NOTE - TEST

test.py as the test code, for **12** test cases; test csv files are located in folder **vitess_test**

```python
from imageDB import ImageDB

def test():
    db = ImageDB()
    db.init_tables()

    ''' TEST CAMERA FILE '''

    ''' test correct case '''
    db.batch_insert_camera("./vitess_test/camera_test_standard.csv")

    ''' test wrong hearder name '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkHeader.csv")

    ''' test exceed column '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkExceedColumn.csv")

    ''' test missing column '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkMissingColumn.csv")

    ''' test missing values '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkMissingValues.csv")

    ''' test empty cell -- FAIL !!!!!!!!!!  '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkEmptyCell.csv")

    ''' test add same things twice '''
    #db.batch_insert_camera("./vitess_test/camera_test_checkInsertExistValue.csv")



    ''' TEST ImageVideo FILE '''

    ''' test correct case '''
    db.insert_image("./vitess_test/imageVideo_test_standard.csv")

    ''' test wrong hearder name '''
    #db.insert_image("./vitess_test/imageVideo_test_checkHeader.csv")

    ''' test exceed column -- FAIL !!!!!!!!!!  '''
    #db.insert_image("./vitess_test/imageVideo_test_checkExceedColumn.csv")

    ''' test missing column '''
    #db.insert_image("./vitess_test/imageVideo_test_checkMissingColumn.csv")

    ''' test missing values '''
    #db.insert_image("./vitess_test/imageVideo_test_checkMissingValues.csv")

    ''' test empty cell -- FAIL !!!!!!!!!!  '''
    #db.insert_image("./vitess_test/imageVideo_test_checkEmptyCell.csv")

    ''' test add same things twice '''
    #db.insert_image("./vitess_test/imageVideo_test_checkInsertExistValue.csv")


test()
```
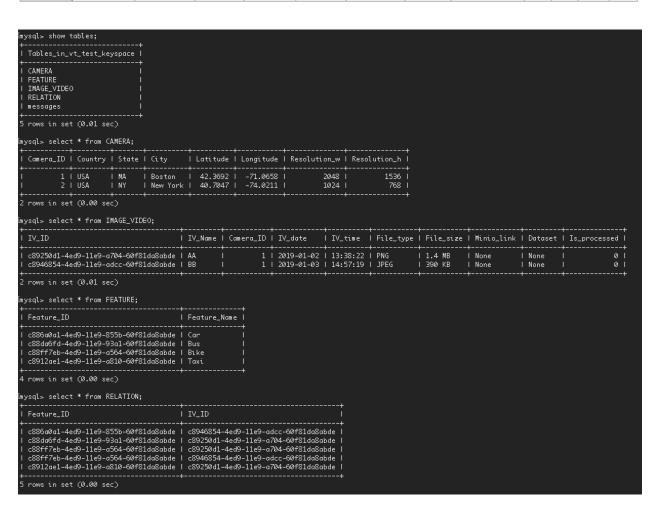
1. Correct case, with expected output

camera_test_standard

Camera_ID	Country	State	City	Latitude	Longtitude	Resolution_w	Resolution_h
1	USA	MA	Boston	42.3692	-71.0658	2048	1536
2	USA	NY	New York	40.7047	-74.0211	1024	768

imageVideo_test_standard

IV_Name	Camera_ID	IV_date	IV_time	File_type	File_size	Minio_link	Dataset	Is_processed	Car	Bus	Bike	Taxi
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	0	0	1	1	1
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0	1	0	1	0

```
mysql> show tables;
+--------------------------+
| Tables_in_vt_test_keyspace |
+--------------------------+
| CAMERA                   |
| FEATURE                  |
| IMAGE_VIDEO              |
| RELATION                 |
| messages                 |
+--------------------------+
5 rows in set (0.01 sec)

mysql> select * from CAMERA;
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
| Camera_ID | Country | State | City     | Latitude | Longitude | Resolution_w | Resolution_h |
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
|         1 | USA     | MA    | Boston   | 42.3692  | -71.0658  |         2048 |         1536 |
|         2 | USA     | NY    | New York | 40.7047  | -74.0211  |         1024 |          768 |
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
2 rows in set (0.00 sec)

mysql> select * from IMAGE_VIDEO;
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
| IV_ID                                | IV_Name | Camera_ID | IV_date    | IV_time  | File_type | File_size | Minio_link | Dataset | Is_processed |
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
| c89250d1-4ed9-11e9-a704-60f81da8abde | AA      |         1 | 2019-01-02 | 13:38:22 | PNG       | 1.4 MB    | None       | None    |            0 |
| c8946854-4ed9-11e9-adcc-60f81da8abde | BB      |         1 | 2019-01-03 | 14:57:19 | JPEG      | 390 KB    | None       | None    |            0 |
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
2 rows in set (0.01 sec)

mysql> select * from FEATURE;
+--------------------------------------+--------------+
| Feature_ID                           | Feature_Name |
+--------------------------------------+--------------+
| c886a0a1-4ed9-11e9-855b-60f81da8abde | Car          |
| c88da6fd-4ed9-11e9-93a1-60f81da8abde | Bus          |
| c88ff7eb-4ed9-11e9-a564-60f81da8abde | Bike         |
| c8912ae1-4ed9-11e9-a810-60f81da8abde | Taxi         |
+--------------------------------------+--------------+
4 rows in set (0.00 sec)

mysql> select * from RELATION;
+--------------------------------------+--------------------------------------+
| Feature_ID                           | IV_ID                                |
+--------------------------------------+--------------------------------------+
| c886a0a1-4ed9-11e9-855b-60f81da8abde | c8946854-4ed9-11e9-adcc-60f81da8abde |
| c88da6fd-4ed9-11e9-93a1-60f81da8abde | c89250d1-4ed9-11e9-a704-60f81da8abde |
| c88ff7eb-4ed9-11e9-a564-60f81da8abde | c89250d1-4ed9-11e9-a704-60f81da8abde |
| c88ff7eb-4ed9-11e9-a564-60f81da8abde | c8946854-4ed9-11e9-adcc-60f81da8abde |
| c8912ae1-4ed9-11e9-a810-60f81da8abde | c89250d1-4ed9-11e9-a704-60f81da8abde |
+--------------------------------------+--------------------------------------+
5 rows in set (0.00 sec)
```

2. TEST - Camera file with wrong header name

camera_test_checkHeader

Camera_ID	Country_ID	State	City	Latitude	Longtitude	Resolution_w	Resolution_h
1	USA	MA	Boston	42.3692	-71.0658	2048	1536
2	USA	NY	New York	40.7047	-74.0211	1024	768

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/camera_test_checkHeader.csvValueError('CAMERA File does not having correct header.',)
```

3. TEST - Camera file with exceed column

camera_test_checkExceedColumn

Camera_ID	Country	State	City	Latitude	Longtitude	Resolution_w	Resolution_h	exceed column
1	USA	MA	Boston	42.3692	-71.0658	2048	1536	None
2	USA	NY	New York	40.7047	-74.0211	1024	768	None

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/camera_test_checkExceedColumn.csvValueError('File exceeds the expected number of columns.',)
```

4. TEST - Camera file with missing column

camera_test_checkMissingColumn

Camera_ID	Country	State	City	Latitude	Longtitude	Resolution_w	
1	USA	MA	Boston	42.3692	-71.0658	2048	
2	USA	NY	New York	40.7047	-74.0211	1024	

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/camera_test_checkMissingColumn.csvValueError('File is missing required column.',)
```

5. TEST - Camera file with missing values

```
Camera_ID,Country,State,City,Latitude,Longtitude,Resolution_w,Resolution_h
1,USA,MA,Boston,42.3692,-71.0658
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/camera_test_checkMissingValues.csvValueError('File content column does not match header.',)
```

6. TEST - Camera file with empty cell ???

camera_test_checkEmptyCell

Camera_ID	Country	State	City	Latitude	Longtitude	Resolution_w	Resolution_h
1	USA	MA	Boston	42.3692	-71.0658		
2	USA	NY	New York	40.7047	-74.0211		

```
Camera_ID,Country,State,City,Latitude,Longtitude,Resolution_w,Resolution_h
1,USA,MA,Boston,42.3692,-71.0658,,
2,USA,NY,New York,40.7047,-74.0211,,
```

7. TEST - Camera file Insert already exist value

camera_test_checkInsertExistValue

Camera_ID	Country	State	City	Latitude	Longtitude	Resolution_w	Resolution_h
1	USA	MA	Boston	42.3692	-71.0658	2048	1536
2	USA	NY	New York	40.7047	-74.0211	1024	768
2	USA	NY	New York	40.7047	-74.0211	1024	768

```
[mysql> select * from CAMERA;
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
| Camera_ID | Country | State | City     | Latitude | Longitude | Resolution_w | Resolution_h |
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
|         1 | USA     | MA    | Boston   |  42.3692 |  -71.0658 |         2048 |         1536 |
|         2 | USA     | NY    | New York |  40.7047 |  -74.0211 |         1024 |          768 |
+-----------+---------+-------+----------+----------+-----------+--------------+--------------+
2 rows in set (0.01 sec)
```

8. TEST - Image_Video file wrong header name

imageVideo_test_checkHeader

IV_Namee	Camera_ID	IV_date	IV_time	File_type	File_size	Mino_link	Dataset	Is_processed
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	0
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/imageVideo_test_checkHeader.cs ValueError('IMAGE_VIDEO File does not having correct header.',)
```

9. TEST - Image_Video file with exceed column

imageVideo_test_standard

IV_Name	Camera_ID	IV_date	IV_time	File_type	File_size	Minio_link	Dataset	Is_processed	Car	Bus	Bike	Taxi
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	0	0	1	1	1
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0	1	0	1	0

imageVideo_test_checkExceedColumn

IV_Name	Camera_ID	IV_date	IV_time	File_type	File_size	Minio_link	Dataset	Is_processed	exceed_column
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	0	None
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0	None

10. TEST - Image_Video file with missing column

imageVideo_test_checkMissingColumn

IV_Name	Camera_ID	IV_date	IV_time	File_type	File_size	Minio_link	Dataset	
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/imageVideo_test_checkMissingColumn.csvValueError('IMAGE_VIDEO File does not having correct header.',)
```

11. TEST - Image_Video file with missing value

```
IV_Name,Camera_ID,IV_date,IV_time,File_type,File_size,Minio_link,Dataset,Is_processed
AA,1,2019.01.02,13:38:22,PNG,1.4 MB,0 _____
BB,1,2019.01.03,14:57:19,JPEG,390 KB,0 _____
```

```
Connected to mysql database test_keyspace
CAMERA table exist
IMAGE_VIDEO table exist
FEATURE table exist
RELATION table exist.
Error processing file ./vitess_test/imageVideo_test_checkMissingValues.csvValueError('IMAGE_VIDEO File content column does not match header.',)
```

12. TEST - Image_Video file with empty cell ???

12. TEST - Image_Video file insert exist value

imageVideo_test_checkInsertExistValue

IV_Name	Camera_ID	IV_date	IV_time	File_type	File_size	Minio_link	Dataset	Is_processed	Car	Bus	Bike	Taxi
AA	1	2019.01.02	13:38:22	PNG	1.4 MB	None	None	0	0	1	1	1
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0	1	0	1	0
BB	1	2019.01.03	14:57:19	JPEG	390 KB	None	None	0	1	0	1	0

```
mysql> select * from IMAGE_VIDEO
    -> ;
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
| IV_ID                                | IV_Name | Camera_ID | IV_date    | IV_time  | File_type | File_size | Minio_link | Dataset | Is_processed |
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
| b862d6ab-4ee1-11e9-b095-60f81da8abde | AA      |         1 | 2019-01-02 | 13:38:22 | PNG       | 1.4 MB    | None       | None    |            0 |
| b865bf51-4ee1-11e9-b0a1-60f81da8abde | BB      |         1 | 2019-01-03 | 14:57:19 | JPEG      | 390 KB    | None       | None    |            0 |
+--------------------------------------+---------+-----------+------------+----------+-----------+-----------+------------+---------+--------------+
2 rows in set (0.01 sec)
```