Program for Code Optimization Technique.

```
tac={}
code=input("Enter the 3 address code : ").split()
exp1=[]
exp2=[]

for i in code:
    x,y=i.split("=")
    exp1.append(x)
    exp2.append(y)
    tac[x]=y
print("====================================")
print("Intermediate Code:")
for k,v in tac.items():
    print(k,"=",v)
for k in exp1:
    delet=1
    for ex in exp2:
        if k in ex or tac[k] in exp1:
            delet=0
    if delet==1:
        del tac[k]
print("====================================")
print("After Dead Code Elimination:")
for k,v in tac.items():
    print(k,"=",v)

same={}
for k1,v1 in tac.items():
    for k2,v2 in tac.items():
        if v1==v2 and k1!=k2 and (k1 not in same and k2 not in same):
            #print("same found!!"
            same[k1]=k2
for k,v in same.items():
    del tac[k]

optimizeTAC={}
for k,v in tac.items():
    s1=v
    for s in s1:
        if s in same:
            v=v.replace(s,same[s])
    optimizeTAC[k]=v

print("====================================")
print("After Common Expression Elimination:")
for k,v in optimizeTAC.items():
    print(k,"=",v)
print("====================================")
print("OPTIMIZED CODE:")
for k,v in optimizeTAC.items():
    print(k,"=",v)
print("====================================")
```

OUTPUT


root@kali: ~/Third Year/CDO/CDO/12th
File Edit View Search Terminal Help
root@kali:~/Third Year/CDO/CDO/12th# python3 CodeOptimization.py
Enter the 3 address code : a=9 b=c+d e=c+d f=b+e r=f g=c+d
=====================================
Intermediate Code:
a = 9
b = c+d
e = c+d
f = b+e
r = f
g = c+d
=====================================
After Dead Code Elimination:
b = c+d
e = c+d
f = b+e
r = f
=====================================
After Common Expression Elimination:
e = c+d
f = e+e
r = f
=====================================
OPTIMIZED CODE:
e = c+d
f = e+e
r = f
=====================================
root@kali:~/Third Year/CDO/CDO/12th#