Intro to Computing Lab
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Laboratory IV - Branching

Review

In the last lab, we saw the `LET`, `PRINT`, and `INPUT` commands. These allow us to create variables, display characters on the screen, and read characters for the keyboard. We also saw how to enter, `LIST`, `LOAD`, `SAVE`, and `RUN` a program.

We now see examples of how to create branching.

Enter the DOS shell, `CD` to the `TEST` directory, and type `GWBASIC` to invoke the BASIC interpreter.

The `IF...THEN...ELSE` Statement

Consider the statement

IF <logical expression> THEN <1st command> ELSE <2nd command>.

The system evaluates the logical expression; if it is true, the first command is executed; otherwise, the second command is executed. The `ELSE` part of the statement is optional.

Type in this program. Replace `<your name>` with your actual name.

```
10 REM <your name>
20 PRINT "Are you happy";
30 INPUT A$
40 IF A$="YES" THEN PRINT "That's great!" ELSE PRINT "Too bad!"
```

Run this program by typing `RUN`, and type in an answer to the question.

The `IF...THEN` Statement and the `GOTO` Command

The `IF...THEN` statement allows for conditional execution of commands. The `GOTO` command changes the next executable line. The `END` command terminates execution.

Modify the previous program to look like this; it suffices to type lines 40 through 70.

```
10 REM <your name>
20 PRINT "Are you happy";
30 INPUT A$
40 IF A$="QUIT" THEN END
50 IF A$="YES" THEN PRINT "That's great!"
60 IF A$="NO" THEN PRINT "Too bad!" ELSE PRINT "Whatever."
70 GOTO 20
```

Run this program. Save this program in ASCII format as `OKAY.BAS` by typing `SAVE "OKAY",A`.

The `IF...GOTO` Statement

The `IF...GOTO` statement may be used to create a simple loop.

Type in this program.

```
10 REM <your name>
20 LET I%=0
30 LET I%=I%+1
40 PRINT I%
50 IF I%<15 GOTO 30
```

Run this program; it should list the numbers from 1 to 15. Save this program in ASCII format as `IFGOTO.BAS`.

Next, we modify this program do something more interesting. Enter this line.

```
35 COLOR I%
```

List the program by typing `LIST`. Run the program. Renumber the lines by typing `RENUM`. List the program to see that the lines were renumbered. Save the program in ASCII format as `COLOR.BAS`.