

```

=====

#####
### Original Python2 File:
### alter.py
#####

for i in range(10):
    print i,
    print

sql:
CREATE TABLE new_Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int,
    birthday int
)
DATABASEPRINT

ALTER TABLE new_Customers ADD gender VARCHAR(1)
DATABASEPRINT

ALTER TABLE new_Customers ALTER COLUMN gender INT
DATABASEPRINT

ALTER TABLE new_Customers DROP COLUMN birthday
DATABASEPRINT

:sql

=====

### Converted Python File:

for i in range(10):
    print i,
    print

print "Database:"
print "current_record:0"
print "datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last':
{'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}"
print "new_Customers:[]"
print "new_Customers_fields:['name', 'last', 'phone', 'birthday']"
print "triples:[]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print
print "Database:"
print "current_record:0"
print "datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last':
{'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}, 'gender': {'VARCHAR': '1'}}}"
print "new_Customers:[]"
print "new_Customers_fields:['name', 'last', 'phone', 'birthday', 'gender']"
print "triples:[]"

```

```

print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print
print "Database:"
print "current_record:0"
print "datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last':
{'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}, 'gender': {'INT': -1}}}"
print "new_Customers:[]"
print "new_Customers_fields:['name', 'last', 'phone', 'birthday', 'gender']"
print "triples:[]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print
print "Database:"
print "current_record:0"
print "datatypes:{'new_Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name':
{'VARCHAR': '100'}, 'gender': {'INT': -1}}}"
print "new_Customers:[]"
print "new_Customers_fields:['name', 'last', 'phone', 'gender']"
print "triples:[]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

=====
### Console Output:

0 1 2 3 4 5 6 7 8 9
Database:
current_record:0
datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last': {'VARCHAR': '15'},
'name': {'VARCHAR': '100'}}}
new_Customers:[]
new_Customers_fields:['name', 'last', 'phone', 'birthday']
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

Database:
current_record:0
datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last': {'VARCHAR': '15'},
'name': {'VARCHAR': '100'}, 'gender': {'VARCHAR': '1'}}}
new_Customers:[]
new_Customers_fields:['name', 'last', 'phone', 'birthday', 'gender']
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

Database:
current_record:0
datatypes:{'new_Customers': {'phone': {'INT': -1}, 'birthday': {'INT': -1}, 'last': {'VARCHAR': '15'},
'name': {'VARCHAR': '100'}, 'gender': {'INT': -1}}}
new_Customers:[]
new_Customers_fields:['name', 'last', 'phone', 'birthday', 'gender']
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

```

```

Database:
current_record:0
datatypes:{'new_Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR':
'100'}, 'gender': {'INT': -1}}}
new_Customers:[]
new_Customers_fields:['name', 'last', 'phone', 'gender']
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

=====
#####
### Original Python2 File:
### create.py
#####

for i in range(10):
    print i,
print

sql:
CREATE TABLE Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int,
    birthday VARCHAR(20)
)
CREATE TABLE Noncustomers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int
)
CREATE TABLE Housing (
    person VARCHAR(100) ,
    floor int,
    room VARCHAR(4),
    phone int
)
:sql

sql: DATABASEPRINT :sql

=====
### Converted Python File:

for i in range(10):
    print i,
print

```

```

print "Database:"
print "Customers:[]"
print "Customers_fields:['name', 'last', 'phone', 'birthday']"
print "Housing:[]"
print "Housing_fields:['person', 'floor', 'room', 'phone']"
print "Noncustomers:[]"
print "Noncustomers_fields:['name', 'last', 'phone']"
print "current_record:0"
print "datatypes:{'Noncustomers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}, 'Customers': {'phone': {'INT': -1}, 'birthday': {'VARCHAR': '20'}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}, 'Housing': {'person': {'VARCHAR': '100'}, 'room': {'VARCHAR': '4'}, 'phone': {'INT': -1}, 'floor': {'INT': -1}}}"
print "triples:[]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

=====

### Console Output:

0 1 2 3 4 5 6 7 8 9
Database:
Customers:[]
Customers_fields:['name', 'last', 'phone', 'birthday']
Housing:[]
Housing_fields:['person', 'floor', 'room', 'phone']
Noncustomers:[]
Noncustomers_fields:['name', 'last', 'phone']
current_record:0
datatypes:{'Noncustomers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}, 'Customers': {'phone': {'INT': -1}, 'birthday': {'VARCHAR': '20'}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}, 'Housing': {'person': {'VARCHAR': '100'}, 'room': {'VARCHAR': '4'}, 'phone': {'INT': -1}, 'floor': {'INT': -1}}}
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

=====

#####

### Original Python2 File:
### delete.py
#####

for i in range(10):
    print i,
print

sql:
CREATE TABLE new_Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int,

```

```

    birthday int
)
INSERT INTO new_Customers VALUES ('Lake', 'Travis', 911, 1)
INSERT INTO new_Customers VALUES ('Absente', 'Mee', 302740, 8)
INSERT INTO new_Customers VALUES ('Burbple', 'Durple', 8837232, 7)
INSERT INTO new_Customers VALUES ('Hes', 'ABob', 8675309, 2)
INSERT INTO new_Customers VALUES ('See', 'Mee', 302740, 1)
INSERT INTO new_Customers VALUES ('Jose', 'Nosey', 928223, 2)
INSERT INTO new_Customers VALUES ('Miggh', 'Tyfine', 124967, 2)
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE last='Nope'
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE phone='ABob'
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE phone=8837232
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE last='ABob'
:sql
sql:
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE last='Mee' AND phone=98478
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE last='Knee' AND phone=302740
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers WHERE last='Mee' AND phone=302740
PRINT SELECT * FROM new_Customers

DELETE FROM new_Customers
:sql

```

```
=====
```

```
### Converted Python File:
```

```

for i in range(10):
    print i,
print

print 'new_Customers:'
print '|-----|'
print '|  name      | last      | phone     | birthday  |'
print '|-----|'
print '|  Lake      | Travis   | 911       | 1         |'
print '|  Absente   | Mee      | 302740    | 8         |'
print '|  Burbple   | Durple   | 8837232   | 7         |'
print '|  Hes       | ABob     | 8675309   | 2         |'

```

```

print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| Burbple | Durple | 8837232 | 7 |'
print '| Hes | ABob | 8675309 | 2 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| Burbple | Durple | 8837232 | 7 |'
print '| Hes | ABob | 8675309 | 2 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'

```

```
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Absente | Mee | 302740 | 8 |'
print '| See | Mee | 302740 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name | last | phone | birthday |'
print '|-----|'
print '| Lake | Travis | 911 | 1 |'
print '| Jose | Nosey | 928223 | 2 |'
print '| Miggh | Tyfine | 124967 | 2 |'
print '|-----|'
```

=====

Console Output:

```
0 1 2 3 4 5 6 7 8 9
new_Customers:
|-----|
| name          | last          | phone          | birthday       |
|-----|
| Lake          | Travis       | 911            | 1             |
| Absente       | Mee          | 302740         | 8             |
| Burbple       | Durple       | 8837232        | 7             |
| Hes           | ABOB         | 8675309        | 2             |
| See           | Mee          | 302740         | 1             |
| Jose          | Nosey        | 928223         | 2             |
| Miggh         | Tyfine       | 124967         | 2             |
|-----|
new_Customers:
|-----|
| name          | last          | phone          | birthday       |
|-----|
| Lake          | Travis       | 911            | 1             |
| Absente       | Mee          | 302740         | 8             |
| Burbple       | Durple       | 8837232        | 7             |
| Hes           | ABOB         | 8675309        | 2             |
| See           | Mee          | 302740         | 1             |
```

Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

new_Customers:			

name	last	phone	birthday

Lake	Travis	911	1
Absente	Mee	302740	8
Burbple	Durple	8837232	7
Hes	ABob	8675309	2
See	Mee	302740	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

new_Customers:			

name	last	phone	birthday

Lake	Travis	911	1
Absente	Mee	302740	8
Hes	ABob	8675309	2
See	Mee	302740	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

new_Customers:			

name	last	phone	birthday

Lake	Travis	911	1
Absente	Mee	302740	8
See	Mee	302740	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

new_Customers:			

name	last	phone	birthday

Lake	Travis	911	1
Absente	Mee	302740	8
See	Mee	302740	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

new_Customers:			

name	last	phone	birthday

Lake	Travis	911	1
Absente	Mee	302740	8

See	Mee	302740	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

```
new_Customers:
```

name	last	phone	birthday
Lake	Travis	911	1
Jose	Nosey	928223	2
Miggh	Tyfine	124967	2

```
=====
```

```
#####
```

```
### Original Python2 File:
```

```
### drop.py
```

```
#####
```

```
for i in range(10):
```

```
    print i,
```

```
print
```

```
sql:
```

```
CREATE TABLE Customers (
```

```
    name VARCHAR(100) ,
```

```
    last VARCHAR(15),
```

```
    phone int
```

```
)
```

```
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
```

```
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
```

```
PRINT SELECT * FROM Customers
```

```
DROP INDEX name ON Customers
```

```
PRINT SELECT * FROM Customers
```

```
DROP INDEX blah ON Customers
```

```
DROP TABLE Nope
```

```
DROP TABLE Customers
```

```
DATABASEPRINT
```

```
:sql
```

```
=====
```

```
### Converted Python File:
```

```
for i in range(10):
```

```
    print i,
```

```
print

print 'Customers:'
print '|-----|'
print '|  name      | last      | phone      |'
print '|-----|'
print '|  Phil      | Cannata   | 7735647    |'
print '|  Matthew   | Clarkson  | 9875643    |'
print '|  Joaquin    | Casares   | 3451878    |'
print '|  Joaquin    | Joaquin   | 9345879    |'
print '|  Joaquin    | Joaquin   | 5123789    |'
print '|  Joaquin    | Guadalupe | 8845748    |'
print '|-----|'
print 'Customers:'
print '|-----|'
print '|  last      | phone      |'
print '|-----|'
print '|  Cannata    | 7735647    |'
print '|  Clarkson   | 9875643    |'
print '|  Casares    | 3451878    |'
print '|  Joaquin    | 9345879    |'
print '|  Joaquin    | 5123789    |'
print '|  Guadalupe  | 8845748    |'
print '|-----|'
print "Database:"
print "current_record:6"
print "datatypes:{}"
print "triples:[]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

=====
### Console Output:

Field: blah does not exist. Table unchanged.
Table: Nope does not exist. Database unchanged.
0 1 2 3 4 5 6 7 8 9
Customers:
|-----|
|  name      | last      | phone      |
|-----|
|  Phil      | Cannata   | 7735647    |
|  Matthew   | Clarkson  | 9875643    |
|  Joaquin    | Casares   | 3451878    |
|  Joaquin    | Joaquin   | 9345879    |
|  Joaquin    | Joaquin   | 5123789    |
|  Joaquin    | Guadalupe | 8845748    |
|-----|
Customers:
|-----|
|  last      | phone      |
```

```

|-----|
| Cannata      | 7735647 |
| Clarkson    | 9875643 |
| Casares     | 3451878 |
| Joaquin     | 9345879 |
| Joaquin     | 5123789 |
| Guadalupe   | 8845748 |
|-----|

Database:
current_record:6
datatypes:{}
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

=====
#####
### Original Python2 File:
### insert.py
#####

for i in range(10):
    print i,
print

sql:
CREATE TABLE Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int
)
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
:sql

sql: DATABASEPRINT :sql

sql:PRINT SELECT * FROM Customers:sql

=====
### Converted Python File:

for i in range(10):
    print i,
print

print "Database:"

```

```

print "Customers:[1, 2, 3, 4, 5, 6]"
print "Customers_fields:['name', 'last', 'phone']"
print "current_record:6"
print "datatypes:{'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}"

print "triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

print 'Customers:'
print '|-----'
print '|  name          | last          | phone          |'
print '|-----'
print '|  Phil          | Cannata      | 7735647       |'
print '|  Matthew       | Clarkson     | 9875643       |'
print '|  Joaquin       | Casares      | 3451878       |'
print '|  Joaquin       | Joaquin      | 9345879       |'
print '|  Joaquin       | Joaquin      | 5123789       |'
print '|  Joaquin       | Guadalupe    | 8845748       |'
print '|-----'

=====
### Console Output:

0 1 2 3 4 5 6 7 8 9
Database:
Customers:[1, 2, 3, 4, 5, 6]
Customers_fields:['name', 'last', 'phone']
current_record:6
datatypes:{'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}
triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

Customers:
|-----|
| name          | last          | phone          |
|-----|
| Phil          | Cannata      | 7735647       |
| Matthew       | Clarkson     | 9875643       |
| Joaquin       | Casares      | 3451878       |
| Joaquin       | Joaquin      | 9345879       |
| Joaquin       | Joaquin      | 5123789       |
|-----|

```

```

| Joaquin      | Guadalupe    | 8845748      |
|-----|
#####
### Original Python2 File:
### joins.py
#####

for i in range(10):
    print i,
print

sql:
CREATE TABLE Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int
)
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
:sql

sql: DATABASEPRINT :sql

sql:PRINT SELECT * FROM Customers:sql

=====
### Converted Python File:

for i in range(10):
    print i,
print

print "Database:"
print "Customers:[1, 2, 3, 4, 5, 6]"
print "Customers_fields:['name', 'last', 'phone']"
print "current_record:6"
print "datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}"
print "triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

```

```

print 'Customers:'
print '|-----|'
print '|  name      |  last      |  phone      |'
print '|-----|'
print '|  Phil       |  Cannata    |  7735647     |'
print '|  Matthew    |  Clarkson   |  9875643     |'
print '|  Joaquin     |  Casares    |  3451878     |'
print '|  Joaquin     |  Joaquin    |  9345879     |'
print '|  Joaquin     |  Joaquin    |  5123789     |'
print '|  Joaquin     |  Guadalupe  |  8845748     |'
print '|-----|'

```

```
=====
```

```
### Console Output:
```

```
0 1 2 3 4 5 6 7 8 9
```

```
Database:
```

```
Customers:[1, 2, 3, 4, 5, 6]
```

```
Customers_fields:['name', 'last', 'phone']
```

```
current_record:6
```

```
datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}
```

```
triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]
```

```
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']
```

```
Customers:
```

```

|-----|
|  name      |  last      |  phone      |
|-----|
|  Phil       |  Cannata    |  7735647     |
|  Matthew    |  Clarkson   |  9875643     |
|  Joaquin     |  Casares    |  3451878     |
|  Joaquin     |  Joaquin    |  9345879     |
|  Joaquin     |  Joaquin    |  5123789     |
|  Joaquin     |  Guadalupe  |  8845748     |
|-----|

```

```
=====
```

```
#####
```

```
### Original Python2 File:
```

```
### select.py
```

```
#####
```

```
for i in range(10):
```

```
    print i,
```

```
print
```

```

sql:
CREATE TABLE Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int
)
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
:sql

print 'What follows gets sent to the actual python code.'
print 'Not the output window.'
sql:
    SELECT DISTINCT name, last FROM Customers
:sql
sql:
    SELECT DISTINCT name FROM Customers
:sql
sql:
    SELECT name, last, phone FROM Customers
:sql
sql:
    SELECT name, last, phone FROM Customers WHERE phone > 6001234
:sql
sql:
    SELECT name, last, phone FROM Customers WHERE phone <> 7735647
:sql
print '-----'

print
sql: PRINT SELECT * FROM Customers
    ORDER BY name asc
:sql
print

print
sql: PRINT SELECT * FROM Customers
    ORDER BY last desc
:sql
print

print 'All rows: '
for a in sql:SELECT * FROM Customers:sql :
    print a,
print '\n'

print 'All phone numbers: '
for a in sql:SELECT phone FROM Customers:sql :

```

```

    print a,
    print '\n'

print 7735647 in sql:CONTENTS SELECT phone FROM Customers:sql
print 7735647 in sql:CONTENTS SELECT * FROM Customers:sql
print

for i in sql:CONTENTS SELECT * FROM Customers:sql:
    print i,
    print '\n'

sql: DATABASEPRINT :sql

sql:PRINT SELECT * FROM Customers:sql

=====
### Converted Python File:

for i in range(10):
    print i,
    print

print 'What follows gets sent to the actual python code.'
print 'Not the output window.'
[['Phil', 'Cannata'], ['Matthew', 'Clarkson'], ['Joaquin', 'Casares'], ['Joaquin', 'Joaquin'], [
'Joaquin', 'Guadalupe']]
[['Phil'], ['Matthew'], ['Joaquin']]
[['Phil', 'Cannata', 7735647], ['Matthew', 'Clarkson', 9875643], ['Joaquin', 'Casares', 3451878], [
'Joaquin', 'Joaquin', 9345879], ['Joaquin', 'Joaquin', 5123789], ['Joaquin', 'Guadalupe', 8845748]]
[['Phil', 'Cannata', 7735647], ['Matthew', 'Clarkson', 9875643], ['Joaquin', 'Joaquin', 9345879], [
'Joaquin', 'Guadalupe', 8845748]]
[['Matthew', 'Clarkson', 9875643], ['Joaquin', 'Casares', 3451878], ['Joaquin', 'Joaquin', 9345879], [
'Joaquin', 'Joaquin', 5123789], ['Joaquin', 'Guadalupe', 8845748]]
print '-----'

print
print 'Customers:'
print '|-----|'
print '|  name      |  last      |  phone      |'
print '|-----|'
print '|  Joaquin    |  Casares   |  3451878    |'
print '|  Joaquin    |  Joaquin   |  9345879    |'
print '|  Joaquin    |  Joaquin   |  5123789    |'
print '|  Joaquin    |  Guadalupe |  8845748    |'
print '|  Matthew    |  Clarkson  |  9875643    |'
print '|  Phil       |  Cannata   |  7735647    |'
print '|-----|'

print

```



```

print
print 'Customers:'
print '|-----|'
print '| name          | last          | phone          |'
print '|-----|'
print '| Joaquin        | Joaquin       | 5123789        |'
print '| Joaquin        | Joaquin       | 9345879        |'
print '| Joaquin        | Guadalupe     | 8845748        |'
print '| Matthew       | Clarkson     | 9875643        |'
print '| Joaquin        | Casares      | 3451878        |'
print '| Phil          | Cannata      | 7735647        |'
print '|-----|'

print

print 'All rows: '
for a in [['Phil', 'Cannata', 7735647], ['Matthew', 'Clarkson', 9875643], ['Joaquin', 'Casares',
3451878], ['Joaquin', 'Joaquin', 9345879], ['Joaquin', 'Joaquin', 5123789], ['Joaquin', 'Guadalupe',
8845748]] :
    print a,
    print '\n'

print 'All phone numbers: '
for a in [[7735647], [9875643], [3451878], [9345879], [5123789], [8845748]] :
    print a,
    print '\n'

print 7735647 in [7735647, 9875643, 3451878, 9345879, 5123789, 8845748]
print 7735647 in ['Phil', 'Cannata', 7735647, 'Matthew', 'Clarkson', 9875643, 'Joaquin', 'Casares',
3451878, 'Joaquin', 'Joaquin', 9345879, 'Joaquin', 'Joaquin', 5123789, 'Joaquin', 'Guadalupe', 8845748]
print

for i in ['Phil', 'Cannata', 7735647, 'Matthew', 'Clarkson', 9875643, 'Joaquin', 'Casares', 3451878,
'Joaquin', 'Joaquin', 9345879, 'Joaquin', 'Joaquin', 5123789, 'Joaquin', 'Guadalupe', 8845748]:
    print i,
    print '\n'

print "Database:"
print "Customers:[1, 2, 3, 4, 5, 6]"
print "Customers_fields:['name', 'last', 'phone']"
print "current_record:6"
print "datatypes:{'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR':
'100'}}}"
print "triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name',
'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last',
'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone',
9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name',
'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

```

```

print 'Customers:'
print '|-----|'
print '|  name      |  last      |  phone      |'
print '|-----|'
print '|  Phil      |  Cannata   |  7735647    |'
print '|  Matthew   |  Clarkson  |  9875643    |'
print '|  Joaquin    |  Casares   |  3451878    |'
print '|  Joaquin    |  Joaquin   |  9345879    |'
print '|  Joaquin    |  Joaquin   |  5123789    |'
print '|  Joaquin    |  Guadalupe |  8845748    |'
print '|-----|'

```

```
=====
```

```
### Console Output:
```

```
0 1 2 3 4 5 6 7 8 9
```

What follows gets sent to the actual python code.

Not the output window.

Customers:

```

|-----|
|  name      |  last      |  phone      |
|-----|
|  Joaquin    |  Casares   |  3451878    |
|  Joaquin    |  Joaquin   |  9345879    |
|  Joaquin    |  Joaquin   |  5123789    |
|  Joaquin    |  Guadalupe |  8845748    |
|  Matthew    |  Clarkson  |  9875643    |
|  Phil       |  Cannata   |  7735647    |
|-----|

```

Customers:

```

|-----|
|  name      |  last      |  phone      |
|-----|
|  Joaquin    |  Joaquin   |  5123789    |
|  Joaquin    |  Joaquin   |  9345879    |
|  Joaquin    |  Guadalupe |  8845748    |
|  Matthew    |  Clarkson  |  9875643    |
|  Joaquin    |  Casares   |  3451878    |
|  Phil       |  Cannata   |  7735647    |
|-----|

```

All rows:

```
['Phil', 'Cannata', 7735647] ['Matthew', 'Clarkson', 9875643] ['Joaquin', 'Casares', 3451878] [
'Joaquin', 'Joaquin', 9345879] ['Joaquin', 'Joaquin', 5123789] ['Joaquin', 'Guadalupe', 8845748]
```

All phone numbers:

```
[7735647] [9875643] [3451878] [9345879] [5123789] [8845748]
```

True

True

Phil Cannata 7735647 Matthew Clarkson 9875643 Joaquin Casares 3451878 Joaquin Joaquin 9345879 Joaquin
Joaquin 5123789 Joaquin Guadalupe 8845748

Database:

Customers:[1, 2, 3, 4, 5, 6]

Customers_fields:['name', 'last', 'phone']

current_record:6

datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}

triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]

valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

Customers:

name	last	phone
Phil	Cannata	7735647
Matthew	Clarkson	9875643
Joaquin	Casares	3451878
Joaquin	Joaquin	9345879
Joaquin	Joaquin	5123789
Joaquin	Guadalupe	8845748

=====

#####

Original Python2 File:

truncate.py

#####

```
for i in range(10):
```

```
    print i,
```

```
print
```

sql:

```
CREATE TABLE Customers (
```

```
    name VARCHAR(100) ,
```

```
    last VARCHAR(15),
```

```
    phone int
```

```
)
```

```
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
```

```
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
```

```
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
```

```

DATABASEPRINT
TRUNCATE TABLE Firsts
TRUNCATE TABLE Customers
DATABASEPRINT
:sql

=====

### Converted Python File:

for i in range(10):
    print i,
    print

print "Database:"
print "Customers:[1, 2, 3, 4, 5, 6]"
print "Customers_fields:['name', 'last', 'phone']"
print "current_record:6"
print "datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR':
'100'}}}"
print "triples: [(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name',
'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last',
'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone',
9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name',
'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]"
print "valid_datatypes: ['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print
print "Database:"
print "Customers:[]"
print "Customers_fields:[]"
print "current_record:6"
print "datatypes:{}"
print "triples:[]"
print "valid_datatypes: ['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

=====

### Console Output:

Table: Firsts does not exist. Database unchanged.
0 1 2 3 4 5 6 7 8 9
Database:
Customers:[1, 2, 3, 4, 5, 6]
Customers_fields:['name', 'last', 'phone']
current_record:6
datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}
triples: [(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (
2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3,
'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name',
'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last',
'Guadalupe'), (6, 'phone', 8845748)]
valid_datatypes: ['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

```

```

Database:
Customers:[]
Customers_fields:[]
current_record:6
datatypes:{}
triples:[]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

```

```
=====
```

```
#####
```

```
### Original Python2 File:
```

```
### union.py
```

```
#####
```

```

for i in range(10):
    print i,
print

```

```

sql:
CREATE TABLE Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int
)
INSERT INTO Customers VALUES ('Phil', 'Cannata', 7735647)
INSERT INTO Customers VALUES ('Matthew', 'Clarkson', 9875643)
INSERT INTO Customers VALUES ('Joaquin', 'Casares', 3451878)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 9345879)
INSERT INTO Customers VALUES ('Joaquin', 'Joaquin', 5123789)
INSERT INTO Customers VALUES ('Joaquin', 'Guadalupe', 8845748)
:sql

```

```
sql: DATABASEPRINT :sql
```

```
sql:PRINT SELECT * FROM Customers:sql
```

```
=====
```

```
### Converted Python File:
```

```

for i in range(10):
    print i,
print

```

```

print "Database:"
print "Customers:[1, 2, 3, 4, 5, 6]"
print "Customers_fields:['name', 'last', 'phone']"
print "current_record:6"
print "datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}"

```

```

print "triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name',
'Matthew'), (2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last',
'Casares'), (3, 'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone',
9345879), (5, 'name', 'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name',
'Joaquin'), (6, 'last', 'Guadalupe'), (6, 'phone', 8845748)]"
print "valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']"
print

print 'Customers:'
print '|-----'
print '|  name          |  last          |  phone          |'
print '|-----'
print '|  Phil           |  Cannata       |  7735647        |'
print '|  Matthew        |  Clarkson      |  9875643        |'
print '|  Joaquin         |  Casares       |  3451878        |'
print '|  Joaquin         |  Joaquin       |  9345879        |'
print '|  Joaquin         |  Joaquin       |  5123789        |'
print '|  Joaquin         |  Guadalupe     |  8845748        |'
print '|-----'

=====
### Console Output:

0 1 2 3 4 5 6 7 8 9
Database:
Customers:[1, 2, 3, 4, 5, 6]
Customers_fields:['name', 'last', 'phone']
current_record:6
datatypes: {'Customers': {'phone': {'INT': -1}, 'last': {'VARCHAR': '15'}, 'name': {'VARCHAR': '100'}}}
triples:[(1, 'name', 'Phil'), (1, 'last', 'Cannata'), (1, 'phone', 7735647), (2, 'name', 'Matthew'), (
2, 'last', 'Clarkson'), (2, 'phone', 9875643), (3, 'name', 'Joaquin'), (3, 'last', 'Casares'), (3,
'phone', 3451878), (4, 'name', 'Joaquin'), (4, 'last', 'Joaquin'), (4, 'phone', 9345879), (5, 'name',
'Joaquin'), (5, 'last', 'Joaquin'), (5, 'phone', 5123789), (6, 'name', 'Joaquin'), (6, 'last',
'Guadalupe'), (6, 'phone', 8845748)]
valid_datatypes:['VARCHAR', 'INT', 'CHAR', 'TEXT', 'BIT', 'BIGINT', 'REAL']

Customers:
|-----|
|  name          |  last          |  phone          |
|-----|
|  Phil           |  Cannata       |  7735647        |
|  Matthew        |  Clarkson      |  9875643        |
|  Joaquin         |  Casares       |  3451878        |
|  Joaquin         |  Joaquin       |  9345879        |
|  Joaquin         |  Joaquin       |  5123789        |
|  Joaquin         |  Guadalupe     |  8845748        |
|-----|

=====
#####
### Original Python2 File:

```

```

### update.py
#####

for i in range(10):
    print i,
print

sql:
CREATE TABLE new_Customers (
    name VARCHAR(100) ,
    last VARCHAR(15),
    phone int,
    birthday int
)
INSERT INTO new_Customers VALUES ('Lake', 'Travis', 911, 1)
INSERT INTO new_Customers VALUES ('Absente', 'Mee', 302740, 8)
INSERT INTO new_Customers VALUES ('Burbple', 'Durple', 8837232, 7)
INSERT INTO new_Customers VALUES ('Hes', 'ABob', 8675309, 2)
INSERT INTO new_Customers VALUES ('See', 'Mee', 302740, 1)
INSERT INTO new_Customers VALUES ('Jose', 'Nosey', 928223, 2)
INSERT INTO new_Customers VALUES ('Miggh', 'Tyfine', 124967, 2)
UPDATE new_Customers SET last='Bosey', name='Bob' WHERE last='Jose' AND name='Nosey'
PRINT SELECT * FROM new_Customers
UPDATE new_Customers SET last='Bosey', name='Bob' WHERE last='Jose'
PRINT SELECT * FROM new_Customers
UPDATE new_Customers SET last='Bosey', name='Bob', phone=9343
PRINT SELECT * FROM new_Customers

```

```
:sql
```

```
=====
```

```
### Converted Python File:
```

```

for i in range(10):
    print i,
print

print 'new_Customers:'
print '|-----|'
print '| name          | last          | phone          | birthday       |'
print '|-----|'
print '| Lake           | Travis        | 911            | 1              |'
print '| Absente        | Mee           | 302740          | 8              |'
print '| Burbple        | Durple        | 8837232         | 7              |'
print '| Hes            | ABob          | 8675309         | 2              |'
print '| See            | Mee           | 302740          | 1              |'
print '| Jose           | Nosey         | 928223          | 2              |'
print '| Miggh          | Tyfine        | 124967          | 2              |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name          | last          | phone          | birthday       |'

```

```
print '|-----|'
print '| Lake      | Travis    | 911      | 1      |'
print '| Absente    | Mee       | 302740   | 8      |'
print '| Burbble    | Durple    | 8837232  | 7      |'
print '| Hes        | ABob      | 8675309  | 2      |'
print '| See        | Mee       | 302740   | 1      |'
print '| Jose       | Nosey     | 928223   | 2      |'
print '| Miggh      | Tyfine    | 124967   | 2      |'
print '|-----|'
print 'new_Customers:'
print '|-----|'
print '| name      | last      | phone    | birthday|'
print '|-----|'
print '| Bob       | Bosey     | 9343     | 1      |'
print '| Bob       | Bosey     | 9343     | 8      |'
print '| Bob       | Bosey     | 9343     | 7      |'
print '| Bob       | Bosey     | 9343     | 2      |'
print '| Bob       | Bosey     | 9343     | 1      |'
print '| Bob       | Bosey     | 9343     | 2      |'
print '| Bob       | Bosey     | 9343     | 2      |'
print '|-----|'
```

=====
Console Output:

0 1 2 3 4 5 6 7 8 9
new_Customers:
|-----|
| name | last | phone | birthday|
|-----|
| Lake | Travis | 911 | 1 |
| Absente | Mee | 302740 | 8 |
| Burbble | Durple | 8837232 | 7 |
| Hes | ABob | 8675309 | 2 |
| See | Mee | 302740 | 1 |
| Jose | Nosey | 928223 | 2 |
| Miggh | Tyfine | 124967 | 2 |
|-----|

new_Customers:
|-----|
| name | last | phone | birthday|
|-----|
| Lake | Travis | 911 | 1 |
| Absente | Mee | 302740 | 8 |
| Burbble | Durple | 8837232 | 7 |
| Hes | ABob | 8675309 | 2 |
| See | Mee | 302740 | 1 |
| Jose | Nosey | 928223 | 2 |
| Miggh | Tyfine | 124967 | 2 |
|-----|

new_Customers:

name	last	phone	birthday
Bob	Bosey	9343	1
Bob	Bosey	9343	8
Bob	Bosey	9343	7
Bob	Bosey	9343	2
Bob	Bosey	9343	1
Bob	Bosey	9343	2
Bob	Bosey	9343	2