**Question 2:**

**Explain two code functions of your mini compiler**

1. **Lexical Analyzer (Scan() Function)**:  
   This function reads the input source code, breaks it into tokens, and categorizes each token (keyword, identifier, operator, etc.).

csharp

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private void Scan()

{

string[] lines = textBox1.Text.Split('\n');

foreach (string line in lines)

{

// Tokenize the line

List<string> tokens = Tokenize(line);

// Display tokens in the output box

textBox2.AppendText(string.Join(" ", tokens) + "\n");

}

}

1. **Syntax Analyzer (Parse() Function)**:  
   This function checks whether the sequence of tokens forms a valid statement by applying grammar rules.

csharp

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private void Parse()

{

// Example: Basic grammar check for assignment statements

string input = textBox2.Text;

if (Regex.IsMatch(input, @"^[a-zA-Z\_]\w\*\s\*=\s\*\d+;$"))

{

MessageBox.Show("Syntax is correct");

}

else

{

MessageBox.Show("Syntax error");

}

}