I.关系型数据库(MySQL)数据存入MongoDB.

【i】MongoDB和SQL术语对应表格。

SQL术语/概念	MongoDB术语/概念	解释/说明
database	database	数据库
table	collection	数据库表/集合
row	document	数据记录行/文档
column	field	数据字段/域
index	index	索引
table joins		表连接,MongoDB不支持
primary key	primary key	主键,MongoDB自动将_id字段设置为主键

【ii】方法

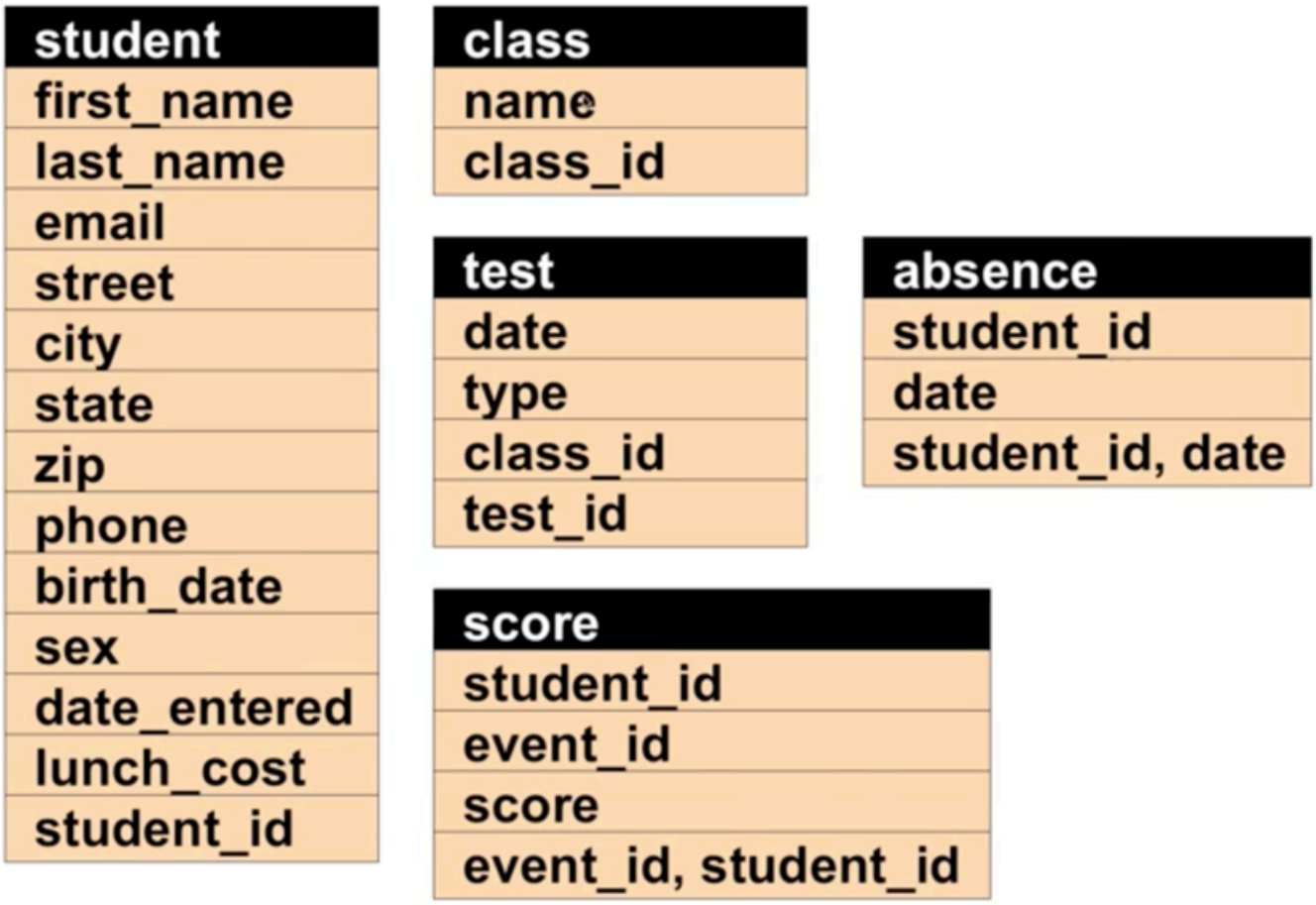
1. 将MySQL数据以CSV格式导出，再存入MongoDB中。

2. 编写程序依次从MySQL中读取数据再存入MongoDB。

3. 借助转换工具。如用RUBY语言的Mongify。

方法1 示例:

step1. MySQL中数据如下图
表格：student, class, test, score, absence.



step2. 数据CSV格式导出
终端操作

```
SELECT * FROM score
INTO OUTFILE '~/dumps/output1.csv'

FIELDS TERMINATED BY ','
ENCLOSED BY '"' LINES  TERMINATED BY '\n';
```

或直接使用MySQL Workbench 的 Resultset Export

结果如下（student表格导出）

student.csv

```
first_name,last_name,email,street,city,state,zip,phone,birth_date,sex,date_entered,lunch_c
ost,student_id
Dale,Cooper,dcooper@aol.com,"123 Main St",Yakima,WA,
98901,792-223-8901,1959-02-22,M,"2017-03-15 14:43:57",3.5,1
Lucy,Moran,lmoran@aol.com,"178 Dover St",Hollywood,CA,
90078,792-223-9678,1954-11-27,F,"2017-03-15 14:46:13",3.5,2
Tommy,Hill,thill@aol.com,"672 High Plains",Tucson,AZ,
85701,792-223-1115,1951-12-21,M,"2017-03-15 14:50:19",3.5,3
Andy,Brennan,abrennan@aol.com,"281 4th St",Jacksonville,NC,
28540,792-223-8902,1960-12-27,M,"2017-03-15 14:51:56",3.5,4
Harry,Truman,htruman@aol.com,"202 South St",Vancouver,WA,
98660,792-223-9810,1946-01-24,M,"2017-03-15 14:53:38",3.5,5
Shelly,Johnson,sjohnson@aol.com,"9 Pond Rd",Sparks,NV,
89431,792-223-6734,1970-12-12,F,"2017-03-15 14:53:57",3.5,6
Bobby,Briggs,bbriggs@aol.com,"14 12th St","San Diego",CA,
92101,792-223-6178,1967-05-24,M,"2017-03-15 14:54:12",3.5,7
Donna,Hayward,dhayward@aol.com,"120 16th St",Davenport,IA,
52801,792-223-2001,1970-03-24,F,"2017-03-15 14:54:26",3.5,8
Audrey,Horne,ahorne@aol.com,"342 19th St",Detroit,MI,
48222,792-223-2001,1965-02-01,F,"2017-03-15 14:54:44",3.5,9
James,Hurley,jhurley@aol.com,"2578 Cliff St",Queens,NY,
11427,792-223-1890,1967-01-02,M,"2017-03-15 14:54:59",3.5,10
```

step3. 用 `mongoimport` 读取CSV文件

```
mongoimport --db users --type csv --headerline --file /opt/backups/contacts.csv
```

以test表格为例，导入users db中的test collection，共6个document

```
wangzhixuans-MacBook-Pro:~ wangzhixuan$ mongoimport --db users --type csv --headerline --file /Users/wangzhixuan/Desktop/csvfile/test.csv
2017-03-16T13:48:24.894+0800    no collection specified
2017-03-16T13:48:24.894+0800    using filename 'test' as collection
2017-03-16T13:48:24.899+0800    connected to: localhost
2017-03-16T13:48:24.954+0800    imported 6 documents
wangzhixuans-MacBook-Pro:~ wangzhixuan$
```

step4. 使用python查询该collection

（左边为test数据，右为使用Python查询MongoDB数据库结果，筛选条件：type = "Q"）

Table 1

date	type	maxscore	class_id	test_id
2014-08-25	Q	15	1	1
2014-08-27	Q	15	1	2
2014-08-29	T	30	1	3
2014-08-29	T	30	2	4
2014-08-27	Q	15	4	5
2014-08-29	T	30	4	6

```
In [4]: from pymongo import MongoClient

        client = MongoClient()
        db = client.users

In [5]: cursor = db.test.find({"type" : "Q"})

In [6]: for document in cursor:
            print (document)

{'_id': ObjectId('58ca27288ca3fd4fdcc5a8f6'),
'date': '2014-08-25', 'type': 'Q', 'maxscore':
15, 'class_id': 1, 'test_id': 1}
{'_id': ObjectId('58ca27288ca3fd4fdcc5a8f7'),
'date': '2014-08-27', 'type': 'Q', 'maxscore':
15, 'class_id': 1, 'test_id': 2}
{'_id': ObjectId('58ca27288ca3fd4fdcc5a8fa'),
'date': '2014-08-27', 'type': 'Q', 'maxscore':
15, 'class_id': 4, 'test_id': 5}
```

备注：方法2好于方法1，但因为两个数据库数据存储结构不同，需要结合实际数据进行调整和改变结构后，再存入MongoDB。

II.存储shp文件

方式一：整个shp文件以一个document存在的。

1.将shp转为geoJSON，使用GDAL的命令行工具 `ogr2ogr` 。

```
ogr2ogr -f geoJSON primer-dataset.json simplified_land_polygons.shp
```

2.处理生成的JSON格式错误部分。
3.用 `mongoimport` 进行导入。

```
mongoimport --db test --collection restaurants --drop --file /Users/wangzhixuan/Do
wnloads/primer-dataset.json
```

方式二：shp中的每个feature取出来转为GeoJSON存入。

代码找到JAVA版，没有验证。