

# While Loop

```
org $2000
sub d0, d0
movea d0, a0
move l(a0), d0          ; d0 = i = 0
move X(a0), d1         ; d1 = x = 2
move const(a0), d2     ; d2 = 1
move const+2(a0), d3   ; d3 = 100
while cmp d0, d3        ; 100 - i
      bgt DO           ; go if 100 > i
      bra DONE
DO    add d2, d0        ; i = i + 1
      add d1, d1        ; x = x + x
      bra while
DONE  move d1, X(a0)
      move const+4(a0), d0
      trap #0
l     dc 0
X     dc 2
const dc 1, 100, 3
end
```

While Loop

```
i := 0;
x := 2;
WHILE i < 100
DO { i := i + 1;
    x := x + x;
}
END
```

# Repeat Loop

```
org $2000
sub d0, d0
movea d0, a0
move I(a0), d0      ; d0 = i = 0
move X(a0), d1      ; d1 = x = 2
move const(a0), d2      ; d2 = 1
move const+2(a0), d3    ; d3 = 100
REPEAT add d2, d0
      add d1, d1
      cmp d0, d3          ; 100 - i
      beq DONE
      bra REPEAT
DONE  move d1, X(a0)
      move const+4(a0), d0
      trap #0
I     dc 0
X     dc 2
const dc 1, 100, 3
end
```

Repeat Loop

```
i := 0;
x := 2;
REPEAT { i := i + 1;
        x := x + x;
        }
UNTIL ( i == 100 )
END
```

# For Loop

Try Yourself

For Loop

`x := 2;`

`FOR i = 1 to 100`

`DO x := x + x;`

`END`

