

## Lab Performance (03)

1. Write a C/C++ program that can detect whether the given mathematical expression is valid or not.

**Important Note:**

- The first character should be an operand. It also can be only two operator: addition "+" & subtraction "-" or opening parenthesis "(".
- The last character also must be an operand or a closing parenthesis ")".
- Consider only valid syntax of parenthesis.
- An operator is always used between two operators.
- Operands should be a valid identifier or a numeric constant (Such as: a, bbb, xy\_1, 528)
- If the expression contains more than one neighbor operator (\*+ or ^%) or more than one neighbor operand (abc bb\_1) together, it will be invalid.
- Invalid format of identifier (em@il, 4xy, x#y) makes the expression invalid.
- Invalid format of parenthesis (closing parenthesis before opening or unequal number of parenthesis) makes the expression invalid.

2. Write a C/C++ program that can detect whether the given sentence is grammatically correct or not.

**Important Note:**

- First character of the given sentence must be a capital letter ['A'-'Z'].
- Last character of the given sentence must be a full stop ('.').
- If two capital letters ['A'-'Z'] are placed together, the sentence is grammatically incorrect.
- If two spaces (' ') are placed together, the sentence is grammatically incorrect.
- If a capital letter ['A'-'Z'] is placed immediately after a small case ['a'-'z'], the sentence is grammatically incorrect.
- If a space (' ') are placed immediately before a full stop ('.'), the sentence is grammatically incorrect.