**Use Case Specification Document**

**Use Case Name: Syntax checking**

**Primary actors:** Scanner

Parser

**Preconditions:** The Lex and Yacc tool should be installed.

**Basic flow of events:**

1. User gives the input as an arithmetic expression /while construct.
2. Scanner using the lex tool accepts the input string.
3. The lexical analyser converts the set of characters into set of tokens.
4. The set of tokens is converted to the parse tree using the parser which is done by the yacc tool.
5. The message is displayed.

**Alternative flow of events:**

1a. User gives invalid input.

1a1. System displays error message.

1a2. The user is asked to enter the correct input string.

2a. Scanner cannot accept the string.

2a1. Display the error message.

4a. The parser cannot generate the parse tree.

4a1. The error message is displayed.

5a. The message is invalid.

5a1. Display the error.

5a2. The user is asked to check the input string.

**Post conditions:**

1. Syntax checking is done for the given input string- an arithmetic expression and the while construct.
2. A parse tree is generated and the correct grammar is obtained.