PART - A

1.1 DEFINATION

a) A place in which literary and artistic materials, such as books, periodicals, newspapers, pamphlets, prints, records, and tapes, are kept for reading, reference, or lending.

b) A collection of such materials, especially when systematically arranged.

c) A room in a private home for such a collection.

d) An institution or foundation maintaining such a collection.

e) A commercial establishment that lends books for a fee.

f) A series or set of books issued by a publisher.

g) A collection of recorded data or tapes arranged for ease of use

1.2 REQUIREMENTS

a) The AIUB Library Management System shall be required to maintain information about its users and books.

b) It shall store databases for students, teachers, stuffs and books.

c) The users database stores information about user's ID no, name, address, course,age .

d) The book database stores information about a book title , publisher , cost , id number.

e) The stuffs database stores information about a stuff 's id, name, age, address and telephone number.

It is a web
based application in which number of clients can also access with a server.

HARDWARE

Processor : intel III 630 MHz

Ram : 8 GB

Monitor : 15" color monitor

Key board : 122 keys

Hard Disk : 2 TB

Printer :HP

Memory : AVEXIR 8GB DDR-3

SOFTWARE

Operating System : WINDOWS 10

Back-End : ORACLE 11G EXPRESS EDITION

1.3 project objectives

a) build and manage library collections in support of academic programs (develop collections consistent with funding).

b) provide timely access to requested materials

c) simplify search/discovery of library resources.

d) build igital library infrastruction.

e) build the information literacy/library instruction program

f) increase library outreach and marketing efforts.

g) undertake systematic review of reference services designed both to adapt to changes in facilitys and technology and to improve quality of service delivered.

1.4 Technical Summary of the Database

Aiub library management system is a computerized system designed and programmed to deal with day to day operations taking place. The program can look after brrow books, books self, records, database acces, status borrowing, borrowing date and etc. It also maintains student information such as student id, name,semester and department .

The purpose of the project is to computerize the Front Office Management of University to develop software which is user friendly, simple, fast, and cost – effective. It deals with the collection of student's information, books details, etc. Traditionally, it was done

manually. The project outlines all the process followed to come up with the software that is from analysis to testing the system

1.5 Justification of the Developed Database

The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.

The level of accuracy in the proposed system will be higher. All operation would be done correctly and it ensures that whatever information is coming from the center is accurate.

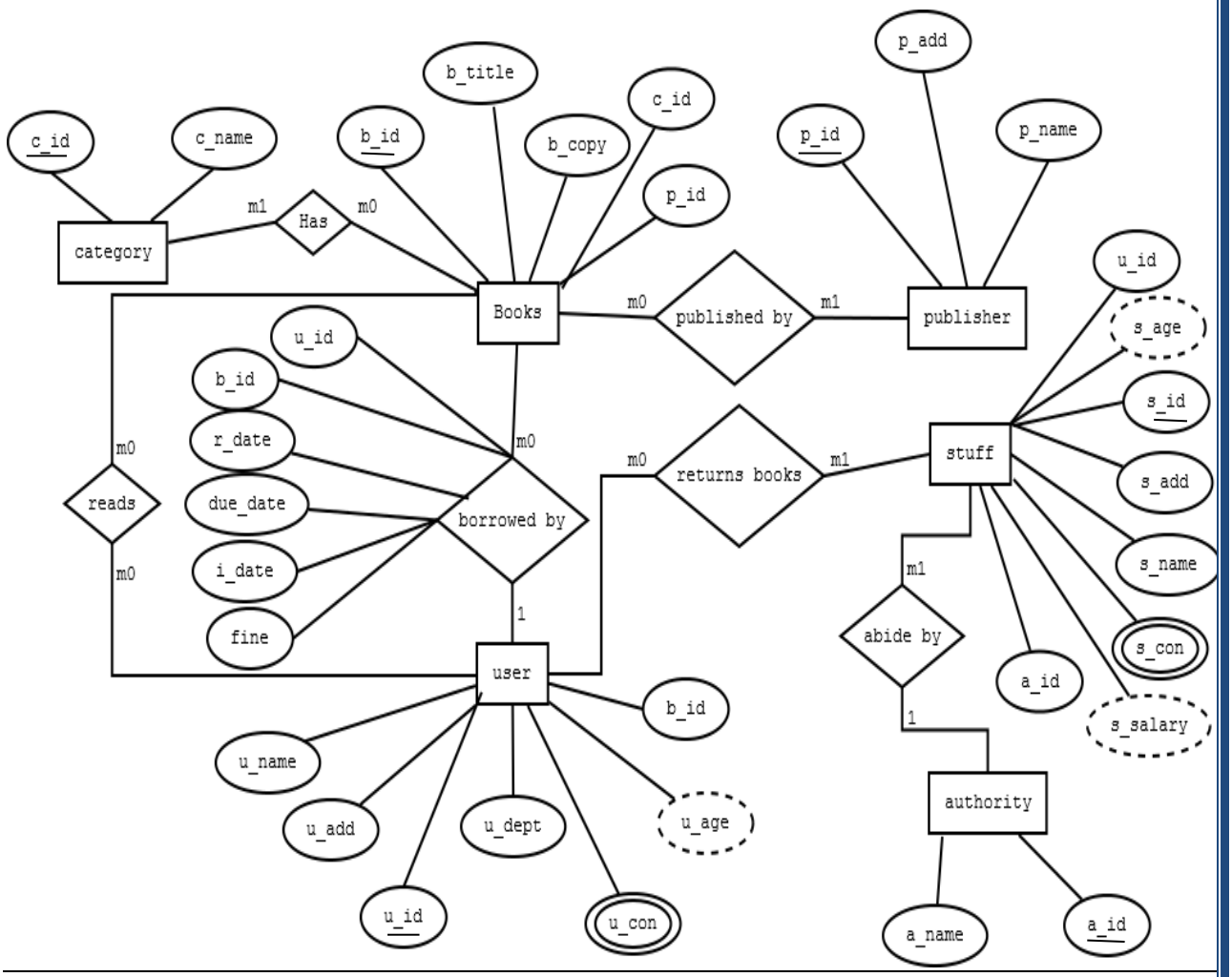
In the proposed system utmost care would be that no information is repeated anywhere, in storage or otherwise. This would assure economic use of storage space and consistency in the

data stored.

The main objective of proposed system is to provide for a quick and efficient retrieval of information. Any type of information would be available whenever the user requires.

The system should be easy to operate and should be such that it can be developed within a short period of time and fit in the limited budget of the user.

2. ER DIAGRAM:


p_add
b_title
c_id
c_id
c_name
b_id
b_copy
p_id
p_id
p_name
m1
Has
m0
category
Books
m0
published by
m1
publisher
u_id
s_age
u_id
b_id
s_id
r_date
m0
m0
m0
returns books
m1
stuff
s_add
reads
due_date
borrowed by
s_name
m0
i_date
m1
abide by
s_con
fine
1
a_id
user
b_id
s_salary
1
u_name
authority
u_add
u_dept
u_age
u_id
u_con
a_name
a_id

3. NORMALIZATION:

BORROWED_BY TABLE:

B_ID	B_TITLE	B_COPY	C_ID	P_ID	U_ID	U_NAME	U_ADD	_U_DEPT	U_CON	U_AGE
R_DATE	DUE_DATE	I_DATE	FINE							

1ST NORMAL FORM:

U_ID	U_CON

Here one user may have more than one contact number , 'U_CON' is a multivalued attribute . So it has been removed to an another table to avoid update anomaly.

2nd NORMAL FORM:

B_ID	B_TITILE	B_COPY	C_ID	P_ID

U_ID	U_NAME	U_TITLE	U_ADD	U_DEPT	U_AGE

B_ID	U_ID

3rd NORMAL FORM:

There is no transitive dependency exists .

PUBLISHED BY TABLE:

B_ID	B_TITLE	B_COPY	C_ID	P_ID	P_ADD	P_NAME

1ST NORMAL FORM:

There is no multivalued attribute, So This table is already in 1NF .

2nd NORMAL FORM:

B_id	B_TITLE	B_COPY	C_ID

P_ID	**P_ADD**	P_NAME

B_ID	**P_ID**

3RD NORMAL FORM:

There is no transitive dependency exists .

RETUEN BOOKS TABLE:

U_ID	U_NAME	U_ADD	_U_DEPT	U_CON	U_AGE	B_ID	S_ID	S_NAME	S_ADD
S_AGE		S_CON			A_ID				

1ST NORMAL FORM:

U_ID	U_CON

S_ID	S_CON

2ND NORMAL FORM:

U_ID	U_NAME	U_ADD	_U_DEPT	U_AGE	B_ID

S_ID	S_NAME	S_ADD	S_AGE	A_ID

U_ID	S_ID

3RD NORMAL FORM:

There is no transitive dependency exists .

ABIDE BY TABLE:

S_ID	S_NAME	S_ADD	S_AGE	S_CON	S_SALARY	U_ID	A_ID	A_NAME

1ST NORMAL FORM:

S_ID	S_CON

2ND NORMAL FORM:

S_ID	S_NAME	S_ADD	S_AGE	S_SALARY	U_ID

A_ID	A_NAME

S_ID	A_ID

3RD NORMAL FORM:

There is no transitive dependency exists .

HAS TABLE:

B_ID	B_TITLE	B_COPY	C_ID	C_NAME

1ST NORMAL FORM:

C_ID	C_CON	B_TITLE

2ND NORMAL FORM:

C_ID	C_NAME

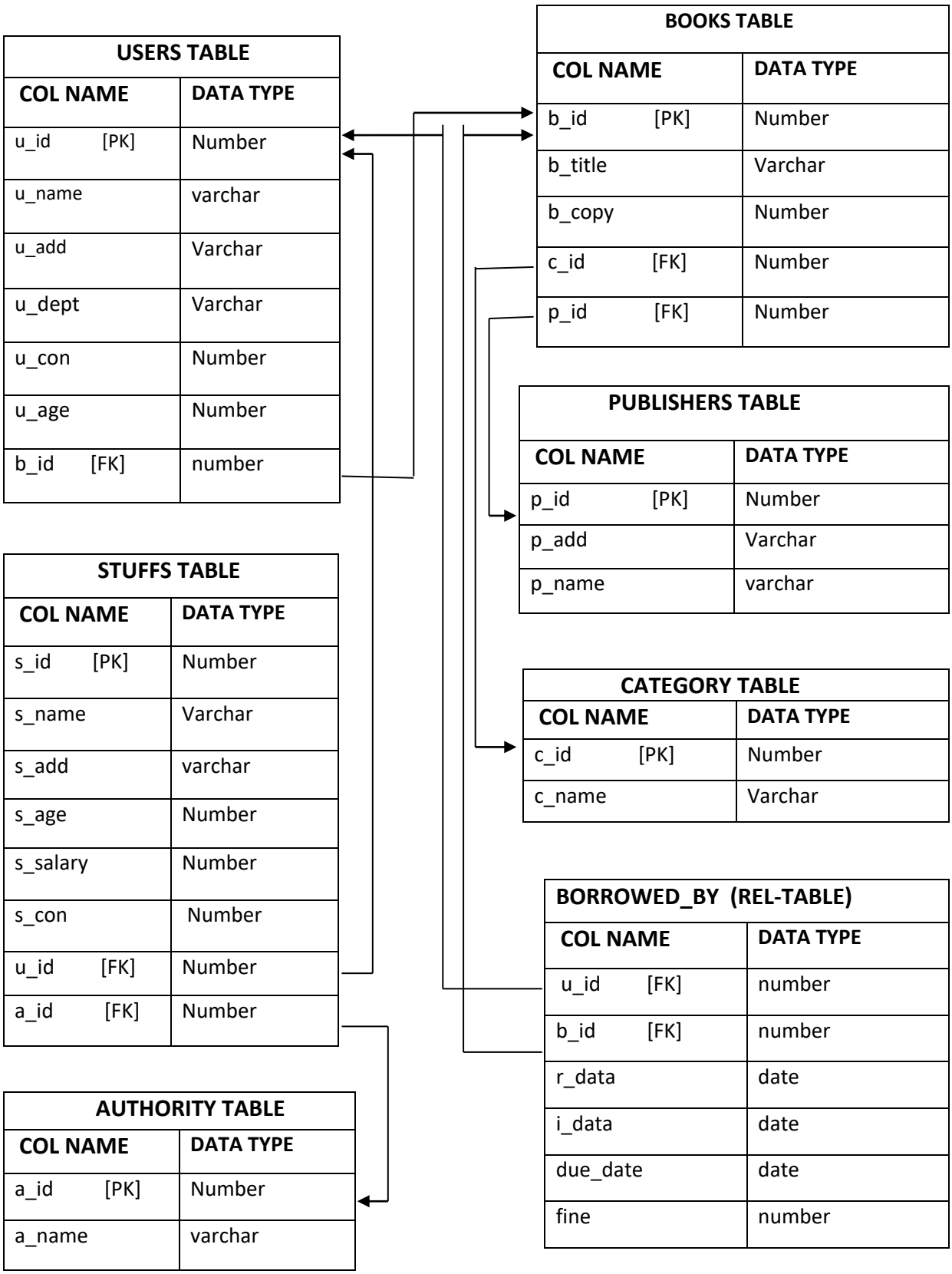
B_ID	B_NAME

C_ID	B_ID

3RD NORMAL FORM:

There is no transitive dependency exists .

4. Relationship Diagram:



5. TABLES WITH VALUES:

USERS TABLE:

create table users(u_id number(10) not null,u_name varchar2(25),u_add varchar2(25),u_dept varchar2(10),u_con number(11),u_age number(3),b_id number(10));

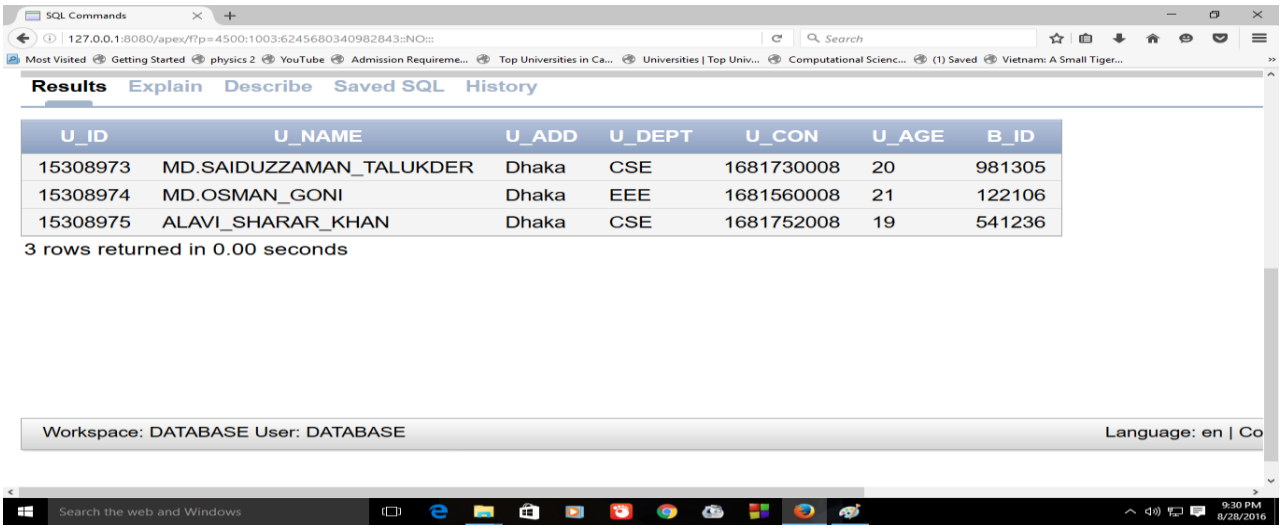
alter table users add (constraint u_id_pk primary key(u_id));

alter table users add (constraint b_id_fk foreign key(b_id) references books(b_id));

insert into users

(u_id,u_name,u_add,u_dept,u_con,u_age,b_id)values(15308973,'MD.SAIDUZZAMAN_TALUKDER','Dhaka','CSE',01681736508,20,981305)

select * from users;



BOOKS TABLE:

create table books(b_id number(10) not null,b_title varchar2(25),b_copy number(3),c_id number(10),p_id number(10));

alter table books add(constraint b_id_pk primary key(b_id));

alter table books add(

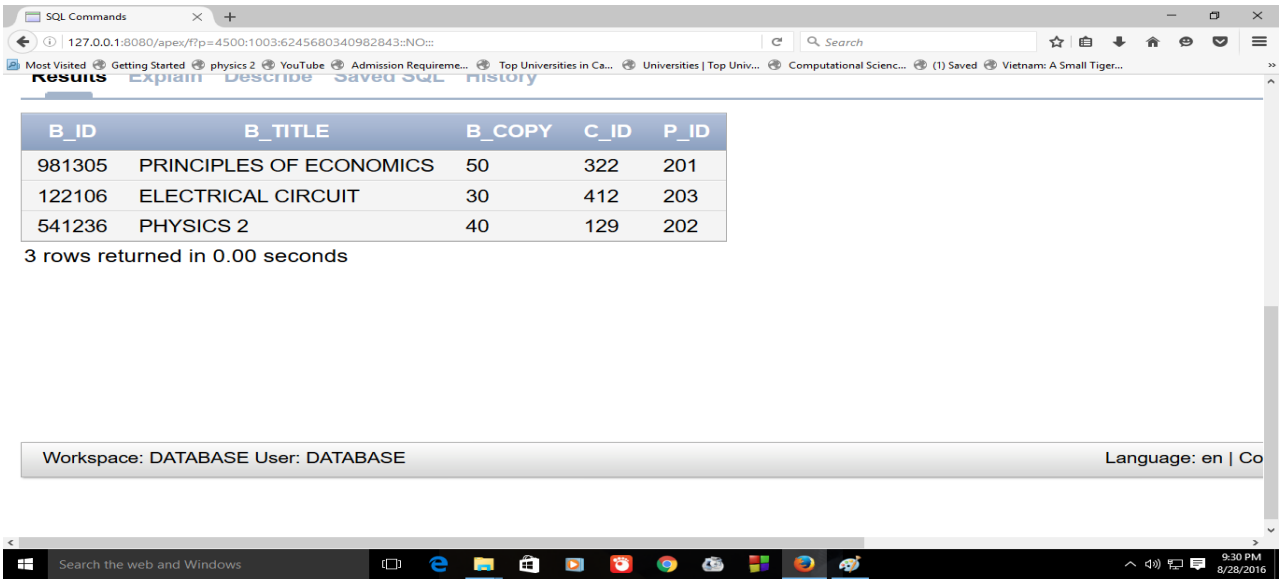
constraint p_id_fk foreign key(p_id)references publishers(p_id),

constraint c_id_fk foreign key(c_id)references category(c_id));

insert into books(

b_id,b_title,b_copy,c_id,p_id)values(981305,'PRINCIPLES OF ECONOMICS',50,322,201)

select * from books;



B_ID	B_TITLE	B_COPY	C_ID	P_ID
981305	PRINCIPLES OF ECONOMICS	50	322	201
122106	ELECTRICAL CIRCUIT	30	412	203
541236	PHYSICS 2	40	129	202

3 rows returned in 0.00 seconds

STUFFS TABLE:

create table stuffs(s_id number(10) not null,s_name varchar2(25),s_add varchar2(25),s_age number(3),s_salary number(5),s_con number(11),u_id number(10),a_id number(10));

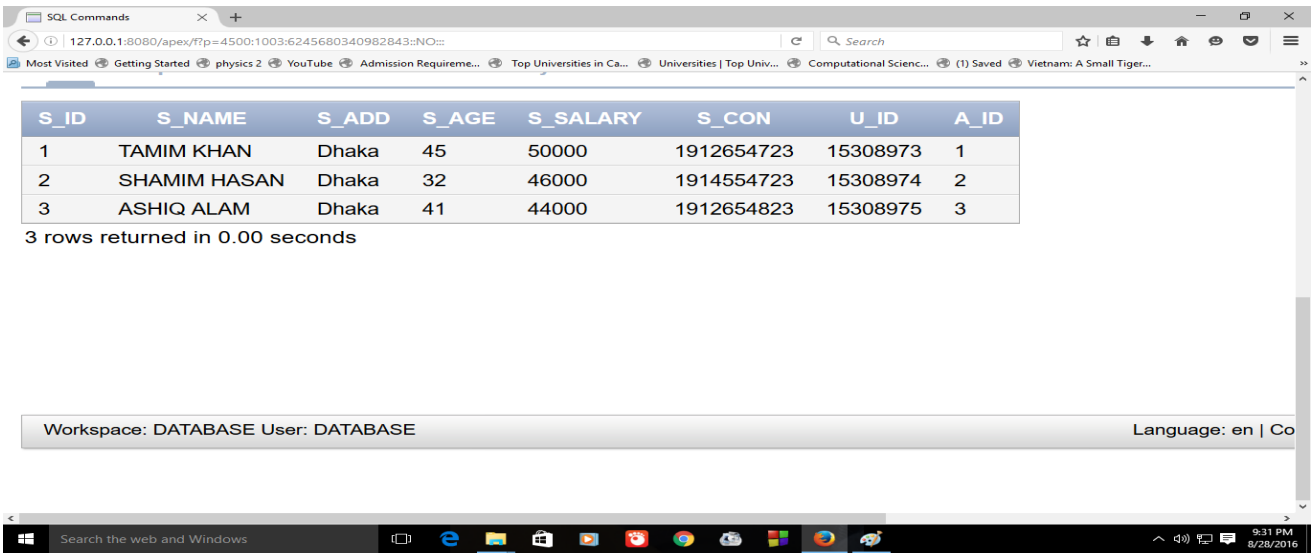
alter table stuffs add(constraint s_id_pk primary key(s_id));

alter table stuffs add(constraint u_id_fk foreign key(u_id) references users(u_id),

constraint a_id_fk foreign key(a_id) references authority(a_id));

insert into stuffs(s_id,s_name,s_add,s_age,s_salary,s_con,u_id,a_id)values(1,'TAMIM KHAN','Dhaka',45,50000,01912654723,15308973,1)

select * from stuffs;



S_ID	S_NAME	S_ADD	S_AGE	S_SALARY	S_CON	U_ID	A_ID
1	TAMIM KHAN	Dhaka	45	50000	1912654723	15308973	1
2	SHAMIM HASAN	Dhaka	32	46000	1914554723	15308974	2
3	ASHIQ ALAM	Dhaka	41	44000	1912654823	15308975	3

3 rows returned in 0.00 seconds

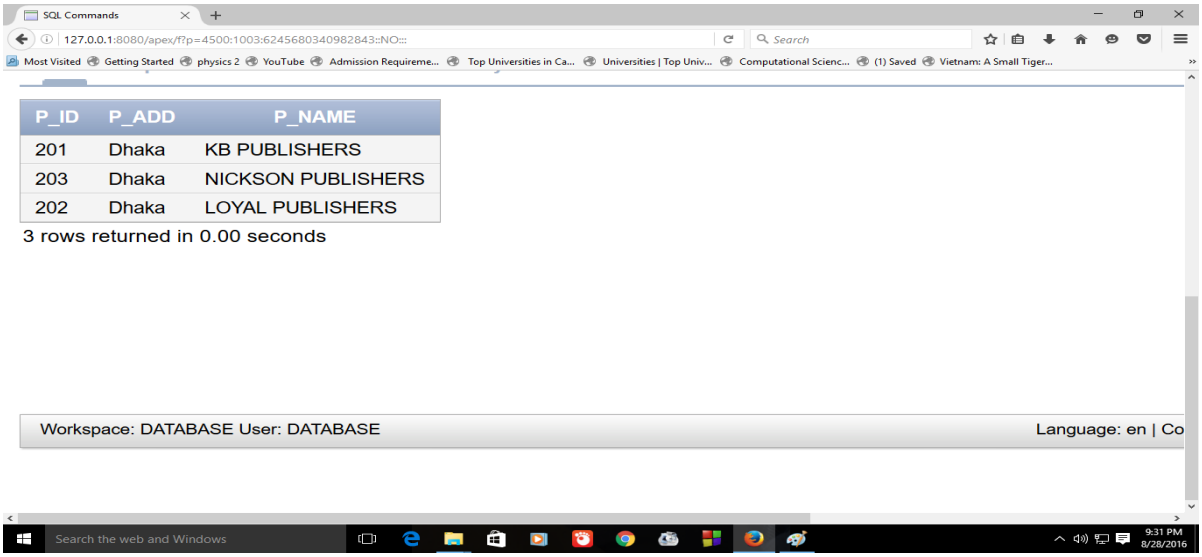
Publishers TABLE:

create table publishers(p_id number(10) not null,p_add varchar2(25),p_name varchar2(25));

alter table publishers add(constraint p_id_pk primary key(p_id));

insert into publishers(p_id,p_add,p_name)values(201,'Dhaka','KB PUBLISHERS')

select * from publishers;



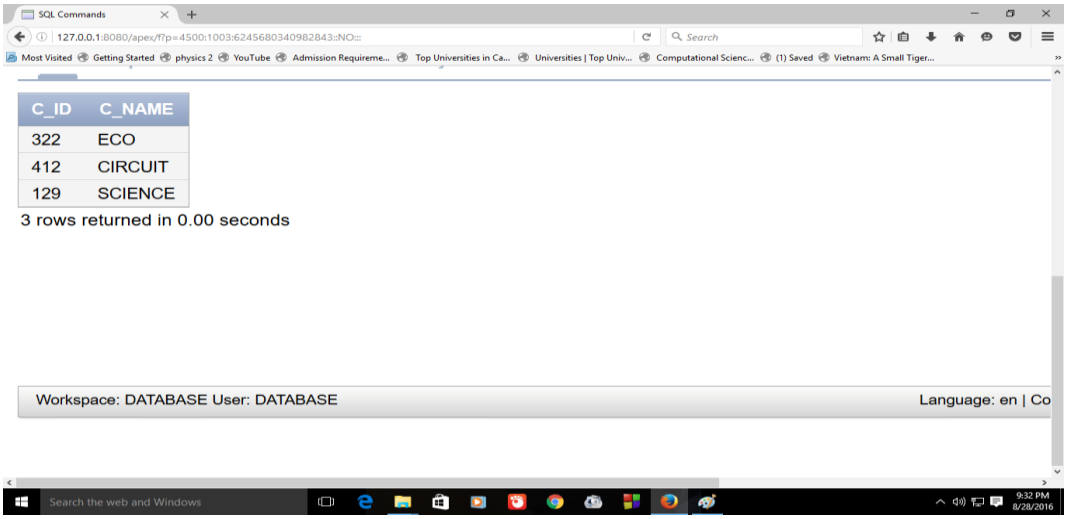
Category TABLE:

create table category(c_id number(10) not null,c_name varchar2(25));

alter table category add(constraint c_id_pk primary key(c_id));

insert into category(c_id,c_name)values(322,'ECO')

select * from category;



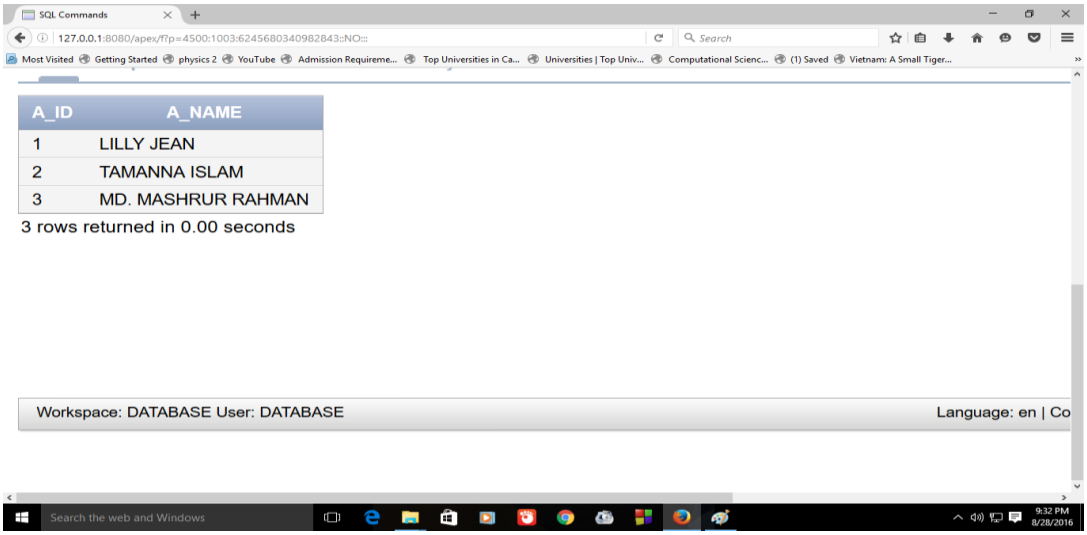
Authority TABLE:

create table authority(a_id number(10) not null,a_name varchar2(25));

alter table authority add(constraint a_id_pk primary key(a_id));

insert into authority(a_id,a_name)values(1,'LILLY JEAN')

select * from authority;



borrowed_by TABLE:

create table borrowed_by(u_id number(10) not null,b_id number(10) not null,r_date date,i_date date,due_date date,fine number(5));

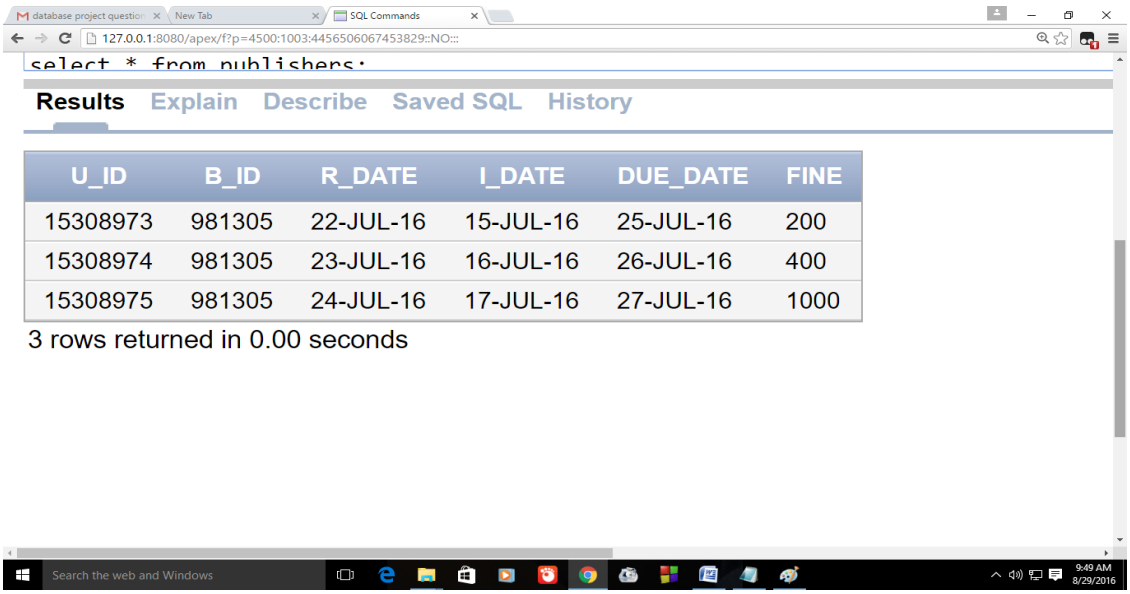
alter table borrowed_by add(constraint u_id2_fk foreign key(u_id) references users(u_id),

constraint b_id2_fk foreign key(b_id) references books(b_id));

insert into borrowed_by(

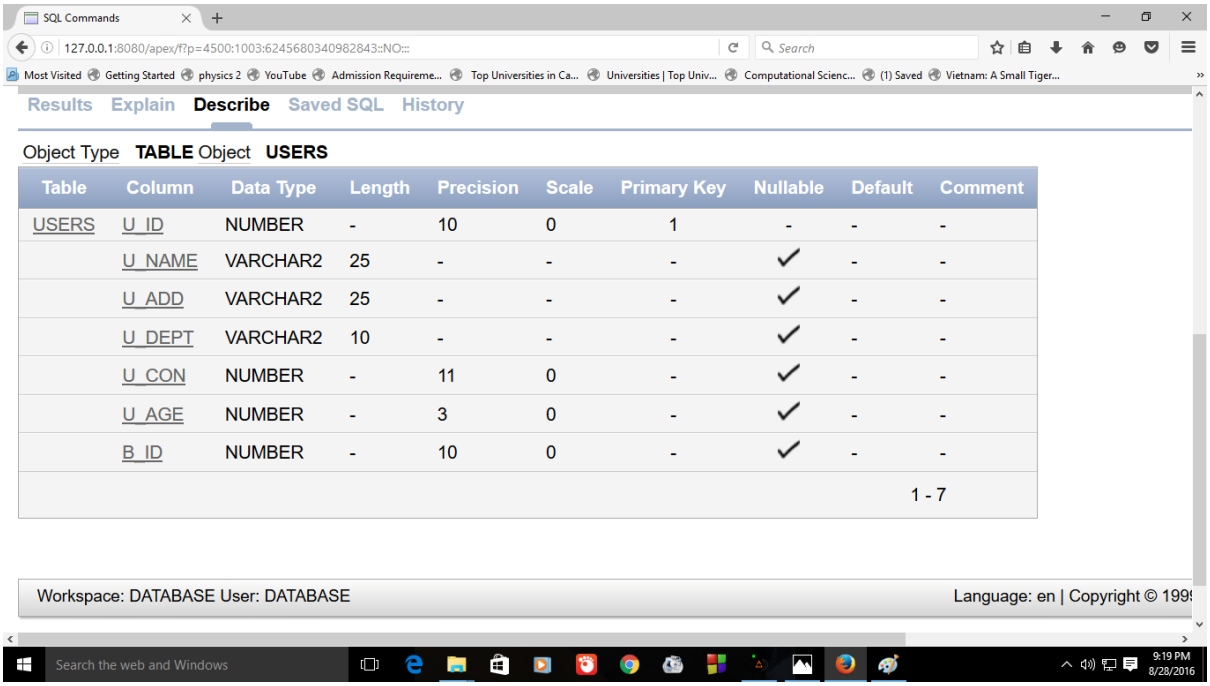
u_id,b_id,r_date,i_date,due_date,fine)values(15308973,981305,'july/22/2016','july/15/2016','july/25/2016',200)

select * from borrowed_by;

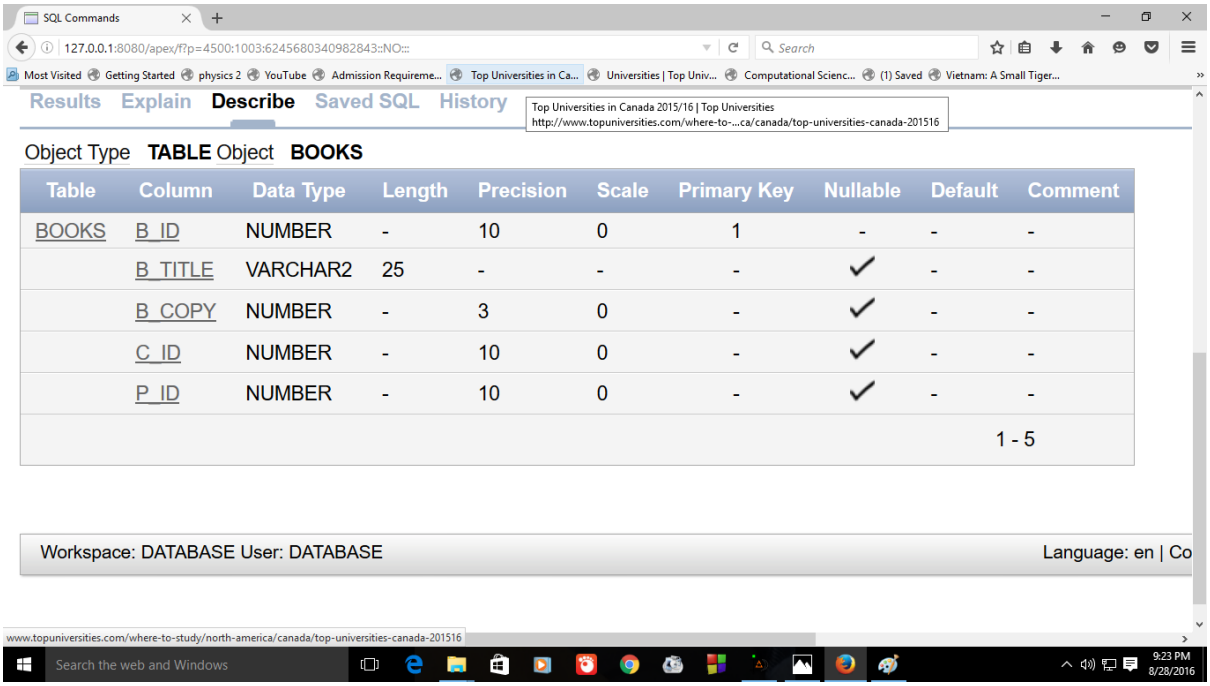


6. DESCRIPTION OF TABLES: (DESC TAB_NAME ;)

USERS TABLE:



BOOKS TABLE:



Results Explain **Describe** Saved SQL History

Top Universities in Canada 2015/16 | Top Universities
http://www.topuniversities.com/where-to-...ca/canada/top-universities-canada-201516

Object Type **TABLE** Object **BOOKS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BOOKS	B_ID	NUMBER	-	10	0	1	-	-	-
	B_TITLE	VARCHAR2	25	-	-	-	✓	-	-
	B_COPY	NUMBER	-	3	0	-	✓	-	-
	C_ID	NUMBER	-	10	0	-	✓	-	-
	P_ID	NUMBER	-	10	0	-	✓	-	-

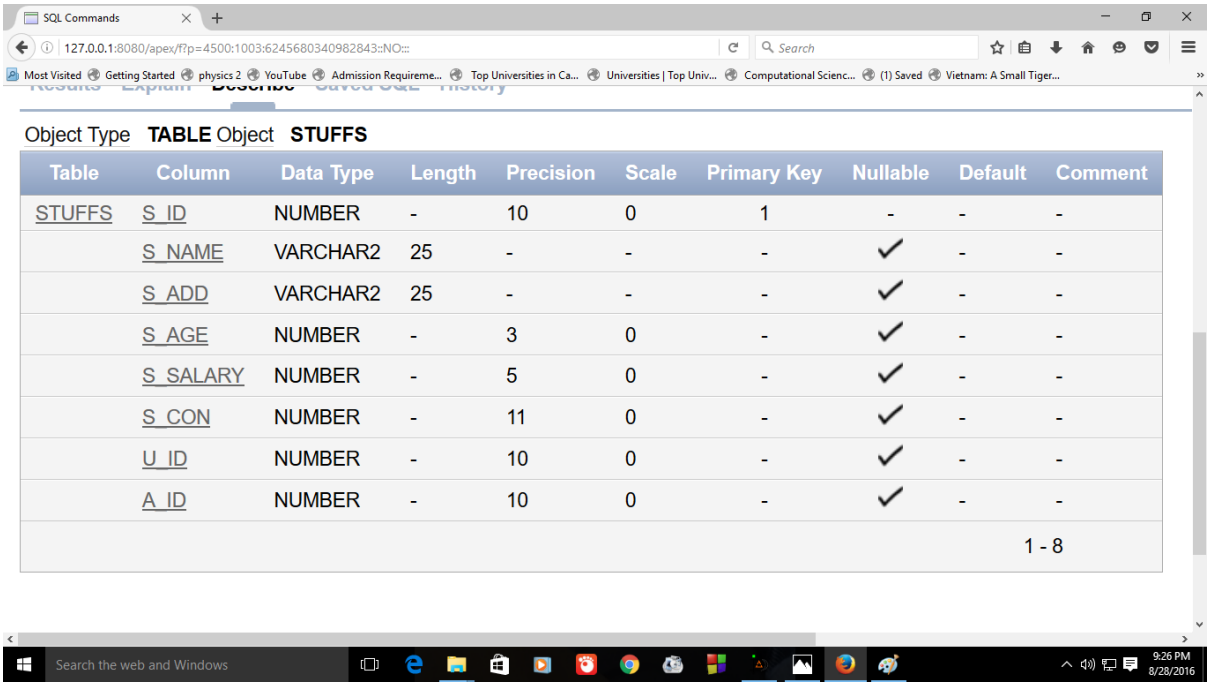
1 - 5

Workspace: DATABASE User: DATABASE Language: en | Co

www.topuniversities.com/where-to-study/north-america/canada/top-universities-canada-201516

Search the web and Windows 9:23 PM 8/28/2016

STUFFS TABLE:



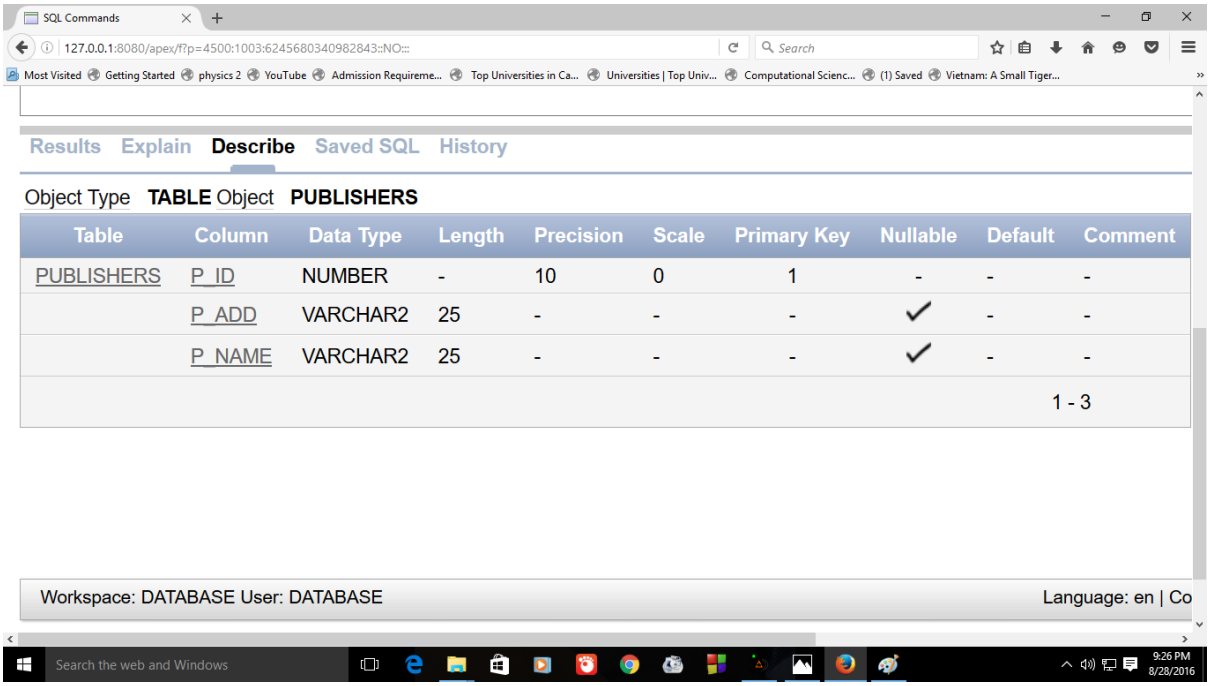
Object Type **TABLE** Object **STUFFS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUFFS	S_ID	NUMBER	-	10	0	1	-	-	-
	S_NAME	VARCHAR2	25	-	-	-	✓	-	-
	S_ADD	VARCHAR2	25	-	-	-	✓	-	-
	S_AGE	NUMBER	-	3	0	-	✓	-	-
	S_SALARY	NUMBER	-	5	0	-	✓	-	-
	S_CON	NUMBER	-	11	0	-	✓	-	-
	U_ID	NUMBER	-	10	0	-	✓	-	-
	A_ID	NUMBER	-	10	0	-	✓	-	-

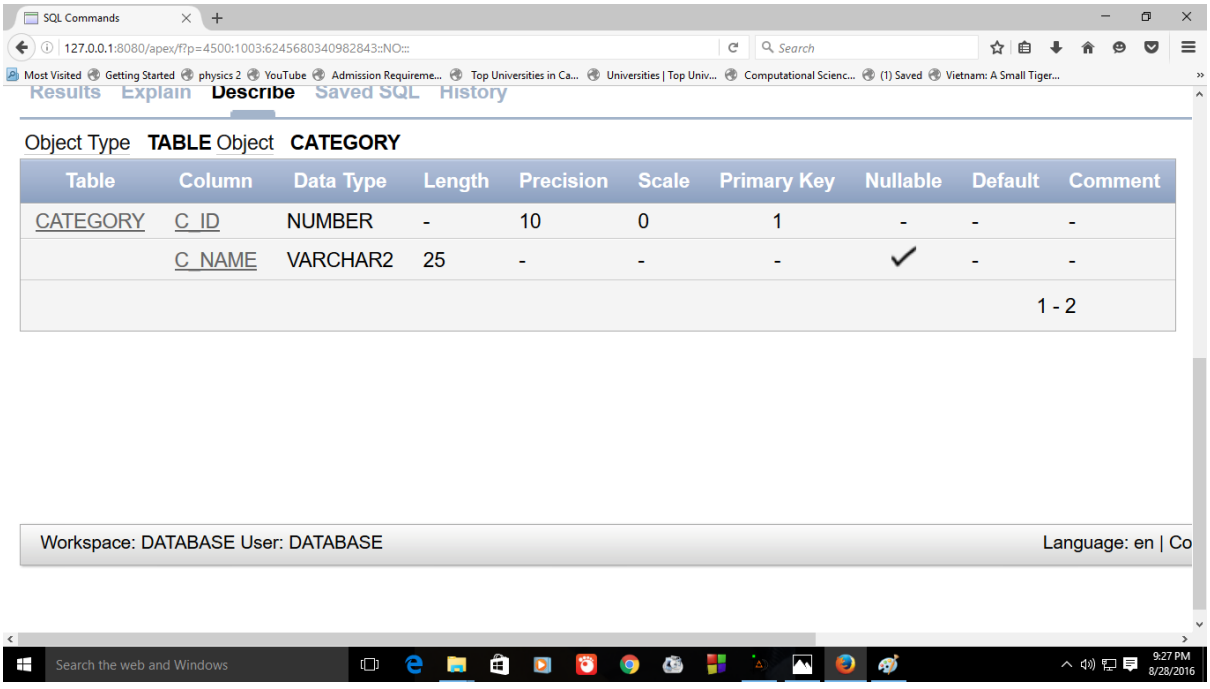
1 - 8

Search the web and Windows 9:26 PM 8/28/2016

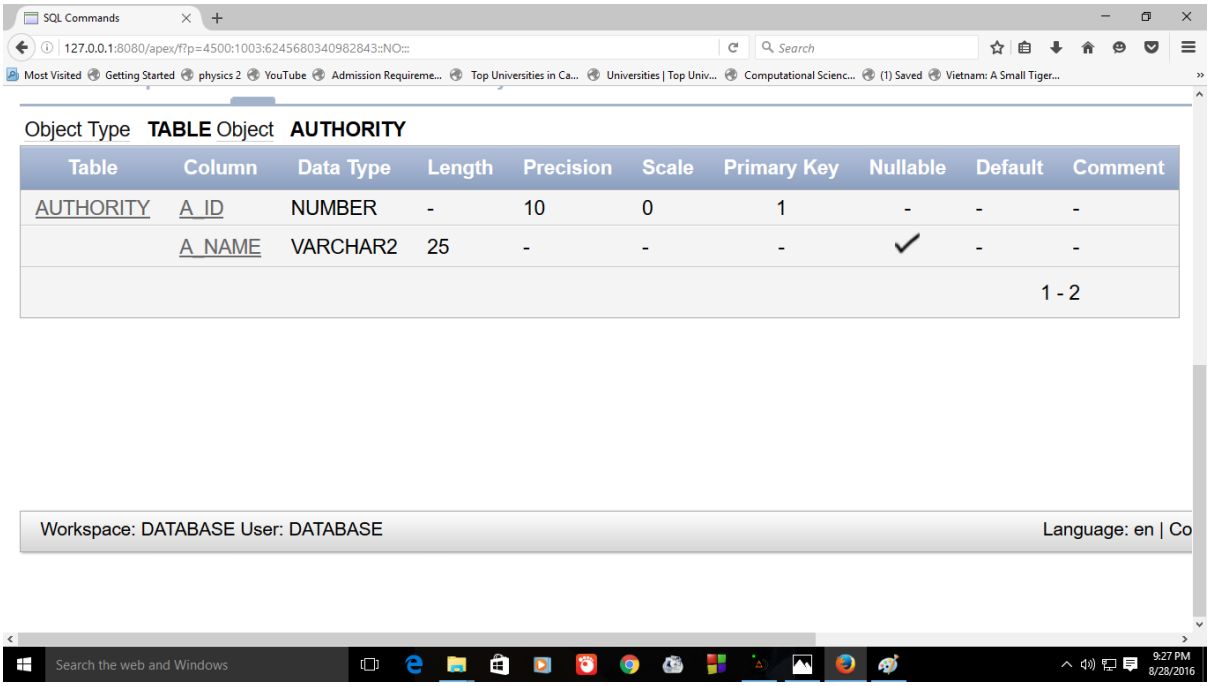
Publishers TABLE:



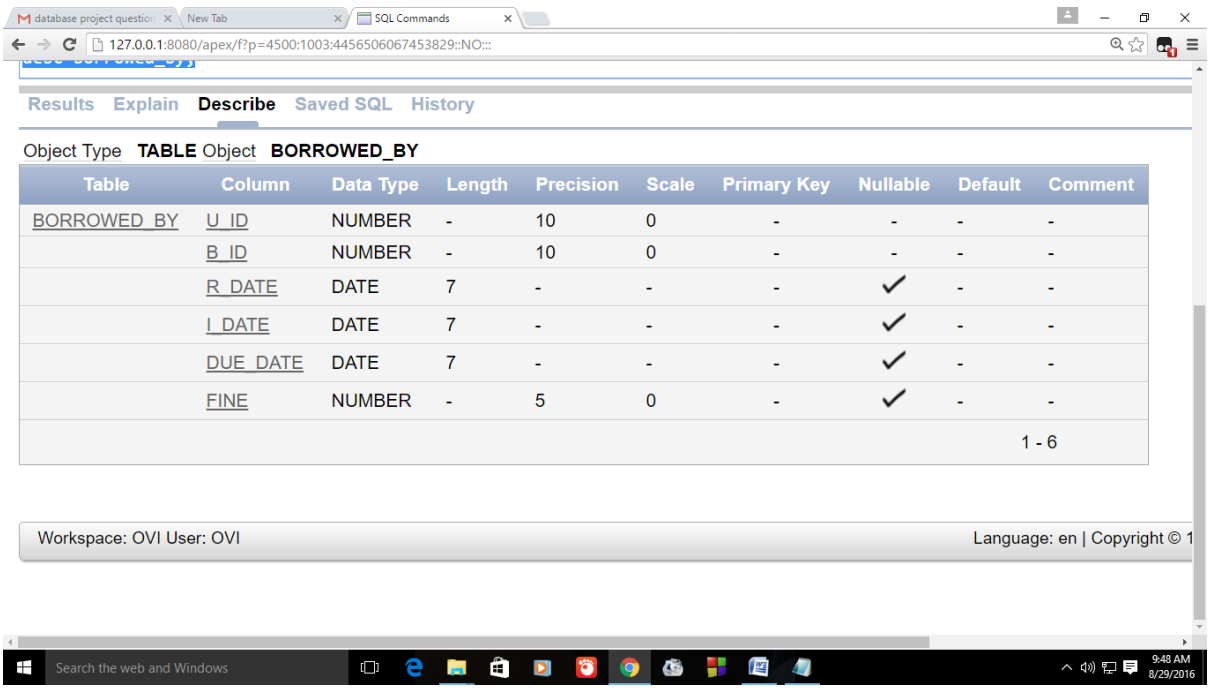
Category TABLE:



Authority TABLE:



borrowed_by TABLE:

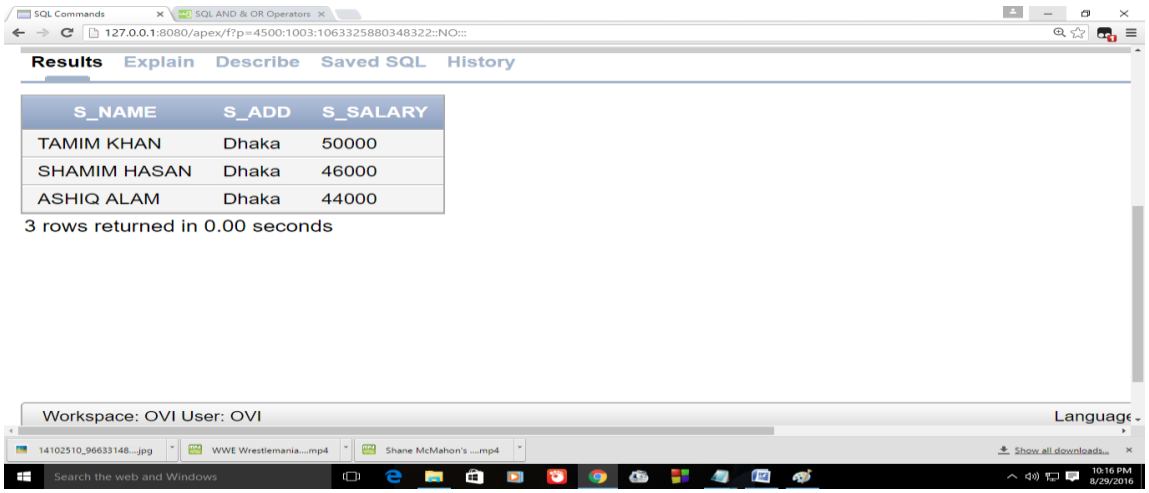


7. QUERY

7.1 SIMPLE

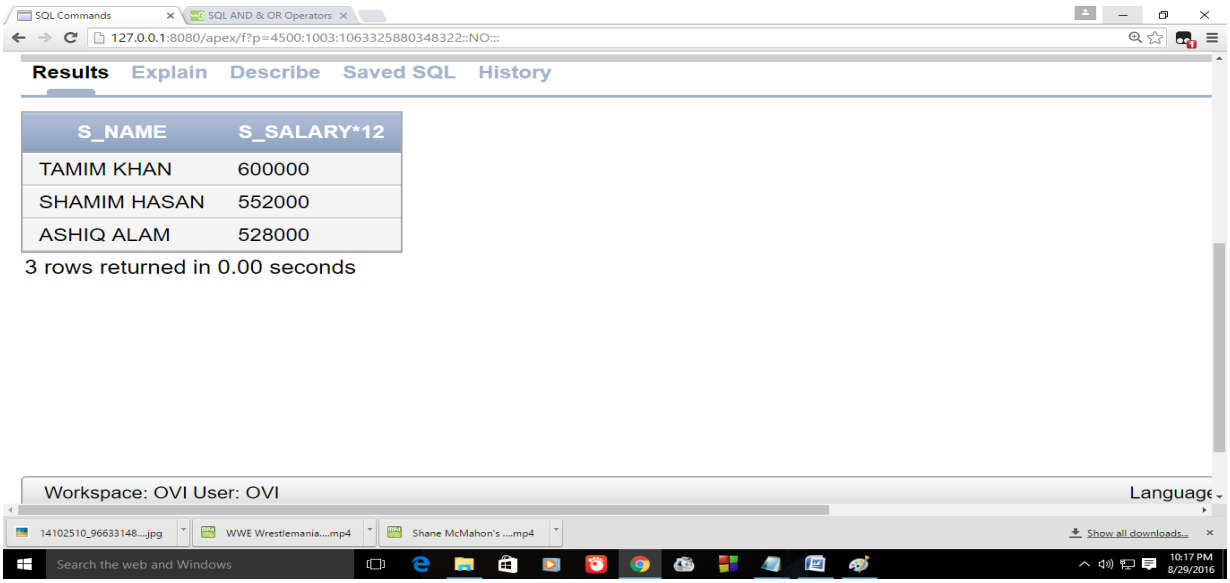
1. **Q**: Show name, address and salary of stuffs:

Query: select s_name,s_add,s_salary from stuffs;



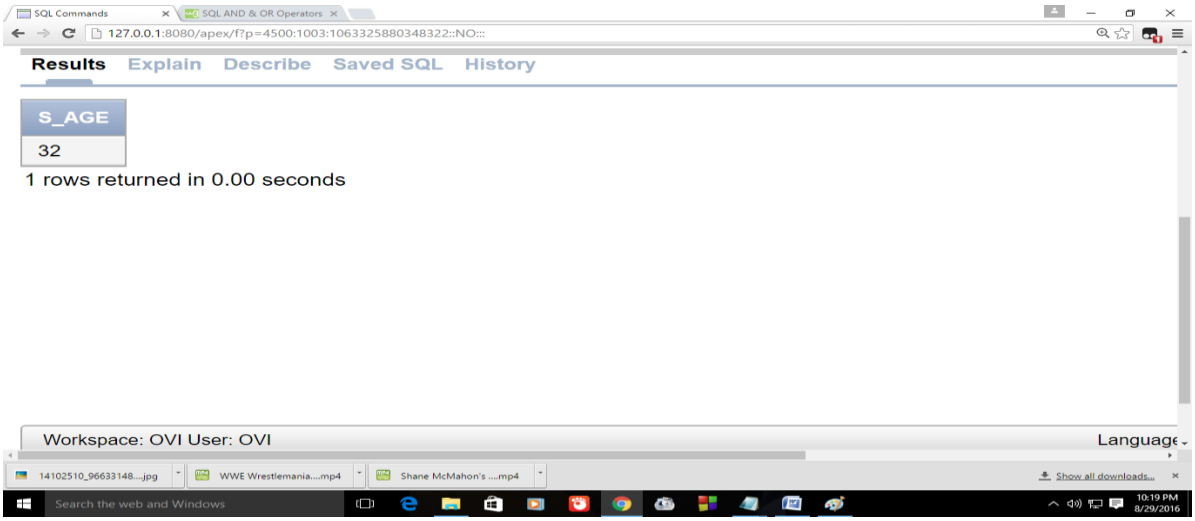
2. **Q:** find the annual salary of stuffs in descending order:

Query: select s_name,s_salary*12 from stuffs order by s_name desc;



3. Q: find the age of stuffs whose have a salary of more than 44000 tk & less than 50000 tk:

Query: select s_age from stuffs where s_salary<50000 and s_salary>44000;

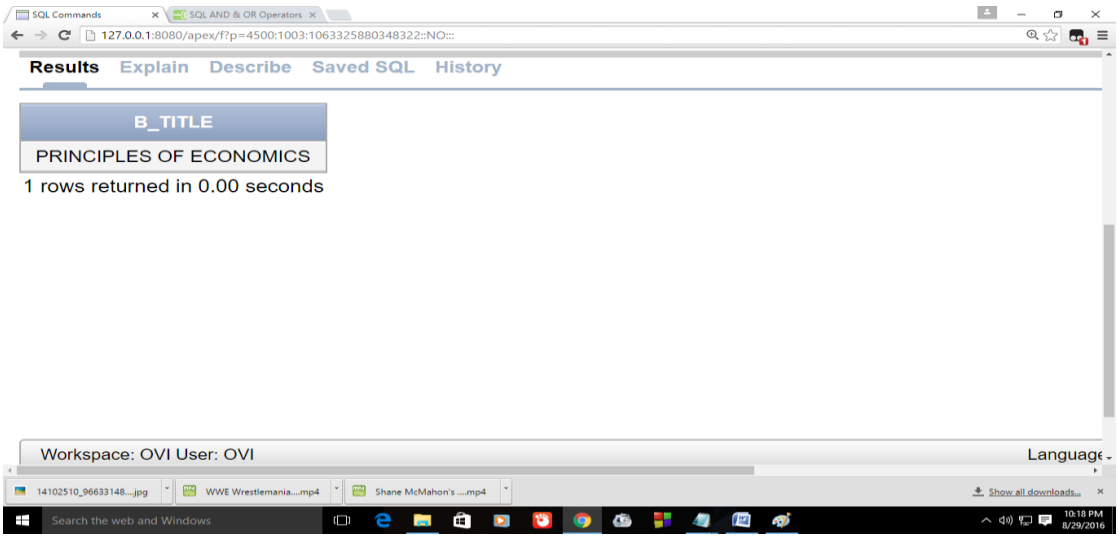


7.2 COMPLEX:

Subquery:

4. Q: find the books name list whose publishers name starts with 'K' :

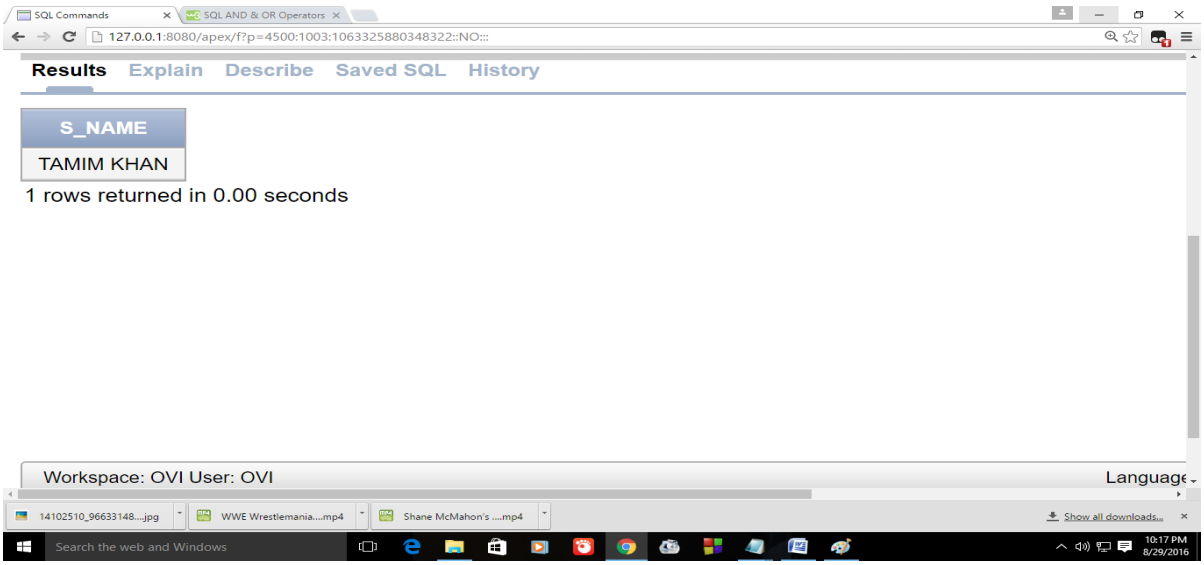
Query: select b_title from books where p_id in(select p_id from publishers where p_name like 'K%')



Joining:

5. Q: FIND the stuffs who are working under 'lilly jean' :

Query: select s_name from stuffs,authority where stuffs.a_id=authority.a_id and authority.a_name='LILLY JEAN'

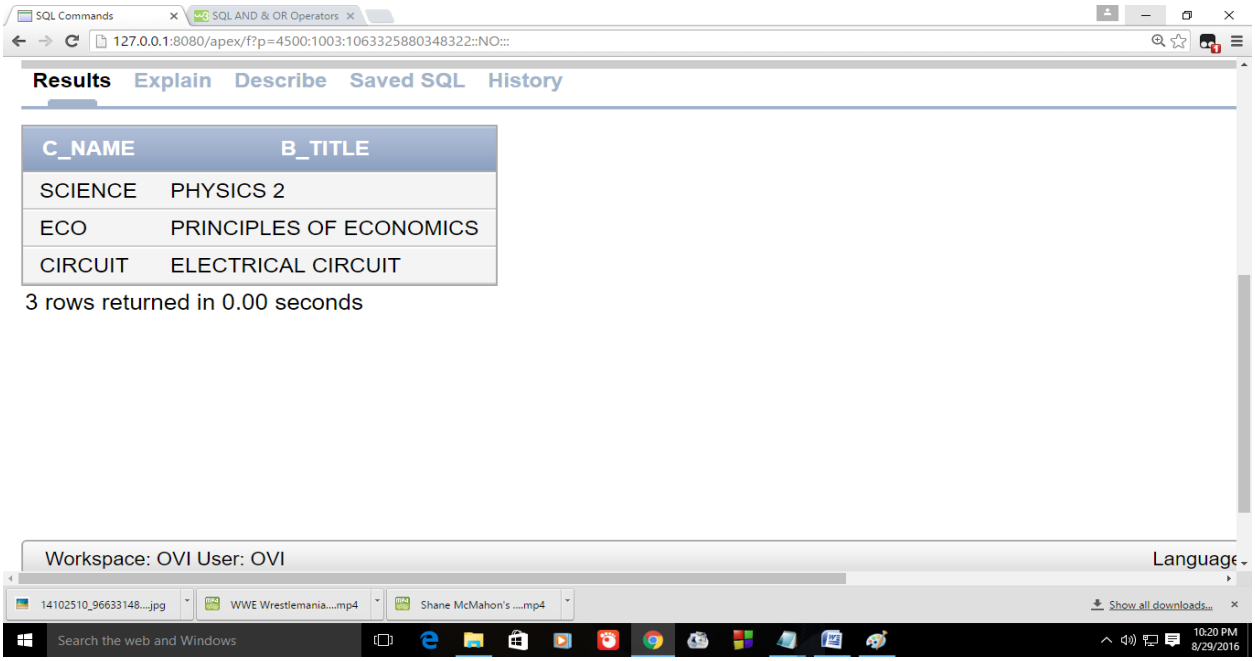


6. Q: Return all borrowers with their book name who have a fine more than 500 tk :

Query: select u.u_name,bb.b_id,b.b_title from users u,borrowed_by bb,books b where bb.b_id=b.b_id and bb.u_id=u.u_id and bb.fine>500

7. Q: show all categories and books names :

Query: select c.c_name,b.b_title from category c,books b where c.c_id=b.c_id

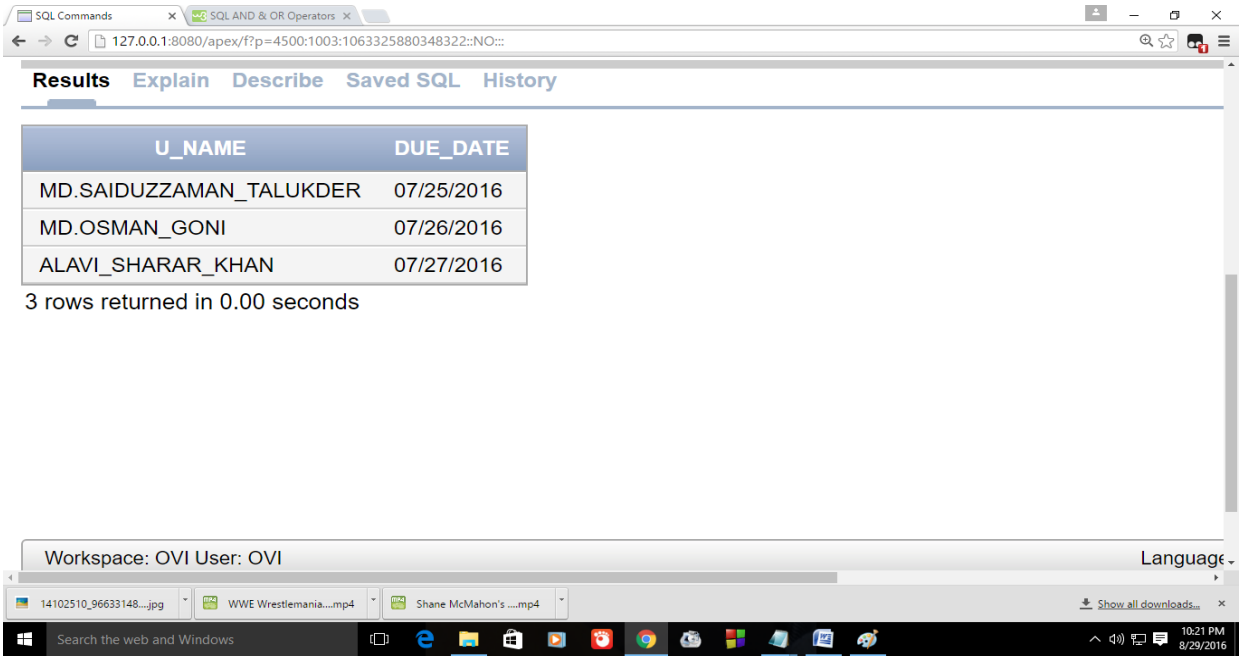


8. Q: show all the names and fined amount of borrowers:

Query: select u.u_name,b.fine from users u,borrowed_by b where u.u_id=b.u_id

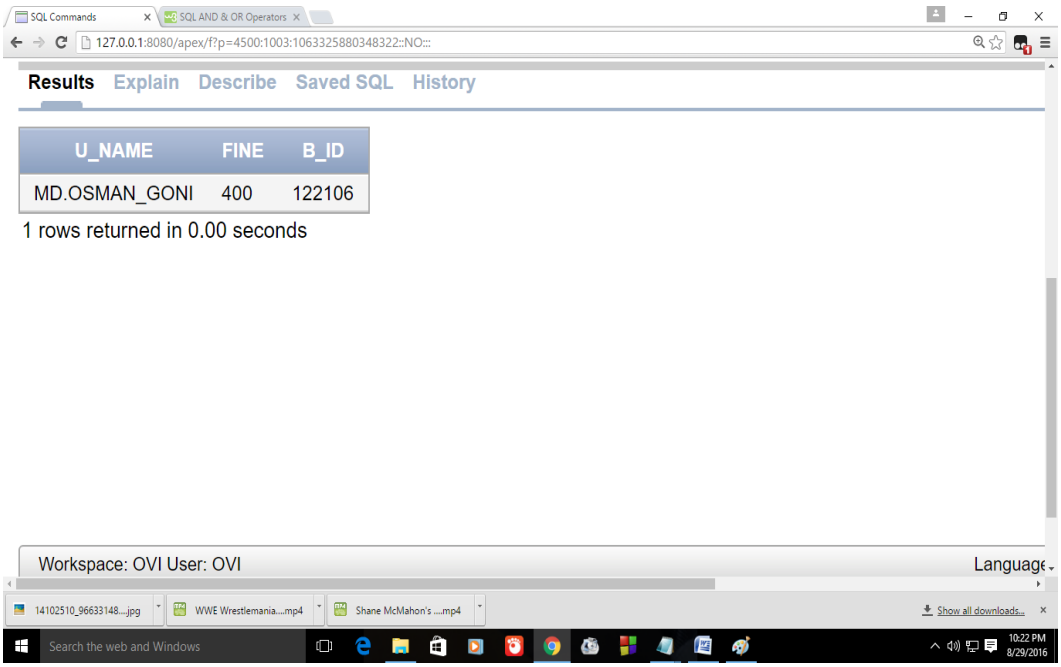
9. Q: show the user name and due date :

Query: select u.u_name,b.due_date from users u,borrowed_by b where u.u_id=b.u_id



10. **Q: show user name,fine amount, book id of user of EEE depertment & books of 'electrical circuit':**

Query: select u.u_name,bb.fine,b.b_id from borrowed_by bb,users u,books b where bb.u_id=u.u_id and bb.b_id=b.b_id and b.b_title='ELECTRICAL CIRCUIT' and u.u_dept='EEE'

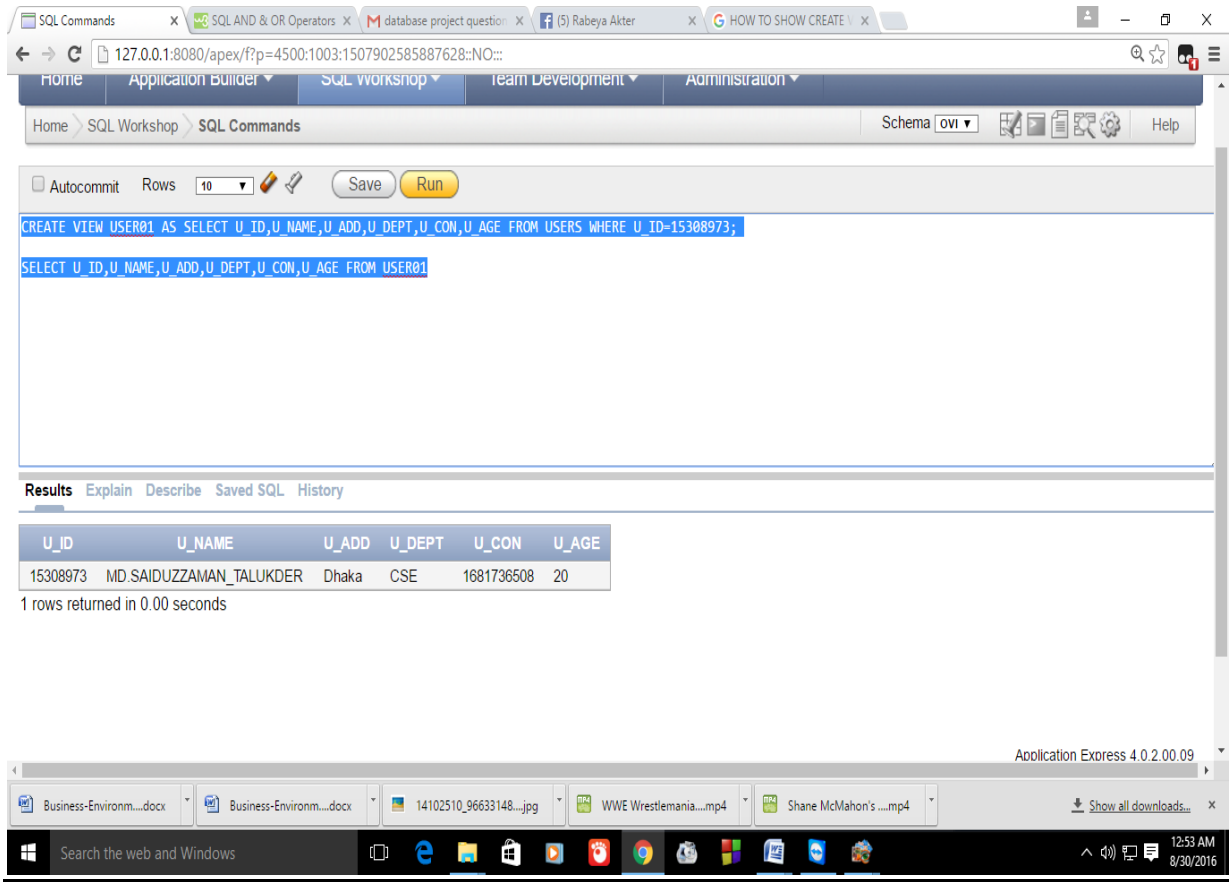


8. view

Simple view:

CREATE VIEW USER01 AS SELECT U_ID,U_NAME,U_ADD,U_DEPT,U_CON,U_AGE FROM USERS WHERE U_ID=15308973;

SELECT U_ID,U_NAME,U_ADD,U_DEPT,U_CON,U_AGE FROM USER01;



PART - B

9. Learning experience:

This project was a great way to learn. Working with these new things were really interesting and enjoyable. Learning experience through the project was great. This project has proved that it was a great combination of technology for database. But it was clear that the technology needed for the database project was a available one. Following the requirement of the library management system, we had to go through the process of collecting the accurate data with displaying the reporting feature with the good quality. We had used some predicted data to test the project and to see the efficiency. Surprisingly it has given us an excellent result of this test. It was a very new task to run this project appropriately and thus we had to go through a lot of new things that gave us a ton of new experience and knowledge about the way to make the database project successful.

At the very beginning , we had to make the Entity Relationship Diagram that is (ERD). this was a way to sketch the main basic diagram of our project.

After collecting the necessary data, we made the tables with the values. At this time, we had to maintain every single step of create table with the proper data type.

Then, we normalized the table up to 3rd normal form. We also made the database relational diagram, showed every table, attributes and their data type. Some Screenshots of sample data in the table were given.

10. Dealing with problems:

We were finally be able to stand up our project but it was not at all a easy task and we had to face different sort of problems in different stage of this project. some of them are discussed below:

Operational problem: As our system is mainly related to students and library is a busy place where new changes occurs regularly. So, we had to keep in mind that as it is a system, that have to be updated regularly, what changes will be brought with the system to make the changes.
Schedule problem: Our main problem was to maintain of time and shortage of time, where time management is the most important consideration in the development of project. A reliable Library Management System can only be developed in the considerable amount of time.
Technical problem: Resource availability is very important in achieving an acceptable system. As it was very first time for us to develop this kind of thing, we had to face many shortage of technological knowledge.

To develop the system we needed the right technology so that this is concerned that it will successfully satisfy the user requirement. An important issue for the development of a project is
the selection of suitable front-end and back-end. When we decided to develop the project we went through an extensive study to determine the most suitable platform that suits the needs of the organization as well as helps in development of the project.

Achievements:

This project was a reflection of what we have learnt from our database course. We were successfully able to bring out the expected system of our desire. The Library Management System was a challenging one to be done properly. But at last our effort took success.

The Library Management System is the system for managing the whole library system in a computerized way. The designed system takes care of all the requirements of an average library and is capable of providing easy and effective storage of information related to users and books that come up to the library.
It is able to generate book categories, provide users and publisher's details including various borrowers and stuffs. It also provides the information of fine caused by delaying to return the book from provided time and also about the due dates and other information on the facility on the basis of books hiring and reading.