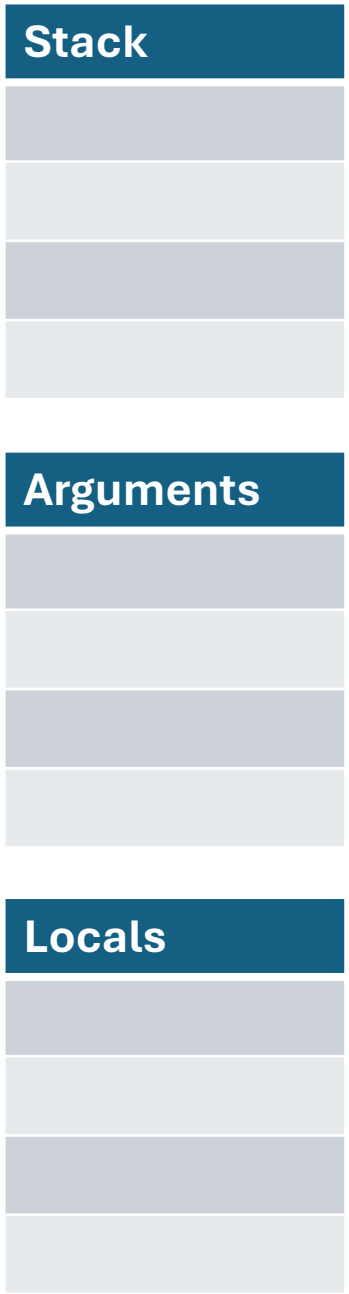

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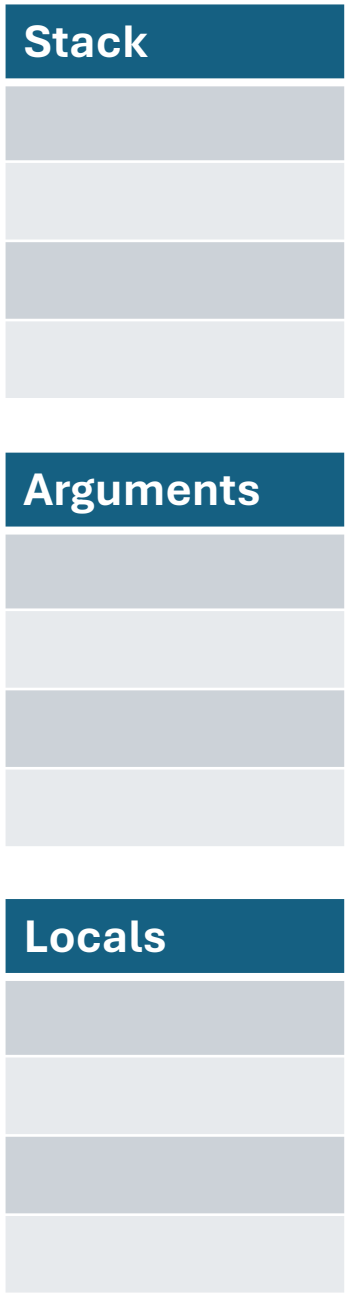

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FRAME = LCL
RET = *(FRAME-5)
*ARG = pop()
SP = ARG+1
THAT = *(FRAME-1)
THIS = *(FRAME-2)
ARG = *(FRAME-3)
LCL = *(FRAME-4)
goto RET
```

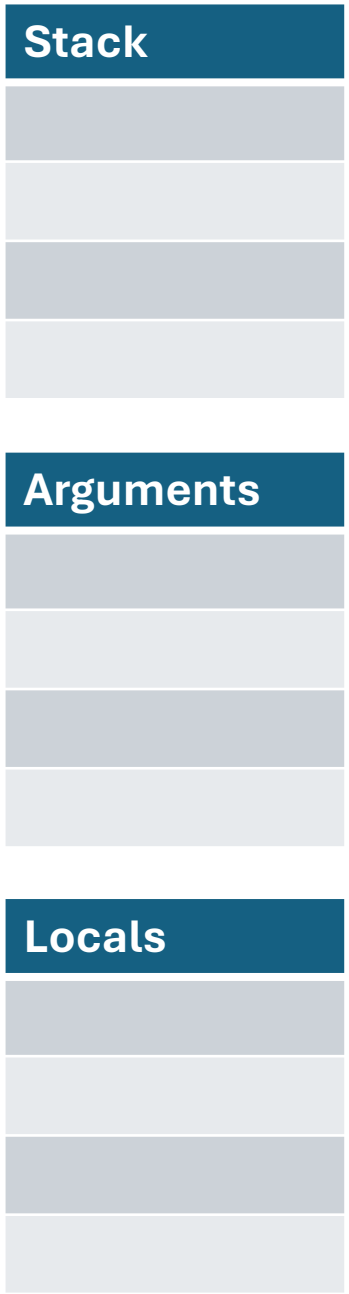

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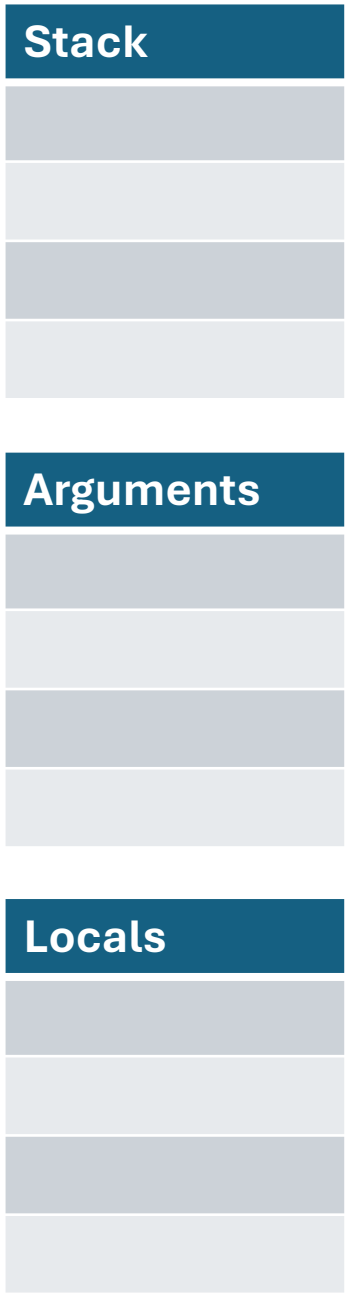

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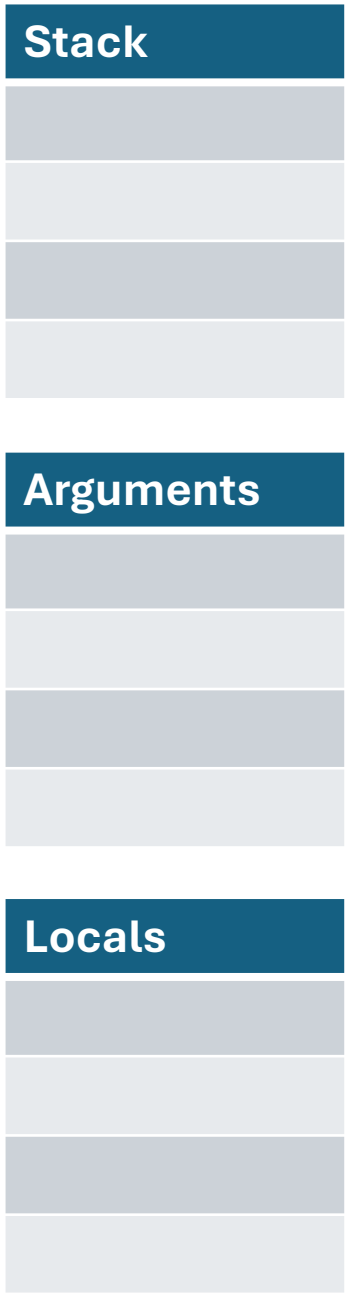

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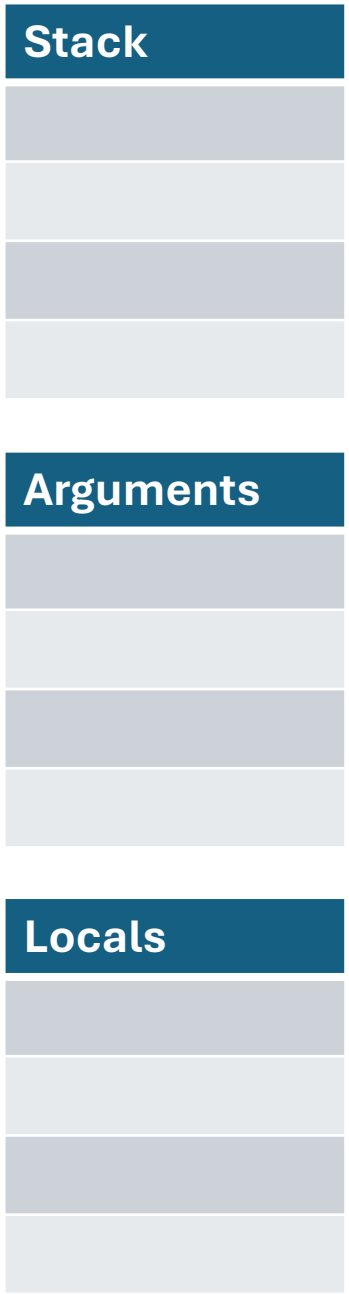

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