# **Laboratory-6**

## **Question**

## Perform local optimization on a basic block.

### **Python File:**

**import** pandas **as** pd

a=pd.read\_csv("input.csv")

c=a.shape

**print**(a)

b=[]

**for** i **in** range(c[0]):

**for** j **in** range(i+1,c[0]):

**if**(a['right'][i]==a['right'][j]):

**for** d **in** range(c[0]):

b=b+[(len(a['right'][d]))]

**for** z **in** range(b[d]):

**if**(a['right'][d][z]==a['left'][j]):

x=list(a['right'][d])

x[z]=a['left'][i]

l=''.join(x)

a['right'][d]=a['right'][d].replace(a['left'][j],a['left'][i])

a['left'][j]=a['left'][i]

df=pd.DataFrame(a)

df.to\_csv('output1.csv',index=False)

p=pd.read\_csv("output1.csv")

**print**("After checking and putting the value of common exepression ")

**print**(p)

i=0

j=i+1

**while**(j<c[0]):

**if**(p['right'][i]==p['right'][j]):

**if**(p['left'][i]==p['left'][j]):

p.drop([j],axis=0,inplace=True)

i+=2

j+=1

**else**:

i+=1

j+=1

**if**(j==c[0]):

i=i+1

j=i+1

**if**(i==c[0]):

j=c[0]

**print**("After elemenating the common expression")

df=pd.DataFrame(p)

df.to\_csv('output1.csv',index=False)

p=pd.read\_csv("output1.csv")

**print**(p)

c=p.shape

#print(c)

count=0

i=0

j=0

h=1

**while**(j<c[0] **and** i<c[0]):

b=[]

b=b+[(len(p['right'][j]))]

**for** z **in** range(b[0]):

**if**(p['right'][j][z]==p['left'][i]):

count=1

j+=1

**if**(j==c[0]):

**if**(count!=1):

p.drop([i],axis=0,inplace=True)

df=pd.DataFrame(p)

df.to\_csv('output1.csv',index=False)

p=pd.read\_csv("output1.csv")

c=p.shape

**print**(c)

i+=1

j=0

**print**("After dead code elimination")

**print**(p)

df=pd.DataFrame(p)

df.to\_csv('output1.csv',index=False)

p=pd.read\_csv("output1.csv")

c=p.shape

**print**("The final optimized code is....")

**for** i **in** range(c[0]):

**print**(str(p['left'][i])+"="+str(p['right'][i]))

### **Output:**

A computer screen shot of a computer

Description automatically generated

## **CSV File:**

left,right

a,9

b,c+d

e,c+d

f,b+e

r,f

## **Result:**

Intermediate code for conditional and looping constructs was generated successfully.