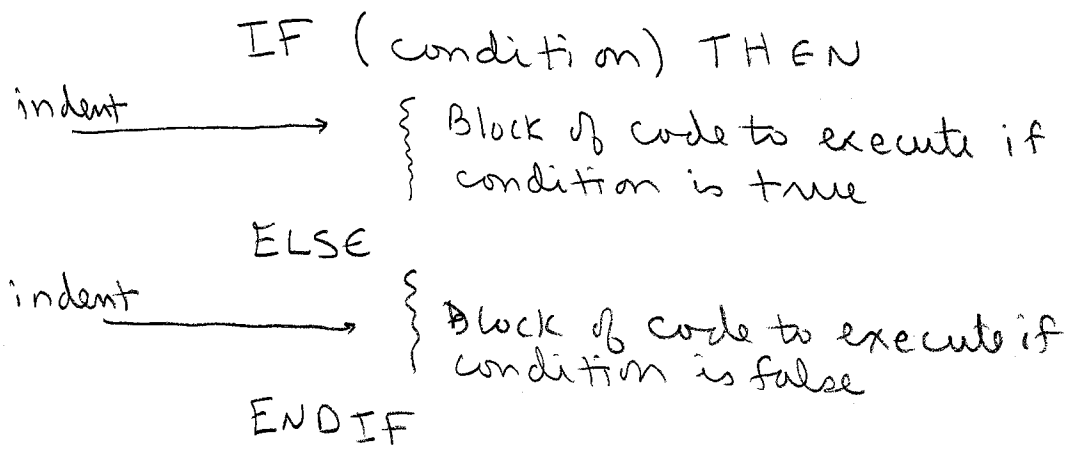


Conditional Logic, Conditional Branching, Branching

- All of the words above refer to the same idea
- Asking your program a question
- All questions must have a yes or no answer
- Complex questions must be broken down into a series of simpler questions
- we will start in the middle part of chap 3

• IF - THEN - ELSE structure

- Syntax



Notes

- * The () around the condition are required
- * The THEN is required and must be on the same line as the IF
- * ENDIF can be one word or 2.
- * Indent the bodies of the IF blocks for readability.

Specifying the condition

• The condition is a test between 2 expressions

condition to test	old F77 syntax (still works)	New F90 syntax
=	• EQ.	==
≠	• NE.	/=
<	• LT.	<
≤	• LE.	<=
>	• GT.	>
≥	• GE.	>=

(dots are required)

Example

$a < b$ or $a .LT. b$
 $a + b == d + \cos(c)$ or $a + b .EQ. d + \cos(c)$
 $ABS(a - b) \geq b^2 + a^2$ or $ABS(a - b) .GE. b^2 + a^2$

Example

Program to determine if you are eligible for social security

• when comparing different data types, the lower type is promoted to the higher type before the comparison is done.

Example

Program to test if integer is positive or negative

• IF - THEN - ELSEIF - END IF structure

Syntax

IF (condition 1) THEN

{ Block to execute if
condition 1 is true

ELSEIF (condition 2) THEN

{ Block to execute if
condition 2 is true

ELSEIF (condition 3) THEN

{ Block to execute if
condition 3 is true

⋮

ELSEIF (condition n) THEN

{ Block to execute if
condition n is true

ELSE

{ Block to execute if
none of the above are true

ENDIF

NOTES

* you can have as many ELSEIF clauses as you want (upto 255)

* The ELSE clause is optional

* The program will execute the first clause that is true, then ignore the remaining clauses

If clause 3 is true, then the block of statements under clause 3 is executed. The program then continues with the first executable statement after the ENDIF