Topics: Selection statement, input, good programming style  
Reading (ML): Sec 3.3, 3.4, 2.2.4

Branching

Example: Bacteria B reproduces only when the temperature is above 12°C. The rate is a function of the temperature \( t \) in °C: \((t - 12)^2\). Write a program to calculate the rate at which bacteria B reproduces given some temperature entered in °F.

Simple if Construct

\[ \text{if } condition \text{ then } \]
\[ \text{ statements to execute if condition is true } \]
\[ \text{else } \]
\[ \text{ statements to execute if condition is false } \]
\[ \text{end } \]

The if Construct

\[ \text{if } condition1 \text{ then } \]
\[ \text{ statements to execute if condition1 is true } \]
\[ \text{elseif } condition2 \text{ then } \]
\[ \text{ statements to execute if condition1 is false but condition2 is true } \]
\[ \text{else } \]
\[ \text{ statements to execute if all previous conditions are false } \]
\[ \text{end } \]

Rules of the if Construct

- Only one block of statements is executed. Execution then continues with the next executable statement following end.
- There can be at most one else clause.
- There can be any number of elseif clauses.
Input statement

Syntax: $variable = \text{input('prompt')}$

Good programming style

- use comments
- use meaningful variable names
- use named constants
- indent sub-structures