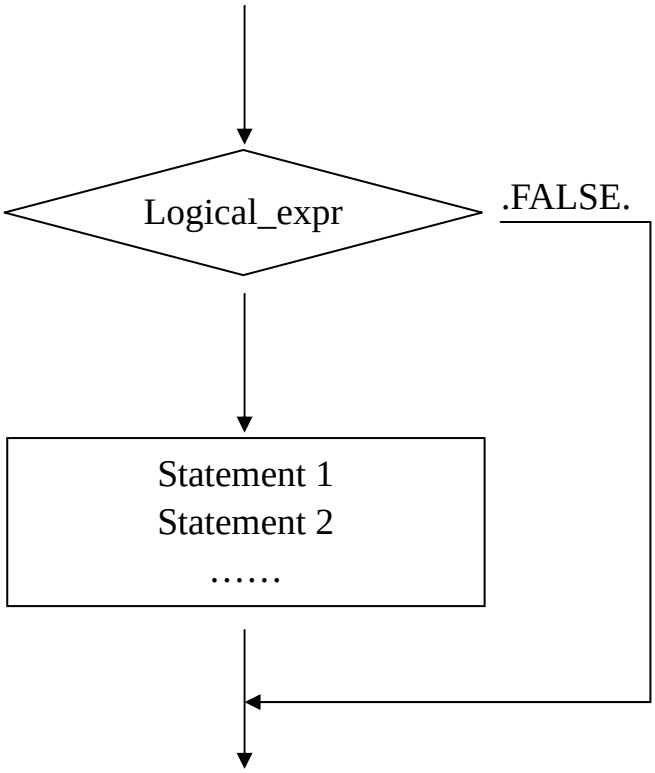
Fortran

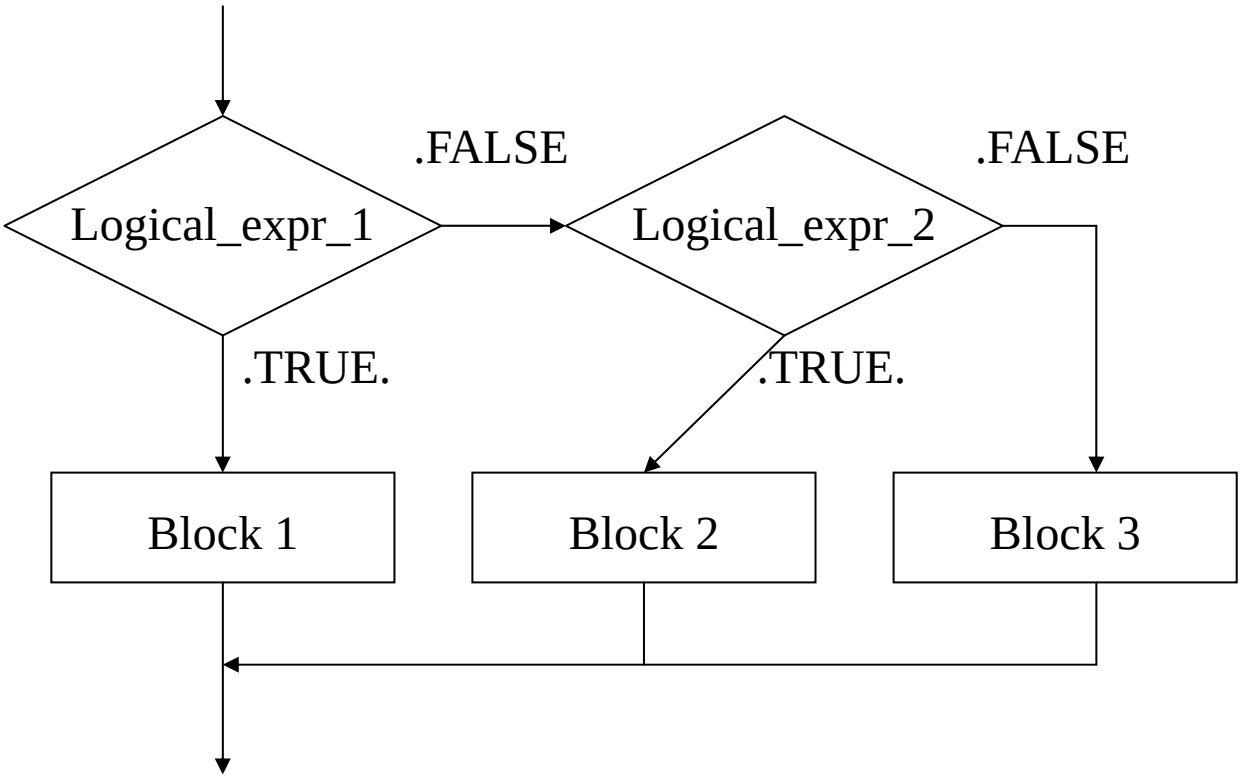
Chapter 4　流程控制

4-1 IF

```
if (logical_expr) then
    statement 1
    statement 2          } block
    ……
end if
```



```
if     (logical_expr) then
       statement 1
       statement 2          } block 1
       ……
else if (logical_expr_2) then
       statement 1
       statement 2          } block 2
       ……
else
       statement 1
       statement 2          } block 3
       ……
end if
```



Example:

```
Program ex0501
Implicit none
Real :: Height, Weight
Real :: Standard_Weight
Write(*,*) ‘Please input your height :’
Read(*,*) Weight
Standard_Weight = Height – 100.0
If (Weight .GT. Stand_Weight) then
      Write(*,*) ‘You are overweighted !’
Else
      Write(*,*) ‘Your weight is under control !’
End if
Stop
End program ex0501
```

邏輯判斷運算

.EQ.	or	= =	判斷是否	”等於”
.NE.	or	/=	判斷是否	”不等於”
.GT.	or	>	判斷是否	”大於’”
.GE.	or	>=	判斷是否	”大於或等於”
.LT.	or	<	判斷是否	”小於”
.LE.	or	<=	判斷是否	”小於或等於”

判斷集合的運算

.AND.
.OR.
.NOT.

Example:

某同學這一次微積分小考拿了 85 分，如果把成績分成 A，B，C，D，E 這 5 個等級，其中 90~100 分為 A 級、80~89 分為 B 級、70~79 分為 C 級、60~69 分為 D 級、60 分以下為 E 級，請寫一個程式來判斷此同學這次成績的等級。

```
Program ex0502
Implicit none
Integer :: Grades
Character(len=1) :: Level = ‘?’
Write(*,*) ‘Please input your Grades:’
Read(*,*) Grades
If ((Grades .LE. 100) .AND. (Grades .GE. 90)) then
    Level = ‘A’
else If ((Grades .LE. 89) .AND. (Grades .GE. 80)) then
    Level = ‘B’
else If ((Grades .LE. 79) .AND. (Grades .GE. 70)) then
    Level = ‘C’
else If ((Grades .LE. 69) .AND. (Grades .GE. 60)) then
    Level = ‘D’
else if (Grades .LT. 60) then
    Level = ‘E’
else
    write(*,*) ‘Input error’
end if
write(*,*) ‘You get : [‘ ,Level, ’]’
stop
end program ex0502
```

4.2 Select -- case

```
Select csae (變數)
case (數值 1)
    ……          ←變數等於數值 1 時，會執行此區段
case (數值 2)
    ……
case default
    ……          ←變數不等於任何數值時，會執行此區段
end select
```

Example: 上例

```
Program ex0507
Implicit none
Integer :: Grades
Character (len = 1) :: Level
Write (*,*) Grades
Select case (Grades)
Case (90:100)
    Level = 'A'
Case (80:89)          ←  80 <= Grades <= 89
    Level = 'B'
Case (70:79)
    Level = 'C'
Case (60:69)
    Level = 'D'
Case (:59)            ←  Grades <= 59
    Level = 'E'
Case default
    Level = '?'
End select
```