The syntax is: \textbf{ON} \ index \ \textbf{GOTO} \ N1,N2,N3,\ldots,Ni

\textit{index}: is an integer number

\textit{N1, N2, N3,\ldots, Ni}: The Label number of step.

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

\textbf{Solution:}
INPUT "Input the number ="; x
INPUT "Press 1 for square, 2 for cubic, 3 for square root"; k
\textbf{ON} \ k \ \textbf{GOTO} \ 10,20,30
10 \ Y=x^2
   \ \textbf{GOTO} \ 100
20 \ Y=x^3
   \ \textbf{GOTO} \ 100
30 \ Y=SQR(x)
   \ \textbf{GOTO} \ 100
100 \ \textbf{PRINT} \ "The result number is=";Y
\textbf{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 MAKING / SELECT CASE

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

The syntax is:

```
SELECT CASE varname
CASE option [,option,]
CASE ELSE
END SELECT
```

- **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. 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.
- **CASE ELSE**: Denotes the end of a select structure.

Example:
```
PRINT “Please enter a number”
INPUT “Number:”, number%
SELECT CASE number%
    CASE 1
        PRINT “The number is 1”
    CASE 2, 3
        PRINT “The number is either 2 or 3”
    CASE IS > 3
        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
```

← **CASE 1**: Single constant (numeric or string)
← **CASE 2,3**: Multi constants (numeric or string)
← **CASE IS >3**: using IS with comparison operators
**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.

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

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater or equal to 90</td>
<td>A</td>
</tr>
<tr>
<td>Greater or equal to 80</td>
<td>B</td>
</tr>
<tr>
<td>Greater or equal to 70</td>
<td>C</td>
</tr>
<tr>
<td>Greater or equal to 60</td>
<td>D</td>
</tr>
<tr>
<td>Otherwise</td>
<td>F</td>
</tr>
</tbody>
</table>
**Example:**
Write a program to make a decision of weather condition according to the month.

<table>
<thead>
<tr>
<th>Month</th>
<th>Weather condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>November, December, January, or February</td>
<td>Cool season</td>
</tr>
<tr>
<td>March, April, or May</td>
<td>Hot season</td>
</tr>
<tr>
<td>June to October</td>
<td>Wet season</td>
</tr>
</tbody>
</table>

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.

\[
y = \begin{cases} 
  x_1 + x_2 & x_1 < x_2 \\
  x_1 \cdot x_2 & x_1 = x_2 \\
  x_1 - x_2 & x_1 > x_2 
\end{cases}
\]

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
```