

## Types of error that may occur in programming code

Error	Description	Example
Syntax	An error that occurs when a command does not follow the expected syntax of the language, e.g. when a keyword is incorrectly spelt	<ul style="list-style-type: none"><li>• <b>Incorrect:</b> IF A <b>ADN</b> B Then</li><li>• <b>Correct:</b> IF A <b>AND</b> B Then</li></ul>
Runtime/ execution	An error that only occurs when the program is running and is difficult to foresee before a program is compiled and run	<ul style="list-style-type: none"><li>• Program requests more memory when none is available, so the program <i>crashes</i></li></ul>
Logical	An error that causes a program to output an incorrect answer (that does not necessarily crash the program)	<ul style="list-style-type: none"><li>• An algorithm that calculates a person's age from their date of birth, but ends up giving negative numbers</li></ul>
Linking	An error that occurs when a programmer calls a function within a program and the correct library has not been linked to that program	<ul style="list-style-type: none"><li>• When the square root function is used and the library that calculates the square root has not been linked to the program</li></ul>
Rounding	Rounding is when a number is approximated to nearest whole number/tenth/hundredth, etc.	<ul style="list-style-type: none"><li>• 34.5 rounded to nearest whole number is 35, an error of +0.5</li></ul>
Truncation	Truncating is when a number is approximated to a whole number/tenth/hundredth, etc. nearer zero	<ul style="list-style-type: none"><li>• 34.9 truncated to whole number is 34, an error of -0.9</li></ul>

### INTERESTING FACT

In 1947, Grace Murray Hopper, an admiral in the U. S. Navy and a computer programming pioneer, documented the first actual computer bug when a moth got trapped in a computer.