The edit-compile-test cycle
handout for CS 302 by Will Benton (willb@cs)

The edit-compile-test cycle is the process by which programmers iteratively remove errors from their programs.

EDIT: A programmer writes source code (human-readable program text) in an editor.

edit

Text editor
(creates and modifies source code files)

Program source code
(.java files)

COMPILE: She then uses a compiler to translate the human-readable source code into machine-readable .class files. If there are compile-time errors, the translation will fail, and the programmer will have to resume editing to correct the errors.

compile

Java compiler
(translates from human-readable source code to machine-readable JVM code)

Java VM
(exectues .class files; "runs program")

No compile-time errors?

No run-time errors?

TEST: Programmers must ensure that a compiled program behaves properly. Testing typically involves exercising different parts of the program to find run-time errors. If testing exposes run-time errors, then the programmer must edit the program again. (Note, however, that absence of evidence does not constitute evidence of absence: a program that passes all of its tests may still exhibit run-time errors.)

test

Compiled program
(.class files)

Compiled libraries
(.class files, written by other programmers)

Working program!