Archived:A simple ORM SQL for PySymbian

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All PySymbian articles have been archived. PySymbian is no longer maintained by Nokia and is not guaranteed to work on more recent Symbian devices. It is not possible to submit apps to Nokia Store.

This simple Object Relational Mapper is adapted from SQLAlchemy and SQLObject. You need to create a database manually first.

```
from __future__ import generators
import e32db, re
db = e32db.Dbms()
dbv = e32db.Db_view()
db.open(u'C:\\test.db')

# Some helping classes (need more in next version)
class String:
    pass

class Integer:
    pass

class Float:
    pass

class column:
    def __init__(self, coltype):
        self.coltype = coltype

class Mapper(object):
    def __init__(self, id=None, **kw):
        if id is None:
            self.id = self._insert(**kw)
        else:
            self.id = id
    def _insert(self, **kw):
        names = ','.join(kw.keys())
        values = ','.join(self.quote(k,v) for k,v in kw.items())
        tablename = self.__class__.__name__
        q = u"INSERT INTO %s(%s) VALUES (%s)" % (tablename, names, values)
        db.execute(q)
        # get last insert ID
        dbv.prepare(db, u'SELECT id FROM '+tablename+' ORDER BY id DESC')
        dbv.first_line()
        dbv.get_line()
        return dbv.col(1)
    def __getattr__(self, name):
        if hasattr(self.mapping, name):
            q = 'SELECT '+name+' FROM '+self.__class__.__name__
            q += ' WHERE id='+str(self.id)
            dbv.prepare(db, unicode(q))
            dbv.first_line()
            dbv.get_line()
            return dbv.col(1)
        else:
            return self.__dict__[name]
    def __repr__(self):
        return '<%s id=%d>' % (self.__class__.__name__, self.id)
    def quote(self, name, value):
        if getattr(self.mapping, name).coltype == String:
            return "'%s'" % value.replace("'", "''")  # encode single quote
        else:
            return str(value)
    def __setattr__(self, name, value):
        if hasattr(self.mapping, name):
            q = 'UPDATE '+self.__class__.__name__+' SET '+name+'='
            q += self.quote(name, value) + " WHERE id=" + str(self.id)
            db.execute(unicode(q))
        else:
            self.__dict__[name] = value
    def set(self, **kw):
        q = "UPDATE "+self.__class__.__name__+" SET "
        for k, v in kw.items():
            q += k+'='+self.quote(k,v)+','
        q = q[:-1]+" WHERE id=%s" % self.id
        db.execute(unicode(q))
    def delete(self):
        q = 'DELETE FROM '+self.__class__.__name__+" WHERE id=" + str(self.id)
        db.execute(unicode(q))
        self.id = None
    def dict(self):
        names = [k for k in self.mapping.__dict__ if not k.startswith('__')]
        q = 'SELECT '+','.join(names)+' FROM '+self.__class__.__name__
        q += ' WHERE id=' + str(self.id)
        dbv.prepare(db, unicode(q))
        dbv.first_line()
        dbv.get_line()
        dct = {'id': self.id}
        for i in range(dbv.col_count()):
            dct[names[i]] = dbv.col(i+1)
        return dct
    def select(cls, where=None, orderby=None):
        q = 'SELECT id FROM '+cls.__name__
        if where:
            q += ' WHERE '+where
        if orderby:
            q += ' ORDER BY '+orderby
        dbv = e32db.Db_view()  # need its own cursor
        dbv.prepare(db, unicode(q))
        dbv.first_line()
        for i in range(dbv.count_line()):
            dbv.get_line()
            yield cls(dbv.col(1))
            dbv.next_line()
    select = classmethod(select)
```


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Here's how you create your class.

```
class Phone(Mapper):
    class mapping:
        # doesn't need id = column(Integer)
        name = column(String)
        edition = column(Integer)
```


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