```python
# convert to SQL
qry("SELECT x+y FROM trees WHERE species = 'm"")

# convert to Pandas
species = qry("SELECT * FROM species")
trees = qry("SELECT * FROM trees")

c = sqlite3.connect("worksheet.db")
def qry(sql):
    return pd.read_sql(sql, c)

cd = species["code"]
trees["species"] == cd["species"] == cd["tree"]

cd = "m"
trees[trees["species"] == cd["species"]]

cd = "m"
trees[trees["species"] == cd["species"]]

cd = "m"
trees[trees["species"] == cd["species"]]

cd = "m"
trees[trees["species"] == cd["species"]]

cd = "m"
trees[trees["species"] == cd["species"]]
```
5  list(qry("SELECT tree, priority FROM trees " +
"ORDER BY priority DESC LIMIT 1").iloc[0])

6  qry("""SELECT COUNT(SPECIES) AS c1,
    COUNT(DISTINCT SPECIES) as c2
    FROM trees""")

7  qry("""SELECT species, COUNT(SPECIES) AS count,
    AVG(diameter) AS size
    FROM trees
    GROUP BY species ORDER BY count DESC""")
<table>
<thead>
<tr>
<th>year</th>
<th>color</th>
<th>style</th>
<th>owner</th>
<th>alt</th>
<th>active</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>red</td>
<td>K-81</td>
<td>private</td>
<td>1179</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>red</td>
<td>M-3</td>
<td>public</td>
<td>1065</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>green</td>
<td>Pacer</td>
<td>private</td>
<td>1058</td>
<td>1</td>
</tr>
<tr>
<td>2010</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1081</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1052</td>
<td>1</td>
</tr>
<tr>
<td>2018</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1109</td>
<td>1</td>
</tr>
</tbody>
</table>

8. `qry("SELECT color, year FROM hydrants WHERE color = 'blue' ")`

9. `df = qry("SELECT color, year FROM hydrants")
   df[df.color == "blue"]`

10. `qry("SELECT year FROM hydrants WHERE owner='private' AND active")`

11. `df = qry("SELECT year, style, active FROM hydrants")
    df[df.active == 1]["style"]`
<table>
<thead>
<tr>
<th>year</th>
<th>color</th>
<th>style</th>
<th>owner</th>
<th>alt</th>
<th>active</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>red</td>
<td>K-81</td>
<td>private</td>
<td>1179</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>red</td>
<td>M-3</td>
<td>public</td>
<td>1065</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>green</td>
<td>Pacer</td>
<td>private</td>
<td>1058</td>
<td>1</td>
</tr>
<tr>
<td>2010</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1081</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1052</td>
<td>1</td>
</tr>
<tr>
<td>2018</td>
<td>blue</td>
<td>Pacer</td>
<td>public</td>
<td>1109</td>
<td>1</td>
</tr>
</tbody>
</table>

```
hydrants = qry(""
SELECT * FROM hydrants"
)
```

```
hydrants["color"].value_counts()
# convert to SQL
```

```
qry(""
SELECT color, COUNT(*) FROM hydrants
WHERE active GROUP BY color"
"")
```

```
<table>
<thead>
<tr>
<th>color</th>
<th>COUNT(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>blue</td>
<td>3</td>
</tr>
<tr>
<td>red</td>
<td>2</td>
</tr>
<tr>
<td>green</td>
<td>1</td>
</tr>
</tbody>
</table>
```

```
qry(""
SELECT color, COUNT(*) AS count FROM hydrants
GROUP BY color HAVING count > 1"
"")
```

```
<table>
<thead>
<tr>
<th>color</th>
<th>count</th>
</tr>
</thead>
<tbody>
<tr>
<td>blue</td>
<td>3</td>
</tr>
<tr>
<td>red</td>
<td>2</td>
</tr>
</tbody>
</table>
```

```
qry(""
SELECT color, COUNT(*) AS count
FROM hydrants WHERE year >= 2000
GROUP BY color HAVING count < 2"
"")
```

```
<table>
<thead>
<tr>
<th>color</th>
<th>count</th>
</tr>
</thead>
<tbody>
<tr>
<td>green</td>
<td>1</td>
</tr>
<tr>
<td>red</td>
<td>1</td>
</tr>
</tbody>
</table>
```