

```
from copy import *
```

```
initials = {  
    'a': ['albania', 'andorra', 'austria'],  
    'b': ['belarus', 'belgium', 'bosnia and herzegovina', 'bulgaria'],  
    'c': ['croatia', 'czech republic'],  
    'd': ['denmark'],  
    'e': ['estonia'],  
    'f': ['finland', 'france'],  
    'g': ['germany', 'greece'],  
    'h': ['hungary'],  
    'i': ['iceland', 'ireland', 'italy'],  
    'j': [],  
    'l': ['latvia', 'liechtenstein', 'lithuania', 'luxembourg'],  
    'k': [],  
    'm': ['macedonia', 'malta', 'moldova', 'monaco', 'montenegro'],  
    'n': ['netherlands', 'norway'],  
    'o': [],  
    'p': ['poland', 'portugal'],  
    'q': [],  
    'r': ['romania', 'russia'],  
    's': ['san marino', 'serbia', 'slovakia', 'slovenia', 'spain', 'sweden', \  
          'switzerland'],  
    't': [],  
    'u': ['ukraine', 'united kingdom'],  
    'v': ['vatican city'],  
    'w': [],  
    'x': [],  
    'y': [],  
    'z': [],  
}
```

```
def update_env(env, initial, nextn):  
    env[initial].remove(nextn)  
    return env
```

```
def path2(n, env, sol):  
    c = n[len(n)-1]  
    if len(env[c])==0: return sol  
    else:  
        return max([path2(nextn, update_env(deepcopy(env), c, nextn), sol+[nextn])  
                    for nextn in env[c]], key=len)
```

```
def path(name):  
    return path2(name, update_env(deepcopy(initials), name[0], name), [name])
```