

Selection Statements

- Selection is a very useful technique, allowing data items to be picked out according to a given criteria

Q- What is Selection?

Testing a condition to determine the sequence of execution

Types:

- IF ... THEN ... ELSE ... END IF
- CASE ... OF ... OTHERWISE ... ENDCASE

Q- Write pseudocode of a program in which input 2 numbers and print the largest number

DECLARE N1, N2 : INTEGER

INPUT N1, N2 → Equivalent to - INPUT N1

INPUT N2

IF $N1 > N2$

THEN

PRINT "The Largest Number is", N1

- Does not get printed

ELSE → This runs when condition becomes False

PRINT "The Largest Number is", N2

END IF

Q- Write pseudocode of a program in which input 2 numbers and print the smallest number.

DECLARE N1, N2 : INTEGER

INPUT N1, N2

IF $N1 < N2$ → Can use $N1 > N2$ as well.

• Output a suitable message

THEN

PRINT "The smallest number is", N1

ELSE

PRINT "The smallest number is ", N2

ENDIF

Operators In IF Conditions

AND

- condition AND condition
- Both conditions should be true to perform some steps
- Only runs when both conditions are true and overall condition becomes true

OR

- condition OR condition
- Any one condition could be true which would perform some steps.

Q- Write pseudocode of a program in which input three numbers and print the largest number

Method 1

• DECLARE N1, N2, N3 : INTEGER

•

•

INPUT N1, N2, N3

IF N1 > N2

THEN

IF N1 > N3

THEN

PRINT "The largest number is ", N1

ELSE

PRINT "The largest number is ", N3

ENDIF

ELSE

IF N2 > N3

THEN

```
PRINT "The largest number is ", N2
```

```
ELSE
```

```
PRINT "The largest number is ", N3
```

```
END IF
```

```
END IF
```

METHOD 2

```
· DECLARE N1, N2, N3: INTEGER
```

```
·
```

```
·
```

```
INPUT N1, N2, N3
```

```
IF N1 > N2 AND N1 > N3
```

```
THEN
```

```
PRINT "The largest number is : ", N1
```

```
ELSE IF N2 > N1 AND N2 > N3
```

```
THEN
```

```

        PRINT "The largest number is:", N2
    ELSE
        PRINT "The largest number is:", N3
    ENDIF
ENDIF

```

Q- Write pseudocode of a program in which input three numbers and print the smallest number

```

. DECLARE N1, N2, N3 : INTEGER
.
.

```

```

INPUT N1, N2, N3

```

```

IF N1 < N2 AND N1 < N3

```

```

    THEN

```

```

        PRINT "The smallest number is:", N1

```

```

    ELSEIF N2 < N1 AND N2 < N3

```

```

IF condition
| THEN
|
| <steps>
| ELSE
| <steps>
| END IF

```

THEN

PRINT "The smallest number is :", N2

ELSE

PRINT "The smallest number is :", N3

END IF

END IF

- Never miss declaration, indentation
- Never miss "END IF" statements
- Always use sensible variable names
- Always keep keywords in Capital Letters

Q- The format for the password is, it should contain 9 characters. Write pseudocode of program in which input a password and print "approve" if it contains 9 characters and print "Re-write your password" if not.

- DECLARE Password: String
- DECLARE Length: INTEGER

* INPUT "Enter your Password", Password

INPUT Password

Length ← LENGTH (Password)

IF Length = 9

THEN

PRINT "Approved"

ELSE

PRINT "Rewrite your Password"

END IF

Q- The first digit of the password should be capital letter. Write pseudocode of program in which input a password and print "approve" if first letter is capital and print "Rewrite your password" if not. (Password Validation),

Condition 1

· DECLARE Pass : STRING

· DECLARE Letter : CHAR

· DECLARE CapitalCode : INTEGER


```
PRINT "Enter your password"
```

```
INPUT Pass
```

```
Letter ← LEFT(Pass, 1)
```

```
CapitalCode ← ASC(Letter)
```

```
IF CapitalCode ≤ 90 AND CapitalCode ≥ 65
```

alt IF (Letter ≥ A) AND
(Letter ≤ z)

```
THEN
```

THEN

```
PRINT "Approved"
```

```
ELSE
```

```
PRINT "Rewrite your Password"
```

```
END IF
```

Condition 2

- The First 3 characters should be digits

```
· DECLARE Pass : STRING
```

```
· DECLARE Letter : CHAR
```

```
· DECLARE CapitalCode : INTEGER
```

```
PRINT "Enter your password"
```

```
INPUT Pass
```

- True: Digit

```
Character ← LEFT (Pass, 3)
```

- INPUT is string - False: Alphabet

```
IF ISNUM (Character) ] → checks for numbers in the input, returns  
THEN 'True' or 'False'
```

```
PRINT "Approved"
```

```
ELSE
```

```
PRINT "Rewrite your Password"
```

```
END IF
```

- Q-
- First digit should be capital
 - 2nd, 3rd, 4th digits should be numbers
 - Length of the Password should be 9 characters

- Write pseudocode of a program in which input the password and print 'approve' if these conditions are correct and print 'Rewrite password' if not.

```
· DECLARE Pass, NumCheck: STRING  
· DECLARE NumOfCharacters: INTEGER  
· DECLARE FirstCharacter: CHAR
```

```
PRINT "Enter Your Password:"
```

```
INPUT Pass
```

```
FirstCharacter ← LEFT( Pass, 1)
```

```
NumCheck ← MID( Pass, 2, 3)
```

```
NumOfCharacters ← LENGTH( Pass)
```

* can use 'AND'

```
IF FirstCharacter > 'A' AND FirstCharacter ≤ 'z' AND ISNUM() AND Num = 9
```

```
THEN IF ISNUM(NumCheck)
```

```
THEN IF NumOfCharacters = 9
```

```
THEN
```

```
PRINT "Approved"
```

```
ELSE
```

```
PRINT "Re-write your Password"
```

```
END IF
```

```
ELSE
```

· To cut down
IF statements,
use logical
operators

```
PRINT "Rewrite your Password"
```

```
END IF
```

```
ELSE
```

```
PRINT "Rewrite your Password"
```

```
END IF
```

① Numeric Check

1234

- ISNUM(1234) \Rightarrow True

ISNUM("ABC") \Rightarrow False

② Upper-Case Check

$x = G$

IF ($x \geq A$) AND ($x \leq Z$)

③ Lower Case Check.

$x = g$

IF ($x \geq a$) AND
($x \leq z$)