LAB 3: Perform the following DB operations using Cassandra.

1. Create a keyspace by name Library

```
Use HELP for help.
cqlsh> describe keyspaces;

"Studentsss"  system_schema  system   system_distributed  system_traces
students      system_auth    library  employee

cqlsh> describe keyspace library;

CREATE KEYSPACE library WITH replication = {'class': 'SimpleStrategy', 'replication_factor': '1'}  AND durable_writes = true;

CREATE TABLE library.library_info (
    student_id int,
    student_name text,
    book_name text,
    book_id int,
    date_of_issue timestamp,
    counter_value counter,
    PRIMARY KEY (student_id, student_name, book_name, book_id, date_of_issue)
) WITH CLUSTERING ORDER BY (student_name ASC, book_name ASC, book_id ASC, date_of_issue ASC)
    AND bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';
```

2. Create a column family by name Library-Info with attributes Stud_Id Primary Key, Counter_value of type Counter, Stud_Name, Book-Name, Book-Id, Date_of_issue.

```
cqlsh:library> create table library_info(
           ... student_id int,
           ... student_name text,
           ... book_id int,
           ... book_name text,
           ... date_of_issue timestamp,
           ... counter_value counter,
           ... primary key(student_id,student_name,book_name,book_id,date_of_issue));
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue | counter_value
------------+--------------+-----------+---------+---------------+---------------

(0 rows)
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=111 and student_name='amisha' and book_name='BDA'
 and book_id=100 and date_of_issue='2021-06-04';
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1

(1 rows)
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=111 and student_name='amisha' and book_name='BDA'
 and book_id=100,date_of_issue='2021-06-04';
SyntaxException: line 1:136 mismatched input ',' expecting EOF (... book_name='BDA' and book_id=100[,]...)
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=112 and student_name='ana' and book_name='BDA' an
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
```

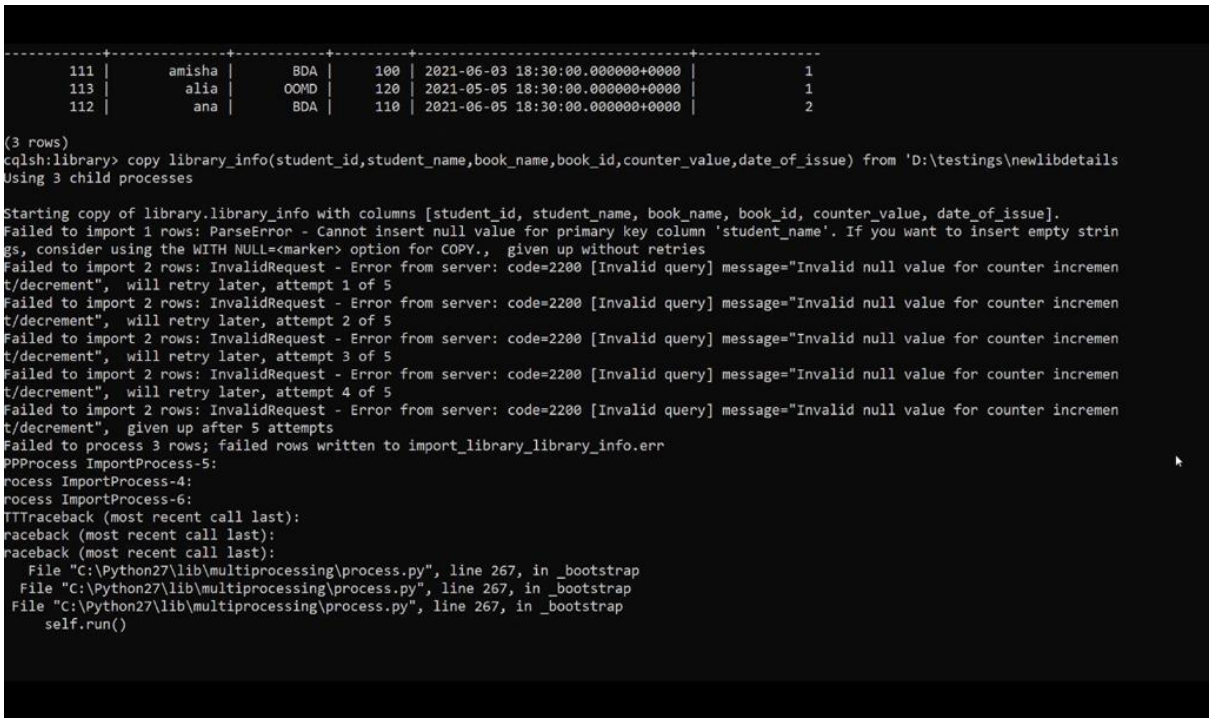
3. Insert the values into the table in batch

```
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=112 and student_name='ana' and book_name='BDA' an
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             1

(2 rows)
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=113 and student_name='alia' and book_name='OOMD'
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             1

(3 rows)
cqlsh:library> update library_info set counter_value=counter_value+1 where student_id=112 and student_name='ana' and book_name='BDA' an
d book_id=110 and date_of_issue='2021-06-06';
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             2

(3 rows)
cqlsh:library> select student_id from library_info where book_name='BDA' and counter_value=2;
InvalidRequest: Error from server: code=2200 [Invalid query] message="PRIMARY KEY column "book_name" cannot be restricted as preceding
column "student_name" is not restricted"
```

4. Display the details of the table created and increase the value of the counter

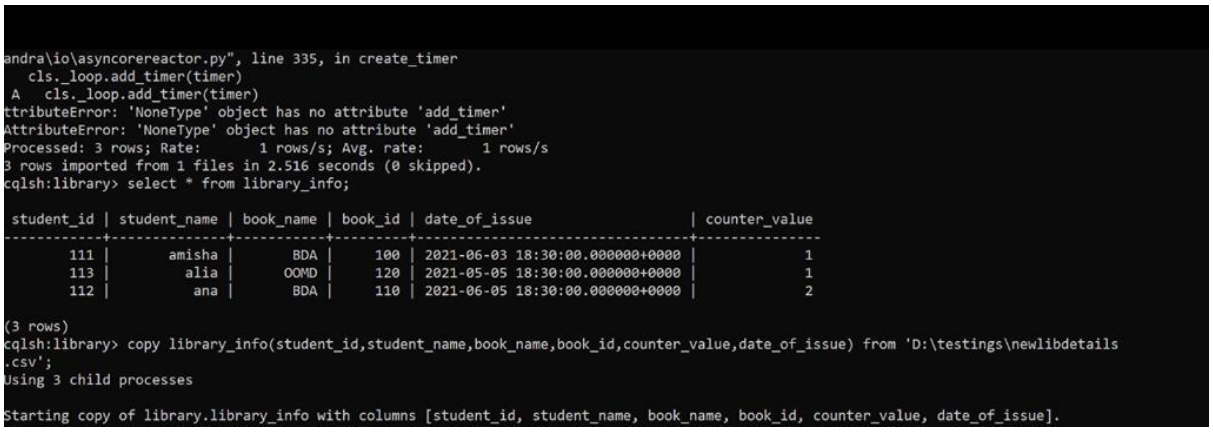
```
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             2

(3 rows)
cqlsh:library> select student_id from library_info where book_name='BDA' and counter_value=2;
InvalidRequest: Error from server: code=2200 [Invalid query] message="PRIMARY KEY column "book_name" cannot be restricted as preceding
column "student_name" is not restricted"
cqlsh:library> select student_id from library_info where book_name='BDA' and counter_value=2 allow filtering;

 student_id
------------
        112

(1 rows)
cqlsh:library> copy library_info(student_id,student_name,book_name,book_id,counter_value,date_of_issue) to 'D:\testings\libdetails.csv'
Using 3 child processes

Starting copy of library.library_info with columns [student_id, student_name, book_name, book_id, counter_value, date_of_issue].
Processed: 3 rows; Rate:       2 rows/s; Avg. rate:       1 rows/s
3 rows exported to 1 files in 2.975 seconds.
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             2
```

5. Write a query to show that a student with id 112 has taken a book “BDA” 2 times.



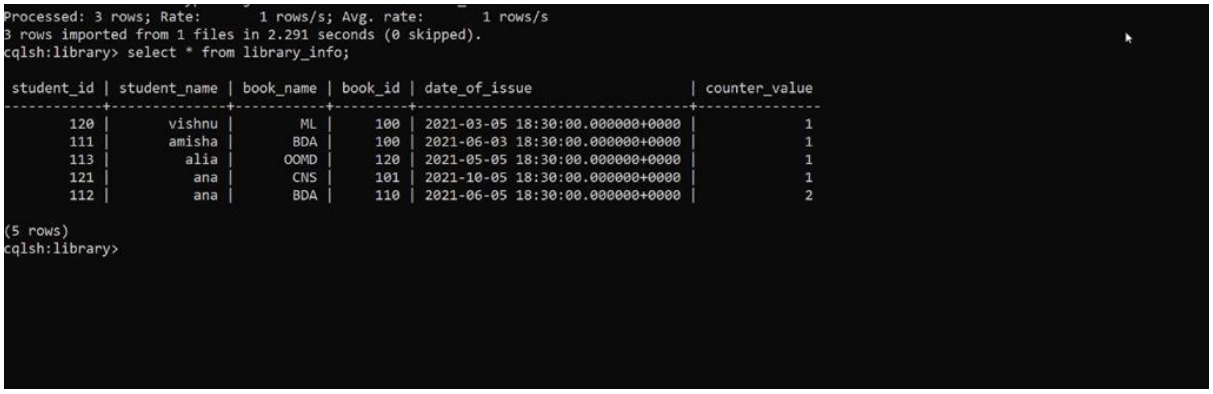
```
-----------+--------------+-----------+---------+---------------------------------+--------------
       111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |            1
       113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |            1
       112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |            2

(3 rows)
cqlsh:library> copy library_info(student_id,student_name,book_name,book_id,counter_value,date_of_issue) from 'D:\testings\newlibdetails
Using 3 child processes

Starting copy of library.library_info with columns [student_id, student_name, book_name, book_id, counter_value, date_of_issue].
Failed to import 1 rows: ParseError - Cannot insert null value for primary key column 'student_name'. If you want to insert empty strin
gs, consider using the WITH NULL=<marker> option for COPY.,  given up without retries
Failed to import 2 rows: InvalidRequest - Error from server: code=2200 [Invalid query] message="Invalid null value for counter incremen
t/decrement",  will retry later, attempt 1 of 5
Failed to import 2 rows: InvalidRequest - Error from server: code=2200 [Invalid query] message="Invalid null value for counter incremen
t/decrement",  will retry later, attempt 2 of 5
Failed to import 2 rows: InvalidRequest - Error from server: code=2200 [Invalid query] message="Invalid null value for counter incremen
t/decrement",  will retry later, attempt 3 of 5
Failed to import 2 rows: InvalidRequest - Error from server: code=2200 [Invalid query] message="Invalid null value for counter incremen
t/decrement",  will retry later, attempt 4 of 5
Failed to import 2 rows: InvalidRequest - Error from server: code=2200 [Invalid query] message="Invalid null value for counter incremen
t/decrement",  given up after 5 attempts
Failed to process 3 rows; failed rows written to import_library_library_info.err
PProcess ImportProcess-5:
rocess ImportProcess-4:
rocess ImportProcess-6:
TTraceback (most recent call last):
raceback (most recent call last):
raceback (most recent call last):
   File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
  File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
 File "C:\Python27\lib\multiprocessing\process.py", line 267, in _bootstrap
     self.run()
```

6. Export the created column to a csv file



```
andra\io\asyncorereactor.py", line 335, in create_timer
   cls._loop.add_timer(timer)
 A   cls._loop.add_timer(timer)
ttributeError: 'NoneType' object has no attribute 'add_timer'
AttributeError: 'NoneType' object has no attribute 'add_timer'
Processed: 3 rows; Rate:       1 rows/s; Avg. rate:       1 rows/s
3 rows imported from 1 files in 2.516 seconds (0 skipped).
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+--------------
       111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |            1
       113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |            1
       112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |            2

(3 rows)
cqlsh:library> copy library_info(student_id,student_name,book_name,book_id,counter_value,date_of_issue) from 'D:\testings\newlibdetails
.csv';
Using 3 child processes

Starting copy of library.library_info with columns [student_id, student_name, book_name, book_id, counter_value, date_of_issue].
```

7. Import a given csv dataset from local file system into Cassandra column family



```
Processed: 3 rows; Rate:       1 rows/s; Avg. rate:       1 rows/s
3 rows imported from 1 files in 2.291 seconds (0 skipped).
cqlsh:library> select * from library_info;

 student_id | student_name | book_name | book_id | date_of_issue                   | counter_value
------------+--------------+-----------+---------+---------------------------------+---------------
        120 |       vishnu |        ML |     100 | 2021-03-05 18:30:00.000000+0000 |             1
        111 |       amisha |       BDA |     100 | 2021-06-03 18:30:00.000000+0000 |             1
        113 |         alia |      OOMD |     120 | 2021-05-05 18:30:00.000000+0000 |             1
        121 |          ana |       CNS |     101 | 2021-10-05 18:30:00.000000+0000 |             1
        112 |          ana |       BDA |     110 | 2021-06-05 18:30:00.000000+0000 |             2

(5 rows)
cqlsh:library>
```