

PRACTICAL NO. 08

TOPIC: Code Generation

Platform: Windows or Linux

AIM: Write a program to generate the code using simple code generation algorithm.

CODE :

```
tac=["t = a - b","u = a - c","v = t + u ","d = v + u"]

ass={"t":"t","u":"u","v":"v","d":"d"}

op={"+": "ADD", "-": "SUB"}

regno=int(input("Enter the number of Register"))
reg={}
regl=[]
for i in range(regno):
    reg['R'+str(i)]=-1
    regl.append(0)

for i in tac:
    sep=[]
    sep=i.split(' ')

    if(sep[2] not in reg.values()):
        for k in range(0,len(regl)):
            if(regl[k]==0):
                reg["R"+str(k)]=sep[2]
                regl[k]=1
                print("MOV ",sep[2]," , ",("R"+str(k)))
                break;
    else:
        str1=""
        str2=""
        for i in range(len(reg)):
            if(reg["R"+str(i)]==sep[2]):
                str1="R"+str(i)
            if(reg["R"+str(i)]==sep[4]):
                str2="R"+str(i)
        reg[str1]=sep[0]
        print(op[sep[3]]," ",str2," , ",str1)
```

```

if(sep[4] not in reg.values()):
    for i in range(len(reg)):
        if(reg["R"+str(i)]==sep[2]):
            print(op[sep[3]], " ", sep[4], " ", ("R"+str(i)))
            ass["t"]="R"+str(i)
            print("R"+str(i), " contains ", sep[0])
            reg["R"+str(k)]=sep[0]
            break;
print("-----")

```

OUTPUT:

```

❏ Enter the number of Register2
MOV  a  ,  R0
SUB   b   R0
R0 contains t
-----
MOV  a  ,  R1
SUB   c   R1
R1 contains u
-----
ADD   R1  ,  R0
-----
ADD   R1  ,  R0
-----

```