

PROGRAM CODE:

```
global facts
global is_changed

is_changed = True
facts = [["vertebrate", "duck"],["Flying", "duck"],["mammal", "cat"]]

def assert_fact(fact):
    global facts
    global is_changed
    if not fact in facts:
        facts += [fact]
        is_changed = True

while is_changed:
    is_changed = False
    for A1 in facts:
        if A1[0] == "mammal":
            assert_fact(["vertebrate", A1[1]])
        if A1[0] == "vertebrate":
            assert_fact(["animal", A1[1]])
        if A1[0] == "vertebrate" and ["flying", A1[1]] in facts:
            assert_fact(["bird", A1[1]])

print(facts)
```

OUTPUT:

```
Shell Clear
[['vertebrate', 'duck'], ['Flying', 'duck'], ['mammal', 'cat'], ['animal', 'duck'],
 ['vertebrate', 'cat'], ['animal', 'cat']]
> |
```