

TYPES OF ERRORS

- ✓ A problem that causes a program to produce invalid output or to crash (lock up). The problem is either insufficient logic or erroneous logic. For example, a program can crash if there are not enough validity checks performed on the input or on the calculations themselves, and the computer attempts to divide by zero. Bad instruction logic misdirects the computer to a place in the program where an instruction does not exist, and it crashes.
- ✓ program with bad logic may produce bad output without crashing, which is the reason extensive testing is required. For example, if the program is supposed to add an amount, but subtracts it instead, bad output results, although the computer keeps running.

TYPES OF ERRORS

- ✓ There are two types of error:
 - Syntax error
 - logic error

TYPES OF ERRORS

Syntax error

- ✓ An error in the format of a statement in a computer program that violates the rules of the programming language employed. Also known as syntactic error.
- ✓ An error that occurs when a program cannot understand the command that has been entered.
- ✓ In computer science a **syntax error** refers to an error in the syntax of a sequence of characters or tokens that is intended to be written in a particular programming language.

TYPES OF ERRORS

Syntax error

- ✓ For compiled languages syntax errors occur strictly at compile-time. A program will not compile until all syntax errors are corrected. For interpreted languages however syntax errors cannot be detected until runtime and it is not necessarily simple to differentiate a syntax error from a semantic error.
- ✓ When a syntax error is encountered during compilation it must be corrected for the source code is to be successfully compiled. An attribute that often separates commercial quality compilers from academic projects is the extent to which an attempt is made to automatically correct the error and continue processing the source code.

TYPES OF ERRORS

Syntax error

✓ A syntax error may also occur when an invalid equation is entered into a calculator. This can be caused, for instance, by opening brackets without closing them, or less commonly, entering several decimal points in one number.

TYPES OF ERRORS

Logic error

- ✓ A program error due to an incorrect sequence of instructions.
- ✓ In computer programming, a **logic error** (sometimes called a **semantic error**) is a bug in a program that causes it to operate incorrectly, but not to terminate abnormally (or crash). A logic error produces unintended or undesired output or other behavior, although it may not immediately be recognized as such.
- ✓ Logic errors occur in both compiled and interpreted languages. Unlike a program with a syntax error, a program with a logic error is a valid program in the language, though it does not behave as intended.

TYPES OF ERRORS

Logic error

✓ The mistake could be the logical error in a statement (for example, a wrong or incorrect formula), an error in an algorithm, or even the wrong algorithm selected.