ON- GOTO Statement

The syntax is: **ON** index **GOTO** N1,N2,N3,……,Ni

index: is an integer number
N1, N2, N3,….., Ni: The Label number of step.

Example:
Write a program to calculate the square, cube and square root of a number.

Solution:

```
INPUT "Input the number ="; x
INPUT "Press 1 for square, 2 for cubic, 3 for square root"; k
ON k GOTO 10,20,30
10      Y=x^2
        GOTO 100
20      Y=x^3
        GOTO 100
30      Y=SQR(x)
        GOTO 100
100     PRINT "The result number is=";Y
END
```

Example: Write a program to calculate y from the equations below:

$y = x^2 - x + 10$ when x=1 or x=5

$y = 20x + 12$ when x=2 or x=4

$y = 1 - x - x^3$ when x=3

y=127 when x=6

Solution:

```
5    CLS
6    INPUT "Enter the value of x ="; x
ON x GOTO 10,20,30,40,50,60
PRINT "Invalid value of x….Try again"
GOTO 6
10  y=(x^2)-x+10
GOTO 70
20  y=20*x+12
GOTO 70
30  y=1-x-(x^3)
GOTO 70
40  GOTO 20
50  GOTO 10
60  y=127
70  PRINT "X=  ";x,"Y=  ";y
END
```

DECISION MAKIING / SELECT CASE

It provides a better program structure for multiple decisions/alternatives.

The syntax is:

`SELECT CASE varname`	Defines the beginning of a Select-part. Varname is the variable which has to be checked using this Select structure.
`CASE option [,option,]`	Case defines a code part for if Varname = one of the options specified.
`CASE ELSE`	The code Case Else will only be executed if no other specified cases are true. Also, the code that will be executed when a Case is true, will be everything until a next Case or an End Select is reached.
`END SELECT`	Denotes the end of a select structure.

Example:

```
PRINT "Please enter a number"
INPUT "Number:", number%
SELECT CASE number%
  CASE 1                                  ← CASE 1: Single constant (numeric or string)
    PRINT "The number is 1"
  CASE 2 , 3                              ← CASE 2,3: Multi constants (numeric or string)
    PRINT "The number is either 2 or 3"
  CASE IS > 3                             ← CASE IS >3: using IS with comparison operators
    PRINT "The number is greater than 3"
  CASE IS < 0
    PRINT "The number is smaller than 0"
  CASE ELSE
    PRINT "unknown number"
END SELECT
END
```

Example:

```
INPUT "Type Y for yes or N for no"; choice$
SELECT CASE choice$
CASE IS = "Y"
        PRINT “Your choice is YES"
CASE IS = "N"
        PRINT “Your choice is NO"
END SELECT
END
```

Example: Write a program to assign the following grades to students examination results.

Score	Grade
Greater or equal to 90	A
Greater or equal to 80	B
Greater or equal to 70	C
Greater or equal to 60	D
Otherwise	F

```
CLS
INPUT “Enter the score : “; Score
SELECT CASE Score
CASE IS >= 90
        Grade$ = "A“
CASE IS >= 80
        Grade$ = "B“
CASE IS >= 70
        Grade$ = "C"
CASE IS >= 60
        Grade$ = "D"
CASE ELSE
        Grade$ = "F"
END SELECT
PRINT “The Grade is = “; Grade$
END
```

Example:

Write a program to make a decision of weather condition according to the month.

Month	Weather condition
November, December, January, or February	Cool season
March, April, or May	Hot season
June to October	Wet season

```
INPUT “Enter the number of the month :”; Month
SELECT CASE Month
CASE 11, 12, 1, 2
        PRINT "Cool season"
CASE 3 TO 5
        PRINT "Hot season"
CASE 6 TO 10
        PRINT "Wet season"
END SELECT
END
```

Example: Write a program to solve the following set of equations, using SELECT CASE statement.

$$y = \begin{cases} x_1 + x_2 & x_1 < x_2 \\ x_1 \cdot x_2 & x_1 = x_2 \\ x_1 - x_2 & x_1 \rangle x_2 \end{cases}$$

The Program:

```
INPUT “X1 and X2", x1, x2
IF x1< x2 THEN
    U = 1
END IF
IF x1= x2 THEN
    U = 2
END IF
IF x1> x2 THEN
    U = 3
END IF
    SELECT CASE U
        CASE IS = 1
                    y = x1 + x2
        CASE IS = 2
                    y = x1 * x2
        CASE IS = 3
                    y = x1 - x2
    END SELECT
PRINT “The Result : “; y
```