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**CSC312 ASSIGNMENT 3(Difference between lexeme and tokens with examples )**

**LEXEME**

A lexeme is a sequence of alphanumeric characters in a token. The term is used in both the study of language and in the lexical analysis of computer program compilation. In the context of computer programming, lexemes are part of the input stream from which tokens are identified. An invalid or illegal token produces an error. A lexeme is one of the building blocks of language.  Lexeme is a sequence of characters in the source program that is matched by the pattern for a token.

**TOKEN**

A token is the smallest element(character) of a computer language program that is meaningful to the complier. The parser has to recognize these as tokens : identifiers, keywords, literals, operators, punctuators, and other separators.  Tokens is also a Sequence of characters that have a collective meaning.

A token is defined by a pattern while a lexeme is identified as an instance of a particular token if the scanned characters matches the pattern of that token.

input stream.

Tokens are lexemes mapped into a token-name and an attribute-value. Lexemes are the words derived from the character

**An example includes:  
x = a + b \* 2  
Which yields the lexemes: {x, =, a, +, b, \*, 2}  
With corresponding tokens: {<id, 0>, <=>, <id, 1>, <+>, <id, 2>, <\*>, <id, 3>**