double max = 100.0, length;
length = Input.readDouble(
    "Enter the length: ");
if (length > max)
    length = max;
Output.showValue("length is ", length);

• but shouldn’t we tell the user we changed it?
• requires more than one statement in the if

Example 9.1

double max = 100.0, length;
length = Input.readDouble(
    "Enter the length: ");
if (length > max)
{
    Output.showMessage(
        "Warning: max length exceeded.");
    Output.showValue("Length set to ", max);
    length = max;
} // if
Output.showValue("length is ", length);
Block Statement Example

✴ if user enters a number greater than \textit{max},
  • user is warned that a change was made
  • \textit{length} is assigned the value \textit{max}

The If-Else Statement

\textbf{syntax:}
\begin{verbatim}
if (condition)
  statementA;
else
  statementB;
\end{verbatim}

✴ if the \textit{condition} is \textit{true}, execute \textit{statementA}.
  Otherwise execute \textit{statementB}.
✴ one or the other is executed, never both

If-Else Statement

Example 9.2

✴ outputs the smaller of two input numbers
✴ ignores case where the two numbers are equal
Example 9.2

double x, y, min;
x = Input.readDouble("Enter first num: ");
y = Input.readDouble("Enter second num: ");

if (x < y)
  min = x;
else
  min = y;

Output.showValue("Smaller number is: ", min);

If-Else and Block Statements

The if-clause and else-clause statements in an if-else statement may each be either single statements or block statements.

Example 9.3

hours = Input.readDouble("Enter hours worked:");
rate = Input.readDouble("Enter pay rate:");
if (hours <= 40.0)
  pay = hours * rate;
else
{
  over = hours - 40.0;
  pay = (40.0 * rate) + (over * 1.5 * rate);

  Output.showMessage("OVERTIME WORKED");
} // else
Output.showValue("Pay is: ", pay);

Module 9 Vocabulary

- block statement
- if-else statement
Questions?

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