

# Code Generation 4

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## 1 Exercise 85

3.

```
main:
Prologue(4)
Push(FP)
call(main.P1)
ADD SP,SP,4
Epilogue
RET
```

```
main.P1
Prologue(12)
SUB R0,R0,R0
LD R1,[FP+8]
ADD R2,R0,11
ST R2,[R1-4]
Push(FP)
call(main.P1.Q)
ADD SP,SP,4
Epilogue
RET
```

```
main.P1.Y
```

```
main.P1.R2
Prologue(4)
LD R1,[FP-12]
Push(R1)
LD R2,[FP+12]
Push(R2)
LD R3,[FP+12]
Push(R3)
call(main.P1.R2.R3)
ADD SP,SP,12
Epilogue
RET
```

```

main.P1.P2
Prologue(4)
LD R1,[FP+20]
ADD R2,R1,1
LD R3,[FP+8]
ST R2,[R3-4]
LD R4,[FP+16]
Push(R4)
LD R5,[FP+12]
Push(R5)
Push(FP)
call(main.P1.P2.P3)
ADD SP,SP,12
Epilogue
RET

```

```

main.P1.P2.P3
Prologue(0)
LD R1,[FP+8]
LD R1[R1+8]
LD R1,[R1+8]
LS R2,[R1-4]
Push(R2)
SUB SP,SP,4
LD R3,[FP+12]
PUSH (R3)
LD R4,[FP+16]
call R4
LD R5,[SP+4]
ADD SP,SP,12
LD R6,[FP+8]
ST R5,[R6-4]
...

```

```

main.P1.Q
Prologue(4)
SUB R0,R0,R0
LD R1,[FP+8]
ADD R2,R0,2
ST R2,[R1-8]
LD R3,[FP+8]
ADD R4,R0,3
ST R4,[FP-12]
LD R5,[FP+8]
LD R6,[R5-4]
LD R7,[R5-8]
ADD R8,R6,R7
ST R8,[FP-4]
LD R9,[FP-4]
Push(R9)
SET R10,main.P1.Xi
Push(R10)
LD R11,[FP+8]
Push(R11)
LD R12,[FP+8]
Push(R12)
call(main.P1.P2)
ADD SP,SP,16
Epilogue
RET

```