This lesson covers one final fundamental variable type and a final fundamental control statement (plus one or two other little goodies). Specifically, the variable type is called a **boolean**. The control statement we will look at is the **repeat,until** statement.

A boolean is a variable type (remember integer , char, string..those are types too). The boolean variable deals with **true** conditions and **false** condtions.It can only assume one of these two values. It is either true.....or it is false. Only one of these need actually be defined, that is if I tell the program what will represent a true condition, then all other conditions will be false, and vice versa if I tell the program what will be a false condition ..then all other conditions will be false.

Take a look at the following example.

```
program boolean_soup;                          {this program will illustrate the use of booleans}

var                                            {prepares for definitions of variables}
serveit :boolean;                              {identifies/defines variable}
answer  :char;                                 {identifies/defines variable}

begin                                          {begins program}
wrteln('Is the boolean soup ready?');
readln(answer);
if answer= 'y' then                            {sets boolean condition}
serveit:= true                                 {sets boolean to true if 'y' is pressed}
else
serveit:=false;                                {sets all other responses to false}
if serveit then                                {tells what to do if boolean is true}
writeln ('Yep! It''s ready to eat!')           {tells what to do if boolean is true}
else
writeln ('No. It''s not quite ready yet.');    {tells what to do if boolean is false}
readln;                                        {provides a chance to see what happened}
end.                                           {end of program}
```

Not complicated at all! All this program says is that a response to a question (Is the boolean soup ready?) that is 'y' is true. By default any other entry by the user will be considered false. If the term

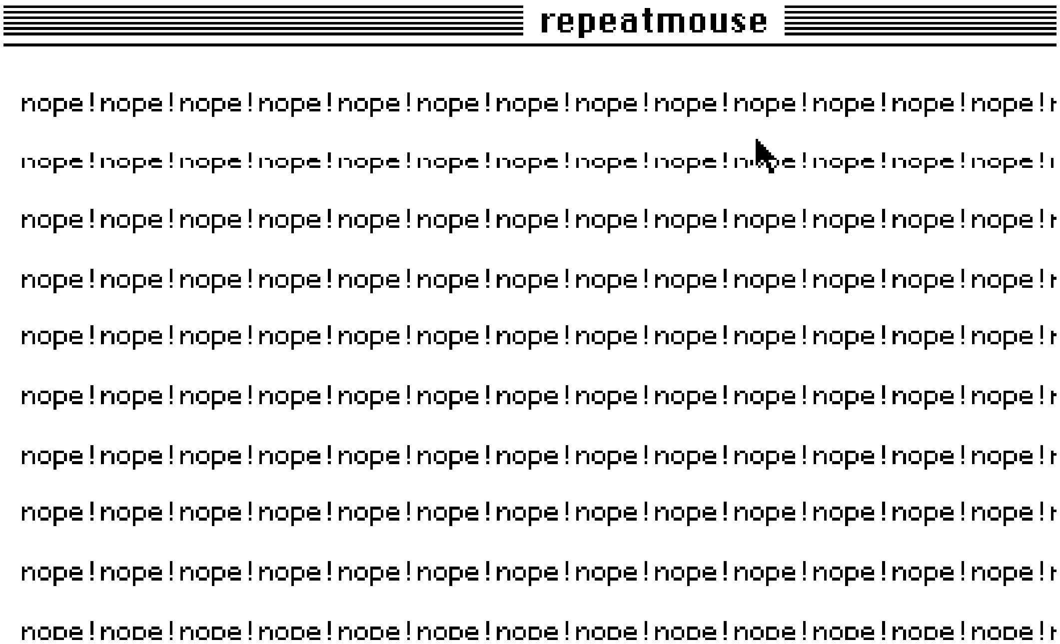
boolean sounds exotic and mysterious, don't worry, it is not any more involved than the above example. Just associate it with true statements and false statements.

Ready to move on? The final item in the first grade is the control statement **repeat,until.** This statement tells the program **repeat** doing something **until** a certain condition is met.

Take a look at the example program

```
program repeatmouse;                                    {this illustrates the use of repeat and until}

USES  MemTypes,QuickDraw,OSIntf,ToolIntf,PackIntf;      {identifies the units from thetoolbox used by this program}

begin                                                   {begins program}
repeat                                                  {starts the repeat loop}

writeln ('nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!nope!');

until button;                                           {identifes what will stop the repeat loop, in this case it is "button" more specifically mouse button down}
writeln ('yep!');                                       {what happens after the loop is stopped}
readln;                                                 {a chance to see the results}

end.                                                    {end of program}
```

This is what it looks like. You can't see the 'yep!' but that is only due to my limitation of cut and paste using macpaint.



Next comes a recap and the first grade lessons are over! On to graphics!