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**Compiler Design**

**Lab – 10**

**Finding of Leading and Trailing**

**Code :**

def leading(gram, rules, term, start):

s = []

if gram[0] not in terms:

return gram[0]

elif len(gram) == 1:

return [0]

elif gram[1] not in terms and gram[-1] is not start:

for i in rules[gram[-1]]:

s+= leading(i, rules, gram[-1], start)

s+= [gram[1]]

return s

def trailing(gram, rules, term, start):

s = []

if gram[-1] not in terms:

return gram[-1]

elif len(gram) == 1:

return [0]

elif gram[-2] not in terms and gram[-1] is not start:

for i in rules[gram[-1]]:

s+= trailing(i, rules, gram[-1], start)

s+= [gram[-2]]

return s

a = ["E=E+T","E=T","T=T\*F","T=F", "F=(E)", "F=i"]

rules = {}

terms = []

for i in a:

temp = i.split("=")

terms.append(temp[0])

try:

rules[temp[0]] += [temp[1]]

except:

rules[temp[0]] = [temp[1]]

terms = list(set(terms))

print(rules,terms)

leads = {}

trails = {}

for i in terms:

s = [0]

for j in rules[i]:

s+=leading(j,rules,i,i)

s = set(s)

s.remove(0)

leads[i] = s

s = [0]

for j in rules[i]:

s+=trailing(j,rules,i,i)

s = set(s)

s.remove(0)

trails[i] = s

for i in terms:

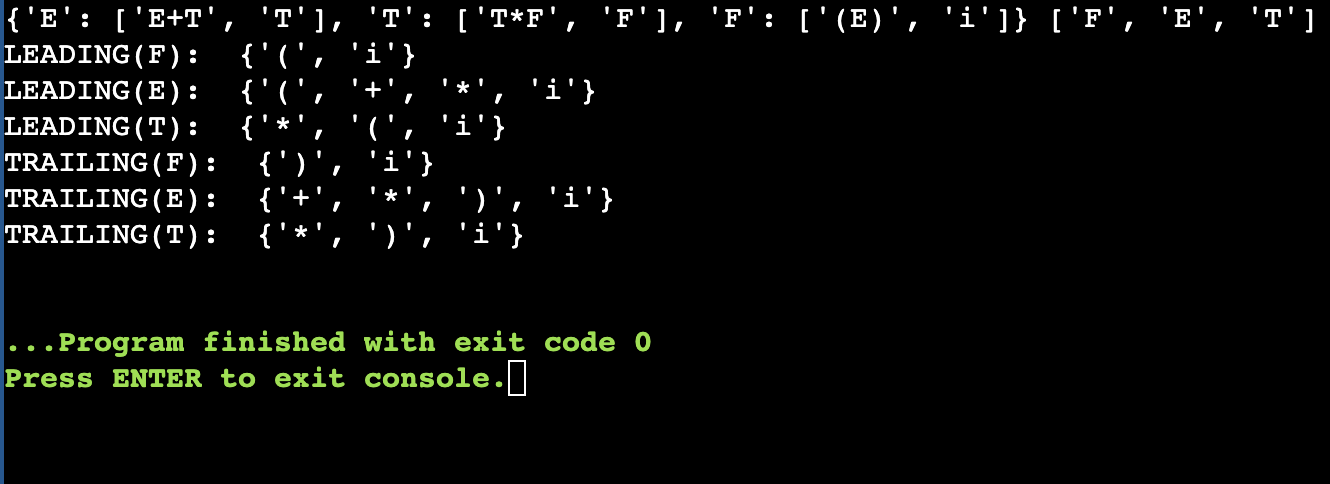
print("LEADING("+i+"): ", leads[i])

for i in terms:

print("TRAILING("+i+"): ", trails[i])

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**OUTPUT :**

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