**SQL QUERIES:**

**Create Table queries:**

-- CREATE TABLE "B RANCH" ---------------------------------------

CREATE TABLE `BRANCH`(

`BID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`LNAME` VarChar( 255 ) NULL,

`LOCATION` VarChar( 255 ) NULL,

PRIMARY KEY ( `BID` ),

CONSTRAINT `unique\_BID` UNIQUE( `BID` ) )

-- -------------------------------------------------------------

-- CREATE TABLE "A DMIN" ----------------------------------------

CREATE TABLE `ADMIN`(

`A\_ID` Int( 0 ) NOT NULL,

`A\_NAME` VarChar( 255 ) NOT NULL,

`A\_PASS` VarChar( 255 ) NOT NULL,

PRIMARY KEY ( `A\_ID` ),

CONSTRAINT `unique\_A\_ID` UNIQUE( `A\_ID` ) )

-- -------------------------------------------------------------

-- CREATE TABLE "R EADER" ---------------------------------------

CREATE TABLE `READER`(

`RID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`RNAME` VarChar( 255 ) NULL,

`RTYPE` VarChar( 255 ) NULL,

`RADDRESS` VarChar( 255 ) NULL,

`PHONE\_NO` VarChar( 255 ) NULL,

PRIMARY KEY ( `RID` ),

CONSTRAINT `unique\_RID` UNIQUE( `RID` ) )

-- -------------------------------------------------------------

-- CREATE TABLE "D OCUMENT" -------------------------------------

CREATE TABLE `DOCUMENT`(

`DOCID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`TITLE` VarChar( 255 ) NULL,

`PUBLISHERID` Int( 0 ) NULL,

`PDATE` DateTime NULL,

PRIMARY KEY ( `DOCID` ),

CONSTRAINT `unique\_DOCID` UNIQUE( `DOCID` ) )

CONSTRAINT `lnk\_PUBLISHER\_DOCUMENT` FOREIGN KEY ( `PUBLISHERID` )

REFERENCES `PUBLISHER`( `PUBLISHERID` ) ON DELETE Cascade ON UPDATE

Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "B OOK" -----------------------------------------

CREATE TABLE `BOOK`(

`DOCID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`ISBN` Int( 0 ) NULL,

PRIMARY KEY ( `DOCID` ),

CONSTRAINT `unique\_DOCID` UNIQUE( `DOCID` ) )

CONSTRAINT `lnk\_DOCUMENT\_BOOK` FOREIGN KEY ( `DOCID` )

REFERENCES `DOCUMENT`( `DOCID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "J OURNAL\_VOLUME" -------------------------------

CREATE TABLE `JOURNAL\_VOLUME`(

`DOCID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`VOLUME\_NO` VarChar( 255 ) NULL,

`EDITOR` Int( 0 ) NULL,

PRIMARY KEY ( `DOCID` ),

CONSTRAINT `unique\_DOCID` UNIQUE( `DOCID` ) )

CONSTRAINT `lnk\_DOCUMENT\_JOURNAL\_VOLUME` FOREIGN KEY ( `DOCID` )

REFERENCES `DOCUMENT`( `DOCID` ) ON DELETE Cascade ON UPDATE Cascade

CONSTRAINT `lnk\_PERSON\_JOURNAL\_VOLUME` FOREIGN KEY ( `EDITOR` )

REFERENCES `PERSON`( `PID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "J OURNAL\_ISSUE" --------------------------------

CREATE TABLE `JOURNAL\_ISSUE`(

`DOCID` Int( 0 ) NOT NULL,

`ISSUE\_NO` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`SCOPE` VarChar( 255 ) NULL,

PRIMARY KEY ( `DOCID`, `ISSUE\_NO` ),

CONSTRAINT `unique\_ISSUE\_NO` UNIQUE( `ISSUE\_NO` ) )

CONSTRAINT `lnk\_JOURNAL\_VOLUME\_JOURNAL\_ISSUE` FOREIGN KEY (

`DOCID` ) REFERENCES `JOURNAL\_VOLUME`( `DOCID` ) ON DELETE Cascade

ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "P ROCEEDINGS" ----------------------------------

CREATE TABLE `PROCEEDINGS`(

`DOCID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`CDATE` DateTime NULL,

`CLOCATION` VarChar( 255 ) CHARACTER SET utf8 COLLATE utf8\_general\_ci NULL,

`CEDITOR` VarChar( 255 ) CHARACTER SET utf8 COLLATE utf8\_general\_ci NULL,

PRIMARY KEY ( `DOCID` ),

CONSTRAINT `unique\_DOCID` UNIQUE( `DOCID` ) )

CONSTRAINT `lnk\_DOCUMENT\_PROCEEDINGS` FOREIGN KEY ( `DOCID` )

REFERENCES `DOCUMENT`( `DOCID` ) ON DELETE Cascade ON UPDATE

Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "C OPY" -----------------------------------------

CREATE TABLE `COPY`(

`DOCID` Int( 0 ) NOT NULL,

`COPYNO` Int( 0 ) NOT NULL,

`BID` Int( 0 ) NOT NULL,

`POSITION` VarChar( 255 ) NULL,

PRIMARY KEY ( `DOCID`, `COPYNO`, `BID` ) )

CONSTRAINT `lnk\_BRANCH\_COPY` FOREIGN KEY ( `BID` )

REFERENCES `BRANCH`( `BID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_DOCUMENT\_COPY` FOREIGN KEY ( `DOCID` )

REFERENCES `DOCUMENT`( `DOCID` ) ON DELETE Cascade ON UPDATE

Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "B ORROWS" --------------------------------------

CREATE TABLE `BORROWS`(

`BID` Int( 0 ) NOT NULL,

`COPYNO` Int( 0 ) NOT NULL,

`DOCID` Int( 0 ) NOT NULL,

`RID` Int( 0 ) NOT NULL,

`BDTIME` Date NULL,

`RDTIME` Date NULL,

`BOR\_NO` Int( 0 ) AUTO\_INCREMENT NOT NULL,

PRIMARY KEY ( `BOR\_NO` ),

CONSTRAINT `unique\_BOR\_NO` UNIQUE( `BOR\_NO` ) )

CONSTRAINT `lnk\_COPY\_BORROWS` FOREIGN KEY ( `BID` ) REFERENCES

`COPY`( `BID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_COPY\_BORROWS\_2` FOREIGN KEY ( `DOCID` )REFERENCES

`COPY`( `DOCID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_COPY\_BORROWS\_3` FOREIGN KEY ( `COPYNO` )

REFERENCES `COPY`( `COPYNO` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_READER\_BORROWS` FOREIGN KEY ( `RID` )

REFERENCES `READER`( `RID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "R ESERVES" -------------------------------------

CREATE TABLE `RESERVES`(

`RID` Int( 0 ) NOT NULL,

`RESERVATION\_NO` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`DOCID` Int( 0 ) NOT NULL,

`COPYNO` Int( 0 ) NOT NULL,

`BID` Int( 0 ) NOT NULL,

`DTIME` Date NULL,

PRIMARY KEY ( `RESERVATION\_NO` ),

CONSTRAINT `unique\_RESERVATION\_NO` UNIQUE( `RESERVATION\_NO` ) )

CONSTRAINT `lnk\_COPY\_RESERVES` FOREIGN KEY ( `BID` ) REFERENCES

`COPY`( `BID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_COPY\_RESERVES\_2` FOREIGN KEY ( `COPYNO` )

REFERENCES `COPY`( `COPYNO` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_COPY\_RESERVES\_3` FOREIGN KEY ( `DOCID` )

REFERENCES `COPY`( `DOCID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_READER\_RESERVES` FOREIGN KEY ( `RID` )

REFERENCES `READER`( `RID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "P ERSON" ---------------------------------------

CREATE TABLE `PERSON`(

`PID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`PNAME` VarChar( 255 ) NULL,

PRIMARY KEY ( `PID` ),

CONSTRAINT `unique\_PID` UNIQUE( `PID` ) )

-- -------------------------------------------------------------

-- CREATE TABLE "A UTHORS" --------------------------------------

CREATE TABLE `AUTHORS`(

`PID` Int( 0 ) NOT NULL,

`DOCID` Int( 0 ) NOT NULL,

PRIMARY KEY ( `PID`, `DOCID` ) )

CONSTRAINT `lnk\_DOCUMENT\_AUTHORS` FOREIGN KEY ( `DOCID` )

REFERENCES `DOCUMENT`( `DOCID` ) ON DELETE Cascade ON UPDATE

Cascade;

CONSTRAINT `lnk\_PERSON\_AUTHORS` FOREIGN KEY ( `PID` )

REFERENCES `PERSON`( `PID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "C HAIR" ----------------------------------------

CREATE TABLE `CHAIR`(

`PID` Int( 0 ) NOT NULL,

`DOCID` Int( 0 ) NOT NULL,

PRIMARY KEY ( `PID`, `DOCID` ) )

CONSTRAINT `lnk\_PERSON\_CHAIR` FOREIGN KEY ( `PID` )

REFERENCES `PERSON`( `PID` ) ON DELETE Cascade ON UPDATE Cascade;

CONSTRAINT `lnk\_PROCEEDINGS\_CHAIR` FOREIGN KEY ( `DOCID` )

REFERENCES `PROCEEDINGS`( `DOCID` ) ON DELETE Cascade ON UPDATE

Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE " GEDITS " ---------------------------------------

CREATE TABLE `GEDITS`(

`DOCID` Int( 0 ) NOT NULL,

`ISSUE\_NO` Int( 0 ) NOT NULL,

`PID` Int( 0 ) NOT NULL,

PRIMARY KEY ( `DOCID`, `ISSUE\_NO`, `PID` ) )

CONSTRAINT `lnk\_JOURNAL\_ISSUE\_GEDITS` FOREIGN KEY ( `DOCID` )

REFERENCES `JOURNAL\_ISSUE`( `DOCID` ) ON DELETE Cascade ON UPDATE

Cascade;

CONSTRAINT `lnk\_JOURNAL\_ISSUE\_GEDITS\_2` FOREIGN KEY ( `ISSUE\_NO` )

REFERENCES `JOURNAL\_ISSUE`( `ISSUE\_NO` ) ON DELETE Cascade ON UPDATE

Cascade;

CONSTRAINT `lnk\_PERSON\_GEDITS` FOREIGN KEY ( `PID` )

REFERENCES `PERSON`( `PID` ) ON DELETE Cascade ON UPDATE Cascade;

-- -------------------------------------------------------------

-- CREATE TABLE "P UBLISHER" ------------------------------------

CREATE TABLE `PUBLISHER`(

`PUBLISHERID` Int( 0 ) AUTO\_INCREMENT NOT NULL,

`PUBNAME` VarChar( 255 ) NULL,

`ADDRESS` VarChar( 255 ) NULL,

PRIMARY KEY ( `PUBLISHERID` ),

CONSTRAINT `unique\_PUBLISHERID` UNIQUE( `PUBLISHERID` ) )

-- -------------------------------------------------------------

**INSERT QUERIES:**

**Add book queries:**

"INSERT INTO DOCUMENT (DOCID, TITLE, PDATE, PUBLISHERID) "

+"VALUES ("+ getfrmuser(GUI) + ",'" + getfrmuser(GUI) + "','" +

getfrmuser(GUI) + "'," + getfrmuser(GUI)+")"

"INSERT INTO BOOK (DOCID, ISBN) "

+"VALUES ("+getfrmuser(GUI)+ ",'" + getfrmuser(GUI)

INSERT INTO COPY (DOCID, COPYNO, BID, POSITION) "

+"VALUES ("+ getfrmuser(GUI) + "," + getfrmuser(GUI) + "," +

getfrmuser(GUI) + ",'"+ getfrmuser(GUI) + "')"

**Add Journal queries:**

("INSERT INTO DOCUMENT (DOCID, TITLE, PDATE, PUBLISHERID) "

+"VALUES ("+ g etfrmuser(GUI) + ",'" + g etfrmuser(GUI) + "','" +

getfrmuser(GUI)+ "'," + g etfrmuser(GUI) +")");

("INSERT INTO JOURNAL\_VOLUME (DOCID, VOLUME\_NO, EDITOR) "

+"VALUES ("+ g etfrmuser(GUI) + ",'" + g etfrmuser(GUI)+ "'," +

getfrmuser(GUI) + ")" );

("INSERT INTO JOURNAL\_ISSUE (DOCID, ISSUE\_NO, SCOPE) "

+"VALUES ("+ g etfrmuser(GUI) + ",'" + g etfrmuser(GUI)+ "','" +

getfrmuser(GUI) () + "')" );

"INSERT INTO COPY (DOCID, COPYNO, BID, POSITION) "

+"VALUES ("+ g etfrmuser(GUI) + "," + g etfrmuser(GUI) + "," +

getfrmuser(GUI) + ",'"+ g etfrmuser(GUI) + "')"

**Add proceedings:**

("INSERT INTO DOCUMENT (DOCID, TITLE, PDATE, PUBLISHERID) "

+"VALUES ("+ g etfrmuser(GUI) + ",'" + g etfrmuser(GUI) + "','" +

getfrmuser(GUI)+ "'," + g etfrmuser(GUI) +")");

"INSERT INTO PROCEEDINGS (DOCID, CDATE, CLOCATION, CEDITOR) "

+"VALUES ("+ g etfrmuser(GUI) + ",'" + g etfrmuser(GUI)+ "','" +

getfrmuser(GUI) () + "')" );

"INSERT INTO COPY (DOCID, COPYNO, BID, POSITION) "

+"VALUES ("+ g etfrmuser(GUI) + "," + g etfrmuser(GUI) + "," +

getfrmuser(GUI) + ",'"+ g etfrmuser(GUI) + "')"

**Add reader:**

"INSERT INTO READER (RID, RTYPE, RNAME, ADDRESS) "

+"VALUES ("+ g etfrmuser(GUI) + "," + g etfrmuser(GUI) + "," +

getfrmuser(GUI) + ",'"+ g etfrmuser(GUI) + "')"

**Search doc Admin:**

"SELECT \* FROM `BORROWS` WHERE DOCID = " + getfrmuser(GUI)+ " AND

COPYNO = " + getfrmuser(GUI) + " AND BID = "+ getfrmuser(GUI) + ";"

"SELECT \* FROM `RESERVES` WHERE DOCID = " + getfrmuser(GUI)+ " AND

COPYNO = " + getfrmuser(GUI) + " AND BID = "+ getfrmuser(GUI) + ";"

**Borrow:**

"SELECT `BOR\_NO`, `RID`, `DOCID`, `COPYNO`, `BID`, `BDTIME`, `RDTIME` FROM

`BORROWS` WHERE `RID` = " + getfrmuser(GUI) + ";"

**Branches:**

"SELECT `LNAME`, `LOCATION` FROM `BRANCH`;"

**Reserve:**

"SELECT `RESERVATION\_NO`, `RID`, `DOCID`, `COPYNO`, `BID`, `DTIME` FROM

`RESERVES` WHERE `RID` = " + cardNumber + ";"

**Return:**

"UPDATE BORROWS SET `RDTIME`= ' " +g etcurrenttime +"' WHERE `BOR\_NO` = ' " +

getfrmdatabase + "' AND `RID` = ' " + getfrmuser(GUI) + "';"

**Search by docid:**

( "SELECT `D`.`DOCID`, `TITLE`, `PDATE`, `D`.`PUBLISHERID`,

`P`.`PUBNAME`, `COPYNO`, `C`.`BID`, `POSITION`, `LNAME`, `LOCATION` FROM

`DOCUMENT` D, `PUBLISHER` P, `COPY` C, `BRANCH` B WHERE

`D`.`DOCID`=`C`.`DOCID` AND `C`.`BID`=`B`.`BID` AND `D`.`PUBLISHERID` =

`P`.`PUBLISHERID` AND `D`.`DOCID` = ' " + getfrmuser(GUI) + "';");

**Search by Title:**

(“SELECT `D`.`DOCID`, `TITLE`, `PDATE`, `D`.`PUBLISHERID`,

`P`.`PUBNAME`, `COPYNO`, `C`.`BID`, `POSITION`, `LNAME`, `LOCATION` FROM

`DOCUMENT` D, `PUBLISHER` P, `COPY` C, `BRANCH` B WHERE

`D`.`DOCID`=`C`.`DOCID` AND `C`.`BID`=`B`.`BID` AND `D`.`PUBLISHERID` =

`P`.`PUBLISHERID` AND `D`.`TITLE` LIKE ' %" + getfrmuser(GUI) + "%';");

**Search by publisher**:

searchResult = m.execQuery("SELECT `D`.`DOCID`, `TITLE`,

`PDATE`, `D`.`PUBLISHERID`, `P`.`PUBNAME`, `COPYNO`, `C`.`BID`, `POSITION`,

`LNAME`, `LOCATION` FROM `DOCUMENT` D, `PUBLISHER` P, `COPY` C,

`BRANCH` B WHERE `D`.`DOCID`=`C`.`DOCID` AND `C`.`BID`=`B`.`BID` AND

`D`.`PUBLISHERID` = `P`.`PUBLISHERID` AND `P`.`PUBNAME` LIKE ' %" +

getfrmuser(GUI) + "%';");

**Top Borrows:**

"SELECT `DOCID`, COUNT(\*) FROM `BORROWS` GROUP BY DOCID ORDER BY

COUNT(\*) DESC LIMIT + getfrmuser(GUI) +;"

**Top 10 popular books:**

"SELECT `DOCID`, COUNT(\*) FROM `BORROWS` WHERE YEAR(BDTIME) = 2016

GROUP BY DOCID ORDER BY COUNT(\*) DESC LIMIT 10;"

**Top Readers:**

"SELECT `RID`, COUNT(\*) FROM `BORROWS` GROUP BY RID ORDER BY

COUNT(\*) DESC LIMIT 10;"

SOURCE CODES: