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CSC 3310

Ch 3 Questions

1. **Lexemes**: Lowest-level syntactic units that make up a programming language. Includes things like operators, special words, and others. A program can be considered as strings of lexemes.

**Token**: Name for one or more lexemes in the same category. For example, identifiers such as *sum* and *runningCount* belong in the token called *identifier.*

1. By two ways: recognition and generation. Recognition uses something called recognition device that analyzes whether a given string or sentence is part of the language it is “filtering” for. Generators are what is used for the generation method. They generate a sentence of a language when they are invoked.
2. The Backus-Naur form or BNF is commonly used to describe programming language syntax.
3. Language used to describe another language.
4. The application of rules in sequence of a programming language. Starts with the non-terminal of the grammar called the start symbol.
5. If a grammar generates two or more distinct parse trees from the same sentence, it is considered to be ambiguous.

Problem #2

* 1. <class\_header> 🡪 (public | protected | private) **class** <id> [**extends** <id>] [implements {, <id> }]  
     <id> 🡪 **identifier**
  2. <method\_call> 🡪 [<class\_instance>] **.** <method\_name> **(** {, <argument> } **)**
  3. <swtch\_stmt> 🡪 **switch (** <expr> **) {** {, **case** <const\_expr> **:** {,<stmt>}} [ **break** ] [**default :** {, <stmt> }] **}**

<const\_expr> 🡪 **const | literal**

<stmt> 🡪 **statement**

* 1. <union> 🡪 **union** [<union\_tag>] **{** { ,<member\_def> } **}** [ {,<union\_var> } ]  
     <union\_tag> 🡪 **tag**

<member\_def> 🡪 [{ , (int | float | long |char | double) <id> }]  
<union\_var> 🡪 **variable**

<id> 🡪 **id**

* 1. <float\_literal> 🡪 <decimal\_numb> [ <exponent> ] [ <suffix> ]

| <decimal\_numb> <exponent> [ <suffix> ]

<decimal\_numb> 🡪 **decimal\_number**

<exponent> 🡪 (**e | E)** [( **+** | **-** )] <decimal\_numb>

<suffix> 🡪 **a** | **l** | **f** | **L** | **F**