Programming Languages - Assignment # 2 Choose two programming languages that you are familiar with. Search (google) for the BNF definition of each language.

1) For each language, provide the list of lexemes and tokens

2) Compare the BNF of both of these languages. Briefly describe what you found different.

Deliverable: table providing the lexemes and tokens of each language and providing examples of the differences between the two languages.

Languages: Java and C

Java Tokens:

1. Identifiers: names the programmer chooses
2. Keywords: names already in the programming language
3. Separators (also known as punctuators): punctuation characters and paired-delimiters
4. Operators: symbols that operate on arguments and produce results
5. Literals (specified by their type)
   - Numeric: int and double
   - Logical: boolean
   - Textual: char and String
   - Reference: null
6. Comments
   - Line
   - Block

Java Lexemes: As Lexems are basic units or words of a language some examples from java are

<table>
<thead>
<tr>
<th>Token</th>
<th>Sample Lexemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifier</td>
<td>Count, I, x2,...</td>
</tr>
<tr>
<td>If</td>
<td>If</td>
</tr>
<tr>
<td>Add_op</td>
<td>+, -</td>
</tr>
<tr>
<td>Semi</td>
<td>;</td>
</tr>
<tr>
<td>Int_lit</td>
<td>0, 10, -2.4</td>
</tr>
</tbody>
</table>

C Tokens:

1. Identifiers: The term identifier is usually used for variable names
2. Keywords: A variable is a meaningful name of data storage location in computer memory. When using a variable you refer to memory address of computer
3. String: Sequence of characters
4. Operators: A symbol that represent a specific mathematical or non-mathematical action
5. Constant: Constants are expressions with fixed values
6. Special Symbol: Symbols other than Alphabet and Digit and white spaces
When looking at the two languages and the differences in their tokens and lexemes I found that the C language has a more defined difference between their Terminals. When identifying the tokens for each language some are similar to others but some tokens identify with the language and what type of language it is.
\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{expr} \rangle \mid \text{const} \text{ (ambiguous)}

which could give something like the following.