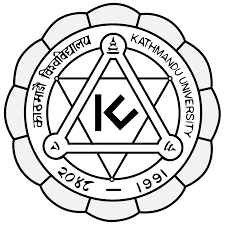
**KATHMANDU UNIVERSITY**

SCHOOL OF ENGINEERING

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**LAB REPORT 1**



A **Fourth year/ First Semester** Compiler Design [COMP 409]

Assignment submitted in partial fulfillment of the requirements

for the degree of Bachelor of Engineering.

**Submitted by:**

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Roll: 38

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**Submitted to:**

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Compiler Design (COMP 409)

Department of Computer Science and Engineering

**June 16, 2021**

**LAB 1**

***Write a program to read a file named File1.txt that contains one executable program and list out all the tokens specified in that File1. Txt***

**Source Code:**

**lab1\_comp409.py**

# This lab report 1 is submitted by:::

#   Name: Ashish Pokhrel

#   Class: C.E.

#   Registration no: 022446-17

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import keyword

def check\_keyword(arg):

    keyword\_list = keyword.kwlist

    if arg in keyword\_list:

        return True

    else:

        return False

def is\_valid\_delimiter(arg):

    del\_list = [" ", "(", ")", "[", "]", "{", "}", ",", ":", ".",

                "`", "=", ";", "+=", "-=", "\*=", "/=", "%=",

                "\*\*=", "&=", "|=", "^=", ">>=", "<<="]

    if arg in del\_list:

        return True

    else:

        return False

def is\_separator(arg):

    sep\_list = [".", ",", ";", "(", ")", "{", "}", "[", "]"]

    if arg in sep\_list:

        return True

    else:

        return False

def is\_valid\_operator(arg):

    op\_list = ["+", "-", "\*", "\*\*", "/", "%", "<<", ">>",

                "&", "|", "^", "~", ">", "<=", ">=", "==",

                "!=", "<>", "="]

    if arg in op\_list:

        return True

    else:

        return False

def is\_valid\_integer(arg):

    if len(arg) == 0:

        return False

    int\_list = [str(x) for x in list(range(10))]

    for x in arg:

        if x not in int\_list:

            return False

    return True

def search\_token(arg, tokens):

    if arg in tokens:

        return True

    else:

        return False

def detect\_token(arg):

    left, right = 0,0

    length = len(arg) - 1

    tokens = []

    while (right <= length and left <= right):

        if (not is\_valid\_delimiter(arg[right])):

            right += 1

        if (is\_valid\_delimiter(arg[right]) and left == right):

            if (is\_valid\_operator(arg[right])):

                if (not search\_token(arg[right], tokens)):

                    tokens.append(arg[right])

                    print(f"operator: {arg[right]}")

            elif (is\_separator(arg[right])):

                if(not search\_token(arg[right], tokens)):

                    tokens.append(arg[right])

                    print(f"separator: {arg[right]}")

            right += 1

            left = right

        elif (is\_valid\_delimiter(arg[right]) and left != right or

                (right == length and left != right)):

            sub = arg[left:right]

            if (not search\_token(sub, tokens)):

                if (check\_keyword(sub)):

                    tokens.append(sub)

                    print(f"keyword: {sub}")

                elif (is\_valid\_integer(sub)):

                    tokens.append(sub)

                    print(f"literal: {sub}")

                else:

                    tokens.append(sub)

                    print(f"identifier: {sub}")

            left = right

if \_\_name\_\_ == "\_\_main\_\_":

    file = open('File1.txt', 'r')

    filestr = str(file.read())

    ign\_list = [" ", "\n"]

    code = ""

    for x in filestr:

        if x not in ign\_list:

            code += x

        else:

            code += " "

    print("The tokens in the given code are listed below: \n")

    detect\_token(code)

**File1.txt**

num1 = 4.8

num2 = 9.5

sum = num1 + num2

print("LabWork of Mr. Ashish")

print("Compiler LabWork First")

print("Ashish Pokhrel")

print("The sum of {0} and {1} is {2}".format(num1, num2, sum))

**Output:**

