

# Code Generation 1

Prat Gary

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```
Prologue(size)
ADD SP,SP,-4
ST FP, [SP]
ADD FP,SP,0
ADD SP,SP, -size
```

```
Epilogue
ADD SP,FP,0
LD FP,[SP]
ADD SP,SP,+4
```

```
G(Stm(begin d, S end))
Let size = Size(d)
C=G(Stm(S))
In Prologue(size) ||
C ||
Epilogue
```

## 1 Exercise 77

1. Table de symbole

Procedure	Symbole	Local addr
Main	x	FP-4
	y	FP-8
	z	FP-12

2.Code

```
\\ Prologue
ADD SP,SP,-4 \\ Empiler(FP)
ST FP, [SP]
ADD FP,SP,0 \\ mise à jour (FP)
ADD SP,SP, -12 \\ Allocation mémoire

SUB R0, R0, R0 \\ On met 0 dans R0
ADD R1, R0, 5 \\ R1 ← 5
STR R1 [FP-4] \\ x ← R1
```

```

ADD R2, R0, 1 \\R2 ← 1
STR R2 [FP-8] \\ y ← R2

LD R3 [FP-4] \\R3 ← 5
LD R4 [FP -8] \\R4 ← 1
ADD R5, R3 R4 \\R5 ← 6
STR R3 [FP-12] \\ z ← R5

\\ Epilogue
ADD SP,FP,0
LD FP,[SP] \\restorer (FP)
ADD SP,SP,+4 \\ restorer (SP)
RET \\ Return

```

## 2 Exercise 78

```

1.Code
Prologue(8)

SUB R0, R0, R0
l1:
LD R1, [FP-4]
LD R2, [FP-8]
CMP R1, R2
BNE l2
BA l6
l2:
LD R3, [FP-4]
LD R4, [FP-8]
CMP R3,R4
BGT l3
BA l4
l3:
LD R5 [FP-4]
LD R6 [FP-8]
SUB R7,R6,R5
ST R7 [FP-4]
BA l5
l4:
LD R8 [FP-8]
LD R9 [FP-4]
SUB R10,R8,R9
ST R10 [FP-8]
l5:
BA l1
l6:RET
Epilogue

```