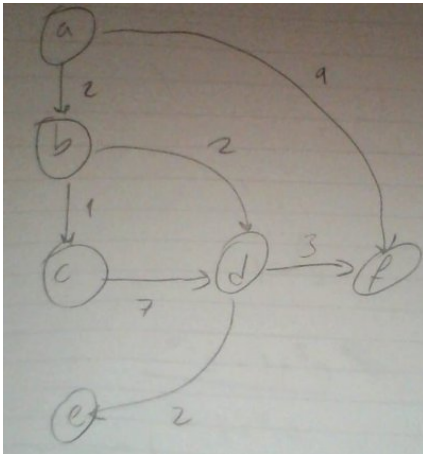


Dinamik Programlama



```

from functools import wraps

DAG = {
    'a': {'b':2, 'f': 9},
    'b': {'d':2, 'c':1, 'f': 6},
    'c': {'d':7},
    'd': {'e':2, 'f': 3},
    'e': {'f':4},
    'f': {}
}

def memo(func):
    cache = {}
    @wraps(func)
    def wrap(*args):
        if args not in cache:
            print 'kacti', args
            cache[args] = func(*args)
        else: print 'tuttu', args
        return cache[args]
    return wrap

def rec_dag_sp(W, s, t):
    @memo
    def d(u):
        print ('in u')
        if u == t: return 0
        return min(W[u][v]+d(v) for v in W[u])
    return d(s)

dist = rec_dag_sp(DAG, 'a', 'f')
print 'uzaklik=', dist

```

```

kacti ('a',)
in u
kacti ('b',)
in u
kacti ('c',)

```

```
in u
kacti ('d',)
in u
kacti ('e',)
in u
kacti ('f',)
in u
tuttu ('f',)
tuttu ('d',)
tuttu ('f',)
tuttu ('f',)
uzaklik= 7
```