

# 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 digital library infrastructure.
- 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 facilities 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 borrow books, books self, records, database access, 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.

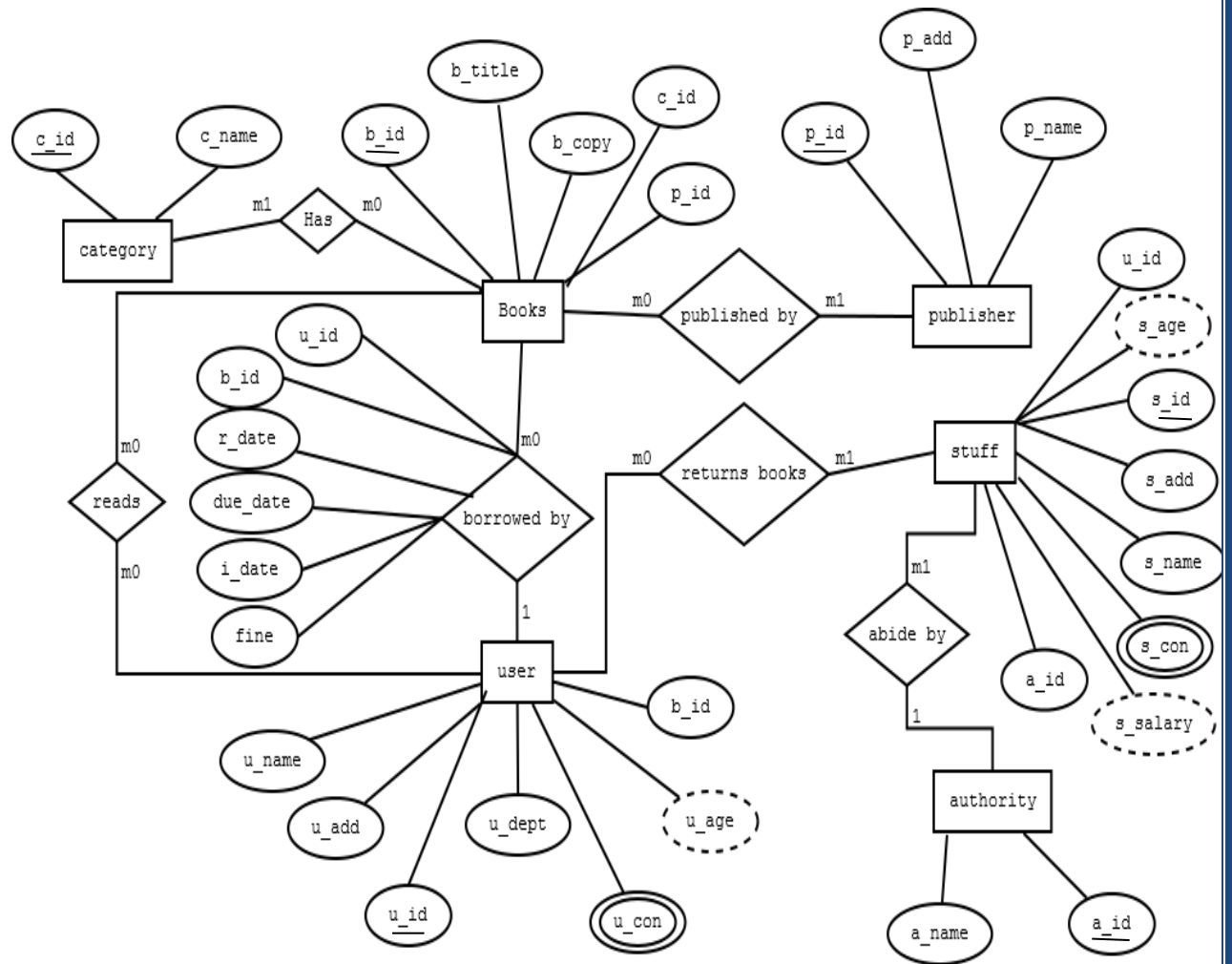
The level of accuracy in the proposed system will be higher. All operation would be done correctly and it ensures that whatever information is coming from the center is accurate.

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:



**AIUB LIBRARY MANAGEMENT SYSTEM**

### 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							

#### 1<sup>ST</sup> 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.

#### 2<sup>nd</sup> 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
------	------

#### 3<sup>rd</sup> 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
------	---------	--------	------	------	-------	--------

### **1<sup>ST</sup> NORMAL FORM:**

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

### **2<sup>nd</sup> NORMAL FORM:**

B_id	B_TITLE	B_COPY	C_ID
------	---------	--------	------

P_ID	P_ADD	P_NAME
------	-------	--------

B_ID	P_ID
------	------

### **3<sup>RD</sup> 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						

### 1<sup>ST</sup> NORMAL FORM:

U_ID	U_CON
------	-------

S_ID	S_CON
------	-------

### 2<sup>ND</sup> 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
------	------

### 3<sup>RD</sup> 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
------	--------	-------	-------	-------	----------	------	------	--------

### 1<sup>ST</sup> NORMAL FORM:

S_ID	S_CON
------	-------

### 2<sup>ND</sup> NORMAL FORM:

S_ID	S_NAME	S_ADD	S_AGE	S_SALARY	U_ID
------	--------	-------	-------	----------	------

A_ID	A_NAME
------	--------

S_ID	A_ID
------	------

### 3<sup>RD</sup> NORMAL FORM:

There is no transitive dependency exists .

## HAS TABLE:

B_ID	B_TITLE	B_COPY	C_ID	C_NAME
------	---------	--------	------	--------

### 1<sup>ST</sup> NORMAL FORM:

C_ID	C_CON	B_TITLE
------	-------	---------

### 2<sup>ND</sup> NORMAL FORM:

C_ID	C_NAME
------	--------

B_ID	B_NAME
------	--------

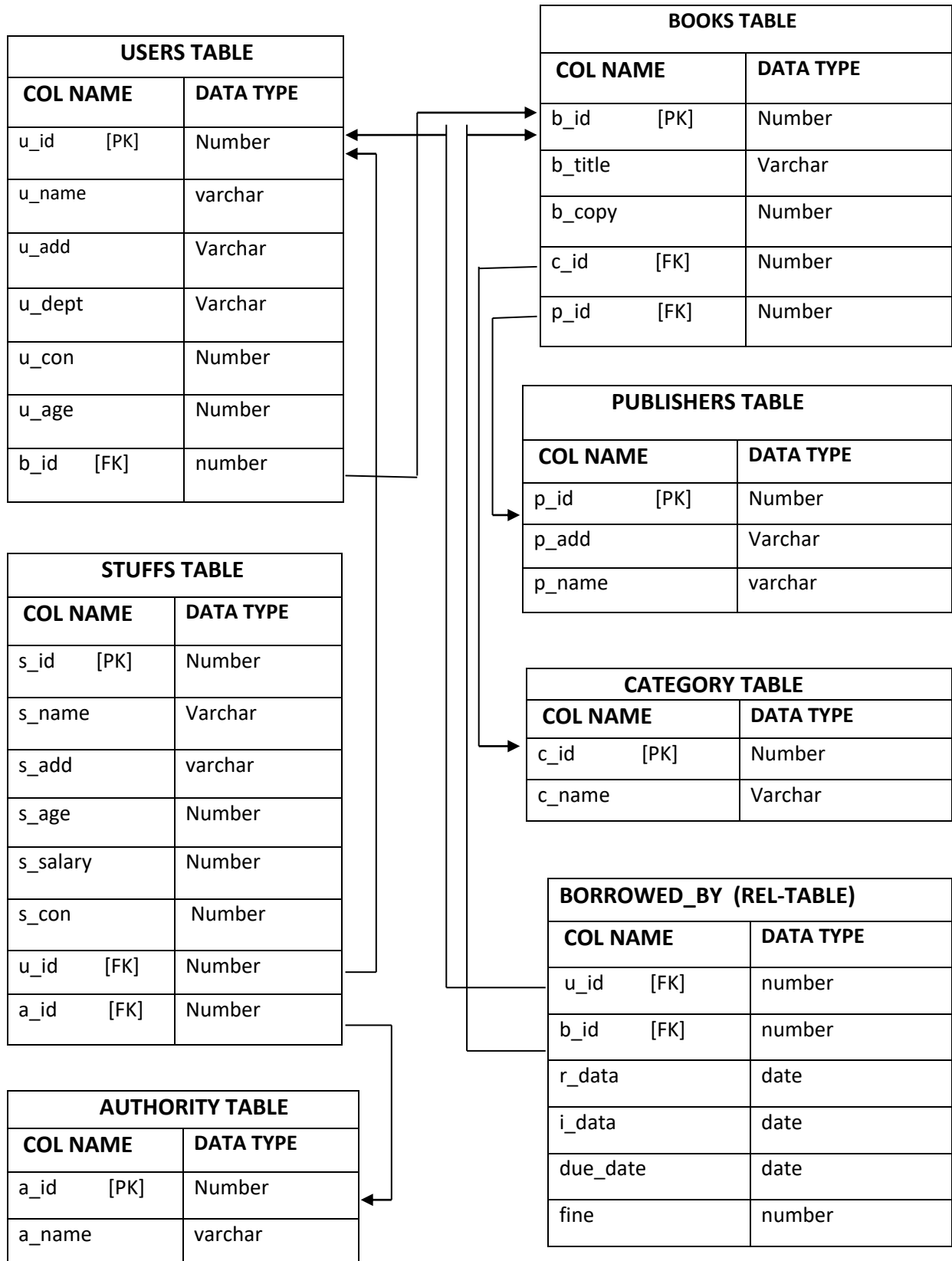
C_ID	B_ID
------	------

### 3<sup>RD</sup> 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));
```

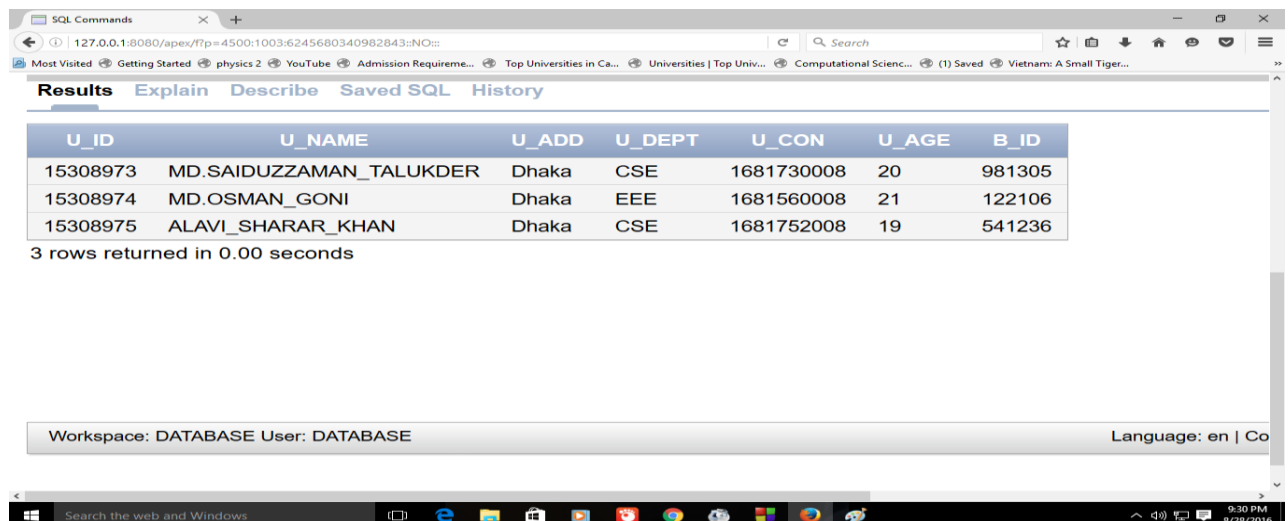
```
alter table users add (constraint u_id_pk primary key(u_id));
```

```
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','D  
haka','CSE',01681736508,20,981305)
```

```
select * from users;
```



The screenshot shows the SQL Developer interface. The top pane displays the 'Results' tab with a table containing 3 rows. The bottom pane shows the 'Workspace' and 'User' information.

U_ID	U_NAME	U_ADD	U_DEPT	U_CON	U_AGE	B_ID
15308973	MD.SAIDUZZAMAN_TALUKDER	Dhaka	CSE	1681730008	20	981305
15308974	MD.OSMAN_GONI	Dhaka	EEE	1681560008	21	122106
15308975	ALAVI_SHARAR_KHAN	Dhaka	CSE	1681752008	19	541236

3 rows returned in 0.00 seconds

Workspace: DATABASE User: DATABASE Language: en | Co

### 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;

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=4500:1003:6245680340982843::NO::`. The browser's address bar and tabs are visible. The main content area displays the results of an SQL query. At the top, there are tabs for 'Results', 'Explain', 'Describe', and 'Saved SQL History'. The 'Results' tab is active, showing a table with 5 columns: B\_ID, B\_TITLE, B\_COPY, C\_ID, and P\_ID. The table contains 3 rows of data. Below the table, it says '3 rows returned in 0.00 seconds'. At the bottom of the window, there is a status bar that reads 'Workspace: DATABASE User: DATABASE' and 'Language: en | Co'. The Windows taskbar is visible at the bottom of the screen.

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

Workspace: DATABASE User: DATABASE Language: en | Co

## 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;

The screenshot shows a web browser window with the URL `127.0.0.1:8080/apex/f?p=4500:1003:6245680340982843::NO::`. The browser's address bar and tabs are visible. The main content area displays the results of an SQL query. At the top, there are tabs for 'Results', 'Explain', 'Describe', and 'Saved SQL History'. The 'Results' tab is active, showing a table with 8 columns: S\_ID, S\_NAME, S\_ADD, S\_AGE, S\_SALARY, S\_CON, U\_ID, and A\_ID. The table contains 3 rows of data. Below the table, it says '3 rows returned in 0.00 seconds'. At the bottom of the window, there is a status bar that reads 'Workspace: DATABASE User: DATABASE' and 'Language: en | Co'. The Windows taskbar is visible at the bottom of the screen.

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

Workspace: DATABASE User: DATABASE Language: en | Co

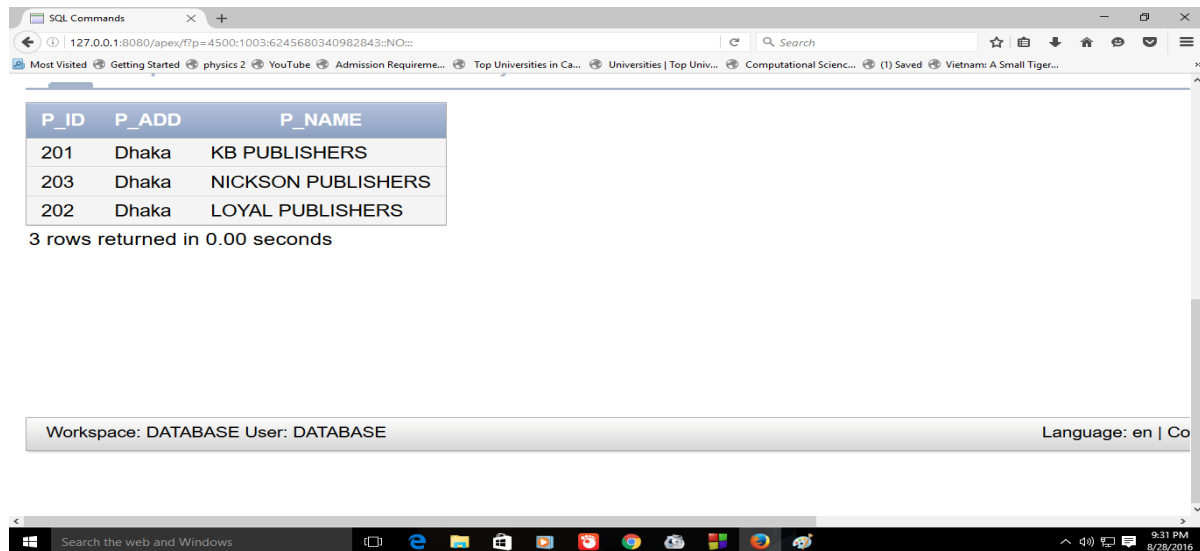
## Publishers TABLE:

```
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;
```



The screenshot shows the SQL Developer interface. The top pane displays the results of a query, showing a table with three rows of publisher data. The bottom status bar indicates the workspace is 'DATABASE User: DATABASE' and the language is 'en'.

P_ID	P_ADD	P_NAME
201	Dhaka	KB PUBLISHERS
203	Dhaka	NICKSON PUBLISHERS
202	Dhaka	LOYAL PUBLISHERS

3 rows returned in 0.00 seconds

Workspace: DATABASE User: DATABASE Language: en | Co

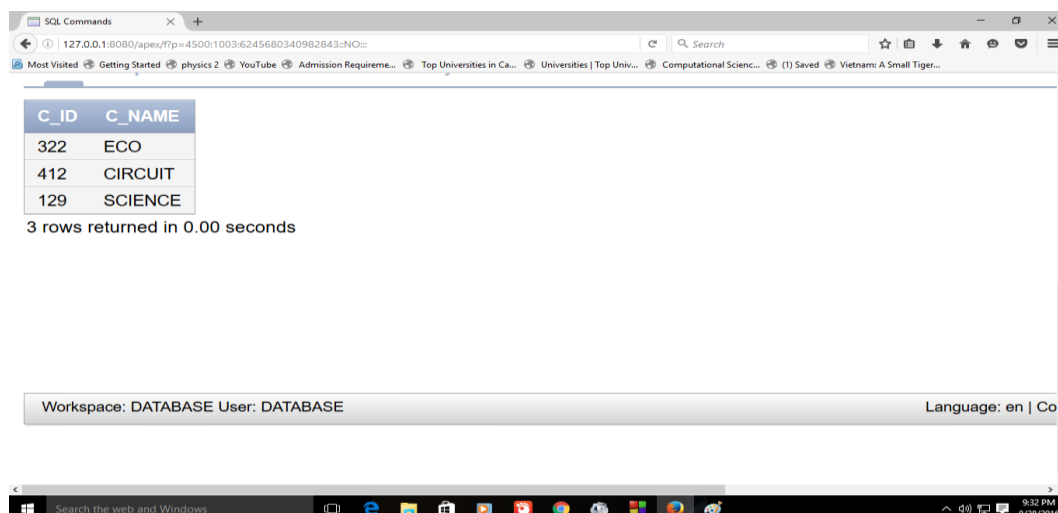
## Category TABLE:

```
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;
```



The screenshot shows the SQL Developer interface. The top pane displays the results of a query, showing a table with three rows of category data. The bottom status bar indicates the workspace is 'DATABASE User: DATABASE' and the language is 'en'.

C_ID	C_NAME
322	ECO
412	CIRCUIT
129	SCIENCE

3 rows returned in 0.00 seconds

Workspace: DATABASE User: DATABASE Language: en | Co

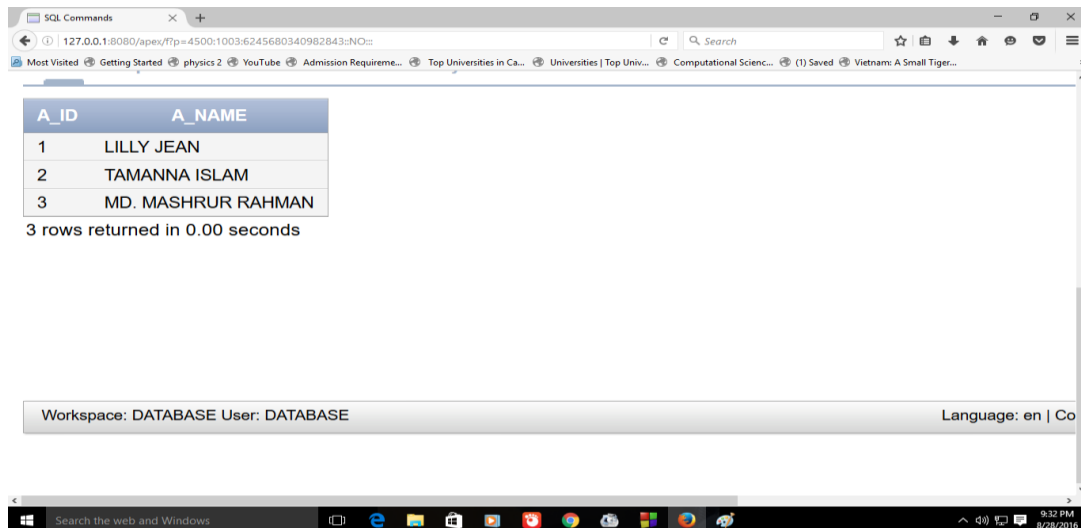
## Authority TABLE:

```
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;
```



A_ID	A_NAME
1	LILLY JEAN
2	TAMANNA ISLAM
3	MD. MASHRUR RAHMAN

3 rows returned in 0.00 seconds

Workspace: DATABASE User: DATABASE Language: en | Co

## 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;
```



## BOOKS TABLE:

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:6245680340982843::NO...

Most Visited Getting Started physics 2 YouTube Admission Requireme... Top Universities in Ca... Universities | Top Univ... Computational Scienc... (1) Saved Vietnam: A Small Tiger...

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
<u>BOOKS</u>	<u>B_ID</u>	NUMBER	-	10	0	1	-	-	-
	<u>B_TITLE</u>	VARCHAR2	25	-	-	-	✓	-	-
	<u>B_COPY</u>	NUMBER	-	3	0	-	✓	-	-
	<u>C_ID</u>	NUMBER	-	10	0	-	✓	-	-
	<u>P_ID</u>	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:

SQL Commands

127.0.0.1:8080/apex/f?p=4500:1003:6245680340982843::NO...

Most Visited Getting Started physics 2 YouTube Admission Requireme... Top Universities in Ca... Universities | Top Univ... Computational Scienc... (1) Saved Vietnam: A Small Tiger...

Results Explain **Describe** Saved SQL History

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

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>STUFFS</u>	<u>S_ID</u>	NUMBER	-	10	0	1	-	-	-
	<u>S_NAME</u>	VARCHAR2	25	-	-	-	✓	-	-
	<u>S_ADD</u>	VARCHAR2	25	-	-	-	✓	-	-
	<u>S_AGE</u>	NUMBER	-	3	0	-	✓	-	-
	<u>S_SALARY</u>	NUMBER	-	5	0	-	✓	-	-
	<u>S_CON</u>	NUMBER	-	11	0	-	✓	-	-
	<u>U_ID</u>	NUMBER	-	10	0	-	✓	-	-
	<u>A_ID</u>	NUMBER	-	10	0	-	✓	-	-
1 - 8									

Search the web and Windows

9:26 PM 8/28/2016

## Publishers TABLE:

The screenshot shows the SQL Developer interface with the 'Describe' tab selected for the 'PUBLISHERS' table. The table structure is as follows:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PUBLISHERS	P_ID	NUMBER	-	10	0	1	-	-	-
	P_ADD	VARCHAR2	25	-	-	-	✓	-	-
	P_NAME	VARCHAR2	25	-	-	-	✓	-	-
									1 - 3

Workspace: DATABASE User: DATABASE Language: en | Co

## Category TABLE:

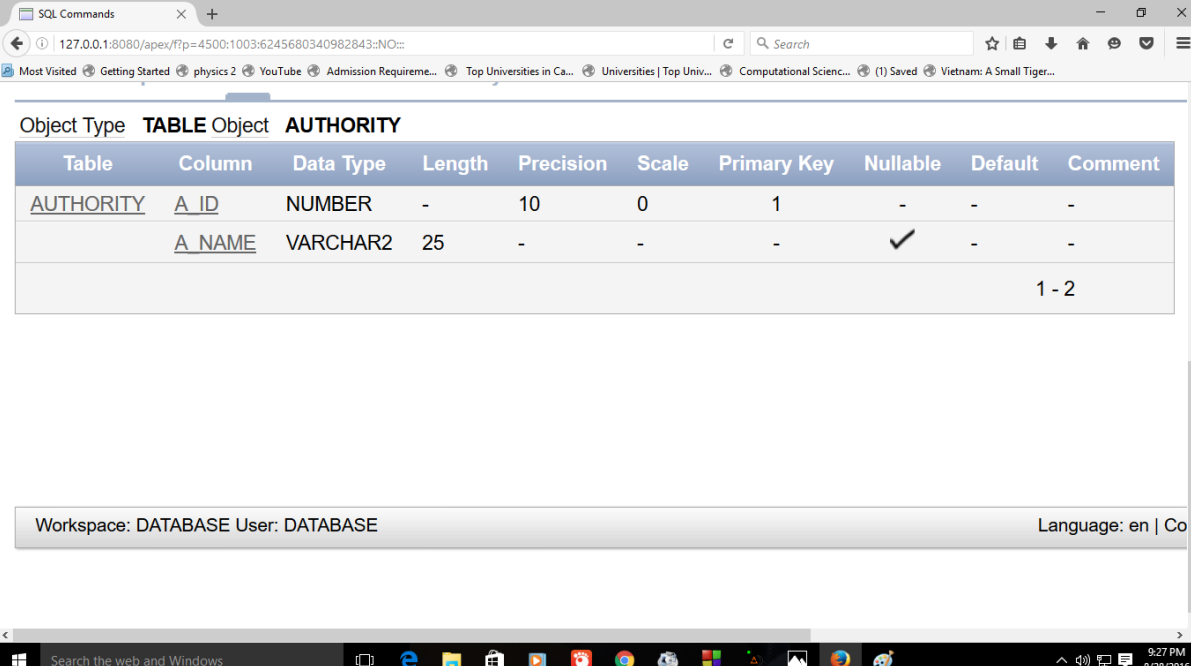
The screenshot shows the SQL Developer interface with the 'Describe' tab selected for the 'CATEGORY' table. The table structure is as follows:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CATEGORY	C_ID	NUMBER	-	10	0	1	-	-	-
	C_NAME	VARCHAR2	25	-	-	-	✓	-	-
									1 - 2

Workspace: DATABASE User: DATABASE Language: en | Co



## Authority TABLE:

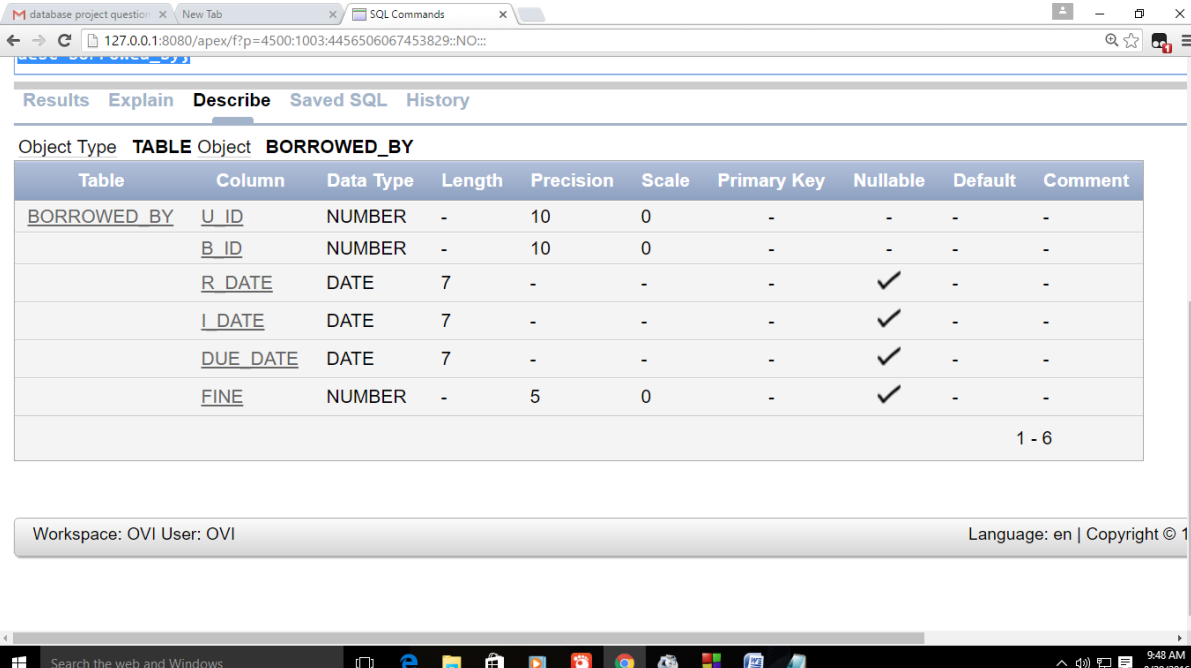


The screenshot shows the SQL Developer interface with the 'Object Type' set to 'TABLE' and the 'Object' set to 'AUTHORITY'. The table structure is displayed in a grid format with columns for Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table has two columns: 'A\_ID' (NUMBER, 10, 0, Primary Key) and 'A\_NAME' (VARCHAR2, 25). The 'A\_NAME' column is nullable and has a default value of '1 - 2'.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>AUTHORITY</u>	<u>A_ID</u>	NUMBER	-	10	0	1	-	-	-
	<u>A_NAME</u>	VARCHAR2	25	-	-	-	✓	-	-
								1 - 2	

Workspace: DATABASE User: DATABASE Language: en | Co

## borrowed\_by TABLE:



The screenshot shows the SQL Developer interface with the 'Object Type' set to 'TABLE' and the 'Object' set to 'BORROWED\_BY'. The table structure is displayed in a grid format with columns for Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table has six columns: 'U\_ID' (NUMBER, 10, 0), 'B\_ID' (NUMBER, 10, 0), 'R\_DATE' (DATE, 7), 'I\_DATE' (DATE, 7), 'DUE\_DATE' (DATE, 7), and 'FINE' (NUMBER, 5, 0). The 'R\_DATE', 'I\_DATE', 'DUE\_DATE', and 'FINE' columns are nullable and have default values of '1 - 6'.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>BORROWED_BY</u>	<u>U_ID</u>	NUMBER	-	10	0	-	-	-	-
	<u>B_ID</u>	NUMBER	-	10	0	-	-	-	-
	<u>R_DATE</u>	DATE	7	-	-	-	✓	-	-
	<u>I_DATE</u>	DATE	7	-	-	-	✓	-	-
	<u>DUE_DATE</u>	DATE	7	-	-	-	✓	-	-
	<u>FINE</u>	NUMBER	-	5	0	-	✓	-	-
								1 - 6	

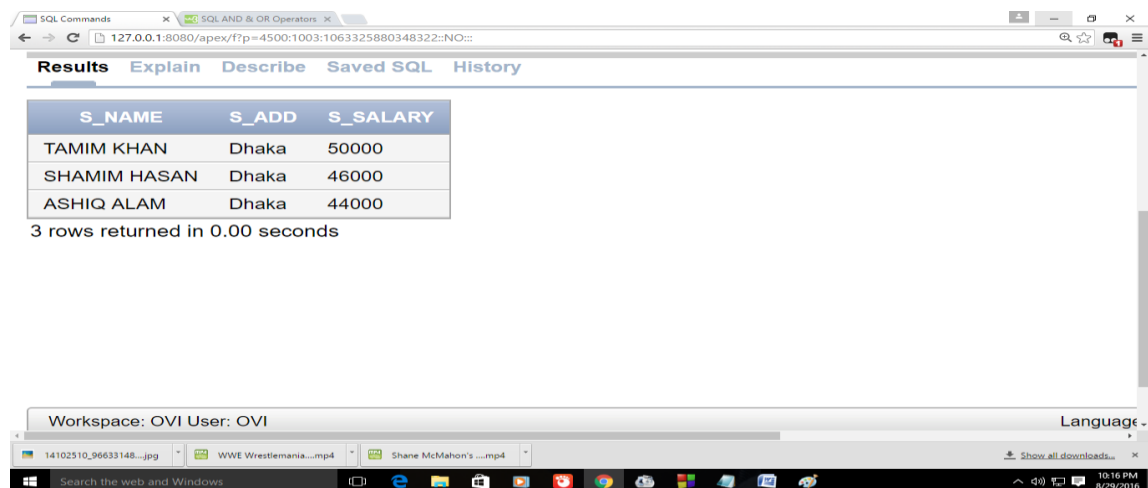
Workspace: OVI User: OVI Language: en | Copyright © 1

# 7. QUERY

## 7.1 SIMPLE

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

Query: select s\_name,s\_add,s\_salary from stuffs;

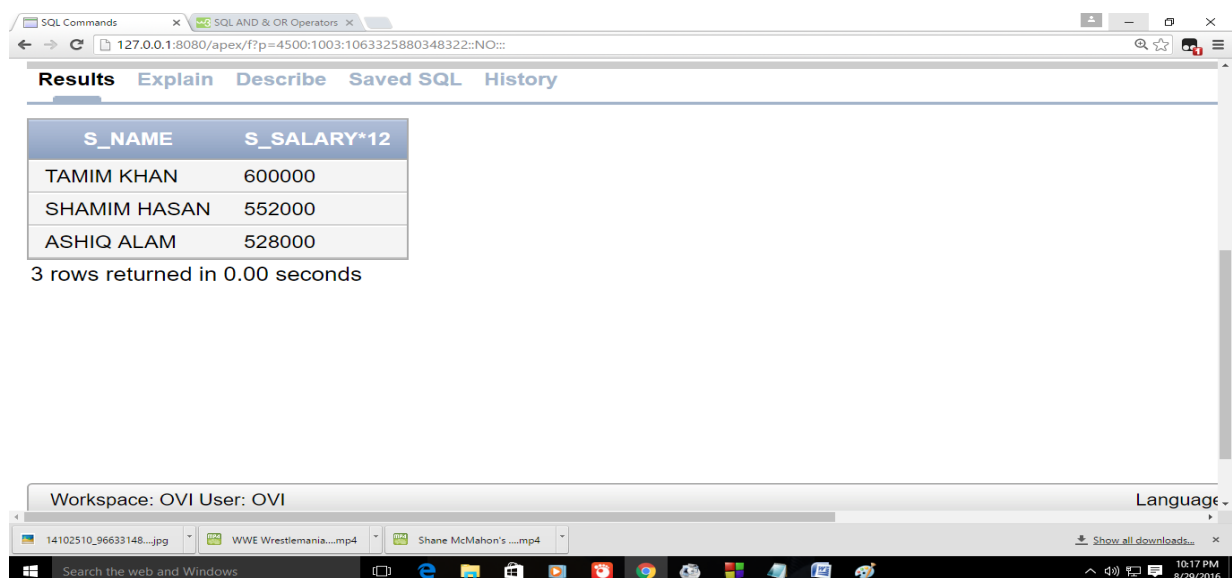


S_NAME	S_ADD	S_SALARY
TAMIM KHAN	Dhaka	50000
SHAMIM HASAN	Dhaka	46000
ASHIQ ALAM	Dhaka	44000

3 rows returned in 0.00 seconds

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;

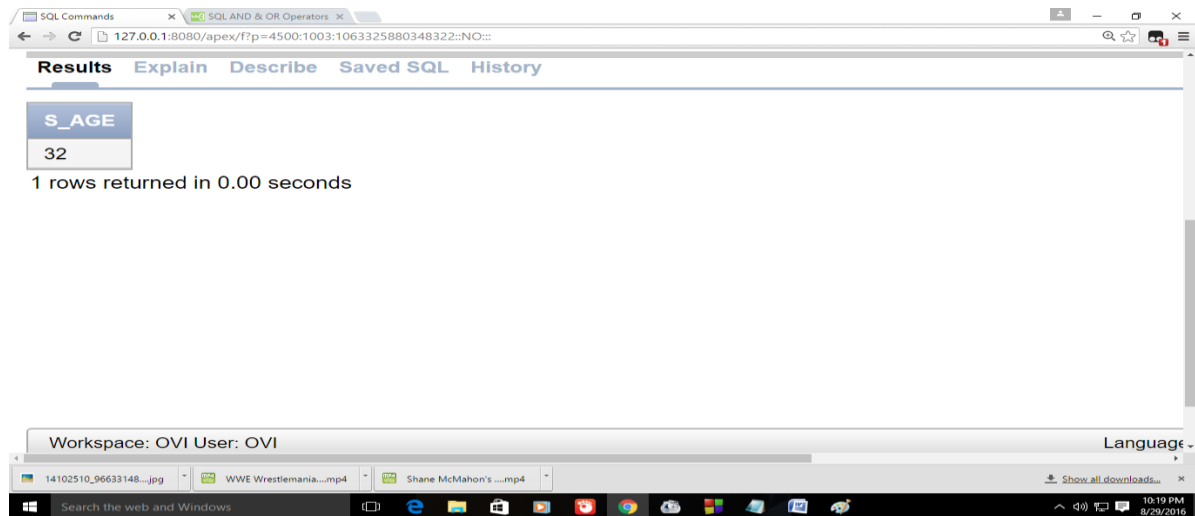


S_NAME	S_SALARY*12
TAMIM KHAN	600000
SHAMIM HASAN	552000
ASHIQ ALAM	528000

3 rows returned in 0.00 seconds

**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;

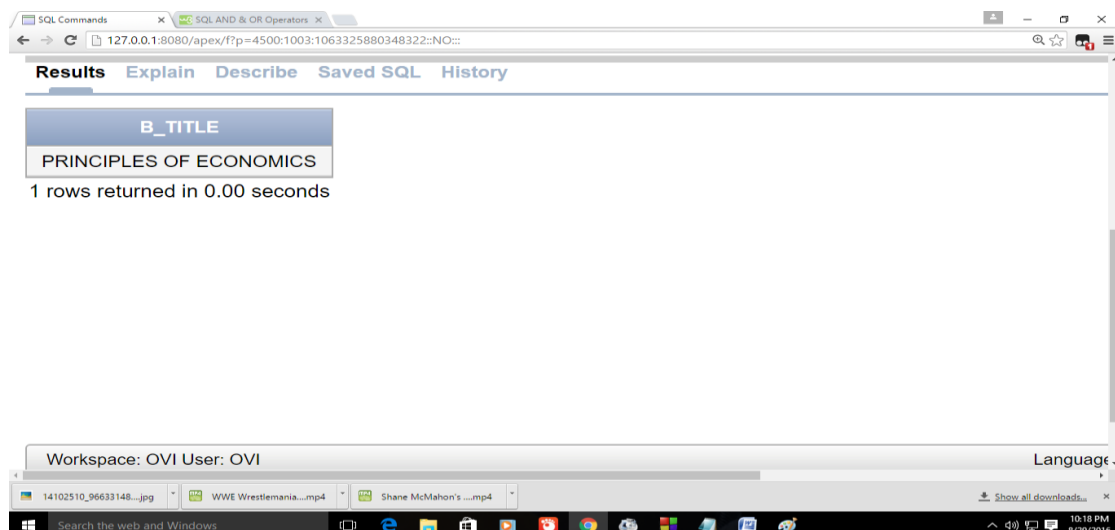


## 7.2 COMPLEX:

**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'

The screenshot shows the SQL Developer interface. The top pane displays the query results for the query: `select s_name from stuffs,authority where stuffs.a_id=authority.a_id and authority.a_name='LILLY JEAN'`. The results are shown in a table with one column, **S\_NAME**, and one row containing the value **TAMIM KHAN**. Below the table, it states "1 rows returned in 0.00 seconds". The bottom pane shows the workspace with a file named "14102510\_96633148.jpg" and a video file "WWE Wrestlemania...mp4". The taskbar at the bottom shows the Windows Start button and various application icons, including Chrome and File Explorer. The system clock indicates 10:17 PM on 8/29/2016.

S_NAME
TAMIM KHAN

1 rows returned in 0.00 seconds

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

The screenshot shows the SQL Developer interface. The top pane displays the query results for the 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`. The results are shown in a table with three columns: **U\_NAME**, **B\_ID**, and **B\_TITLE**. The first row contains the values **ALAVI\_SHARAR\_KHAN**, **541236**, and **PHYSICS 2**. Below the table, it states "1 rows returned in 0.00 seconds". The bottom pane shows the workspace with a file named "14102510\_96633148.jpg" and a video file "WWE Wrestlemania...mp4". The taskbar at the bottom shows the Windows Start button and various application icons, including Chrome and File Explorer. The system clock indicates 10:20 PM on 8/29/2016.

U_NAME	B_ID	B_TITLE
ALAVI_SHARAR_KHAN	541236	PHYSICS 2

1 rows returned in 0.00 seconds

## 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

The screenshot shows the SQL Developer interface with a query executed. The results are displayed in a table with two columns: C\_NAME and B\_TITLE. The table contains three rows of data. Below the table, it states '3 rows returned in 0.00 seconds'. The interface includes tabs for SQL Commands, SQL AND/OR Operators, and a workspace area at the bottom showing various files and a taskbar.

C_NAME	B_TITLE
SCIENCE	PHYSICS 2
ECO	PRINCIPLES OF ECONOMICS
CIRCUIT	ELECTRICAL CIRCUIT

3 rows returned in 0.00 seconds

## 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

The screenshot shows the SQL Developer interface with a query executed. The results are displayed in a table with two columns: U\_NAME and FINE. The table contains three rows of data. Below the table, it states '3 rows returned in 0.00 seconds'. The interface includes tabs for SQL Commands, SQL AND/OR Operators, and a workspace area at the bottom showing various files and a taskbar.

U_NAME	FINE
MD.SAIDUZZAMAN_TALUKDER	200
MD.OSMAN_GONI	400
ALAVI_SHARAR_KHAN	1000

3 rows returned in 0.00 seconds

**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

The screenshot shows the SQL Developer interface with a query executed. The results are displayed in a table with two columns: U\_NAME and DUE\_DATE. The table contains three rows of data. Below the table, it states '3 rows returned in 0.00 seconds'. The interface also shows tabs for 'SQL Commands' and 'SQL AND/OR Operators', and a workspace area at the bottom.

U_NAME	DUE_DATE
MD.SAIDUZZAMAN_TALUKDER	07/25/2016
MD.OSMAN_GONI	07/26/2016
ALAVI_SHARAR_KHAN	07/27/2016

3 rows returned in 0.00 seconds

**10. Q: show user name,fine amount, book id of user of EEE department & 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'

The screenshot shows the SQL Developer interface with a query executed. The results are displayed in a table with three columns: U\_NAME, FINE, and B\_ID. The table contains one row of data. Below the table, it states '1 rows returned in 0.00 seconds'. The interface also shows tabs for 'SQL Commands' and 'SQL AND/OR Operators', and a workspace area at the bottom.

U_NAME	FINE	B_ID
MD.OSMAN_GONI	400	122106

1 rows returned in 0.00 seconds

## 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;**

The screenshot shows the Oracle SQL Developer application. The 'SQL Commands' window contains the following SQL code:

```
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
```

The 'Results' window displays the output of the second query as a table with 6 columns: U\_ID, U\_NAME, U\_ADD, U\_DEPT, U\_CON, and U\_AGE. The table contains one row of data.

U_ID	U_NAME	U_ADD	U_DEPT	U_CON	U_AGE
15308973	MD.SAIDUZZAMAN_TALUKDER	Dhaka	CSE	1681736508	20

1 rows returned in 0.00 seconds

The bottom of the screenshot shows the Windows taskbar with the system clock at 12:53 AM on 8/30/2016.

## 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 3<sup>rd</sup> 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.