

use library;

create table librarian(librarian_ID varchar(8) not null, First_Name varchar(32) not null, Last_Name varchar(32) not null, Address varchar(128) not null, Email varchar(64), Gender char(3) not null, primary key(librarian_ID));

create table library_member(user_ID varchar(8) not null, First_Name varchar(32) not null, Last_Name varchar(32) not null, Address varchar(128) not null, Email varchar(64), Gender char(3) not null, Birthdate varchar(32) not null, Age int not null, librarian_ID varchar(8), primary key(user_ID), foreign key(librarian_ID) references librarian(librarian_ID));

create table author(author_ID varchar(8) not null, First_Name varchar(32) not null, Last_Name varchar(32) not null, Gender char(3) not null, primary key(author_ID));

create table publisher(publisher_ID varchar(8) not null, publisher_name varchar(64) not null, primary key(publisher_ID));

create table form(form_ID varchar(8) not null, form_name varchar(64) not null, primary key(form_ID));

create table book(book_ID varchar(12) not null, book_name varchar(64) not null, book_edition varchar(32), genre varchar(16) not null, copies_available int not null, isBorrowed varchar(6) not null, author_ID varchar(8) not null, publisher_ID varchar(8) not null, form_ID varchar(8) not null, primary key(book_ID), foreign key(author_ID) references author(author_ID), foreign key(publisher_ID) references publisher(publisher_ID), foreign key(form_ID) references form(form_ID));

create table borrowed(book_ID varchar(12) not null, user_ID varchar(8) not null, date_borrowed varchar(16) not null, date_due varchar(16) not null, primary key(book_ID, user_ID), foreign key (book_ID) references book(book_ID), foreign key (user_ID) references library_member(user_ID))

create table reserved(book_ID varchar(12) not null, user_ID varchar(8) not null, reserve_date varchar(16) not null, primary key(book_ID, user_ID), foreign key (book_ID) references book(book_ID), foreign key (user_ID) references library_member(user_ID))

Relational Schema

Library_Member(User_ID, First_Name, Last_Name, Birthdate, Age, gender, email, address, *Work_ID*)

Librarian(Work_ID, First_Name, Last_Name, Email, Address, Gender)

Book(Book_ID, Book_Name, isBorrowed, Copies_available, Book_Edition, Genre, *Author_ID*, *publisher_ID*, *form_ID*)

Publisher(Publisher_ID, Publisher_Name)

Form(Form_Name, Form_ID,)

Author(Author_ID, Gender, First_Name, Last_Name,)

Borrowed(Book_ID+User_ID, date_borrowed, date_due, Book_ID, User_ID)

Reserve(Book_ID+User_ID, reserve_date, Book_ID, User_ID)

Changes: we removed reserve_date from the borrowed relation, because it was redundant.

Queries

-- Average Age of Library Members

Select avg(Age) as average_age from library_member

	average_age	
▶	16.6000	

-- How many members are above 20 years of age

Select count(Age) as Over_20 from library_member where Age > 20;

	Over_20	
▶	6	

-- How many members are male

Select count(Gender) as number_of_men from library_member where Gender = 'M';

	number_of_men	
▶	13	

-- What form of the book shows up in the database the most?

Select form_name as most_form from form as t where t.form_ID = (select max(distinct(form_ID)) from book);

	most_form	
▶	MP3	

-- What books are in genre "romance"?

Select book_name as Romance_Books from books where genre = "Romance";

	Romance_Books	
▶	lorem	
▶	amet	
▶	consequat	
▶	Praesent	
▶	non	

-- How many books did user 104275 borrow?

Select count(Book_ID) as books_borrowed from borrowed where user_ID = 104275;

	books_borrow...	
▶	1	

-- What book was written by author 3641?

Select book_name as book_written_by_author from book where author_ID = 3641;

	book_written_by_aut...	
▶	facilisis	

-- How many books are not being borrowed?

Select count(isBorrowed) from book where isBorrowed = "No"

	count(isBorrowe...	
▶	14	

-- Total books available

Select sum(copies_available) from book

	total_available	
	592	

-- Percentage of number of books in each genre in the database

Select genre, count(genre)/25 as percentage from book group by genre

	genre	percentage	
▶	Romance	0.2000	
	Action	0.1600	
	Drama	0.2000	
	non-fiction	0.1200	
	Horror	0.1600	
	Educational	0.1600	

RELATIONS

	publisher_ID	publisher_name	
▶	3150	Simon	
	3394	Penguin	
	4158	Reed	
	4360	TCK	
	4710	Harper	

	user_ID	First_Name	Last_Name	Address	Email	Gender	Birthdate	Age	librarian_ID
▶	104275	Heather	Graves	593-4383 Molestie Av.	erat.etiam@yahoo.edu	F	Jun 5, 2003	12	121674
	126698	Sean	Hurst	372-5001 Velit St.	natoque@icloud.net	M	Dec 25, 2007	14	271400
	148838	Zenaida	Bradley	715-9722 Sem Ave	porttitor.scelerisque@aol.com	F	Oct 27, 2007	14	712911
	159629	Nayda	Nieves	4092 Egestas. Road	vivamus.molestie@protonmail.edu	F	Dec 1, 2004	18	542202
	163463	Abra	Copeland	6769 Aliquam Rd.	donec@hotmail.ca	F	Jun 20, 2005	17	920720
	234695	Desiree	Austin	547-2846 Cras Rd.	nonummy.ipsam.non@protonmail.org	F	Jan 28, 2004	19	800688
	363683	Heather	Herrera	629-2932 Dolor Rd.	ridiculus.mus@icloud.edu	F	Mar 15, 2009	14	799556
	413147	Ira	Pratt	P.O. Box 909, 2924 Ac Rd.	vestibulum.ut@outlook.org	F	Jan 27, 2006	17	755442
	415616	Otto	Porter	3839 Nulla St.	vivamus.rhonus@google.edu	M	Jul 7, 2010	12	920720
	418132	Maite	Sullivan	P.O. Box 954, 9465 Luctus St.	donec.non@icloud.ca	M	Feb 1, 2001	22	787808
	437224	Cyrus	Gould	4744 Diam. Street	tincidunt.neque@outlook.edu	F	May 23, 2003	19	636603
	499263	Kenneth	Woods	658-5042 Ornare, Ave	semper.et@hotmail.edu	M	Jul 19, 2010	12	755442
	534953	Lacota	Franklin	352-7054 Nascetur St.	sed.consequat.auctor@yahoo.org	F	Nov 22, 2006	16	732834
	554655	Rhea	Barnes	991-1159 Vulputate, Av.	mauris.quis@icloud.couk	F	May 20, 2000	22	470499
	614367	Timon	Bond	927-5216 Risus, St.	orci.ut.sagittis@hotmail.ca	M	Aug 14, 2001	22	920720
	616514	Knox	Wagner	595-1961 Enim. Avenue	mauris.non@yahoo.couk	M	Aug 13, 2007	14	732834
	668621	Drake	Jimenez	Ap #664-8983 Aliquet Street	mauris.vel@icloud.com	M	Nov 18, 2008	14	347087
	690218	Hedley	Beasley	129-7282 Eget, Ave	amet@aol.org	M	Jun 25, 2010	12	347087
	751687	Sebastian	Barnett	Ap #663-867 Pede, St.	felis.donec@google.net	M	Nov 23, 2002	21	315033
	827075	Jennifer	Robertson	4228 Vestibulum Rd.	quisque.fringilla@yahoo.couk	F	Jul 7, 2008	14	712911
	847914	Drake	Johns	6223 At, Avenue	at.pretium.aliquet@outlook.org	M	Jan 18, 2010	13	906303
	857971	Hunter	Houston	Ap #522-1472 Donec Road	imperdiet.non@protonmail.edu	M	Sep 21, 2008	14	755442
	892585	Brock	Ortiz	807-1207 Sit Av.	sed.et.libero@yahoo.couk	M	Mar 3, 2004	19	872021
	953368	Guinevere	Mitchell	Ap #107-8347 A Avenue	quisque.porttitor@outlook.ca	M	Nov 7, 2000	22	271400
	964843	Rina	Carter	9813 Semper. Avenue	quisque.ac.libero@outlook.ca	F	Mar 5, 2001	22	920720

	book_ID	user_ID	reserve_date	
▶	3128	827075	20-Apr	
	3518	415616	19-Apr	
	3568	892585	23-Apr	
	3587	499263	18-Apr	
	3632	163463	23-Apr	
	3635	148838	19-Apr	
	3760	857971	20-Apr	
	3893	668621	22-Apr	
	3998	953368	20-Apr	
	4085	554655	21-Apr	
	4193	616514	20-Apr	
	4300	534953	20-Apr	
	4334	104275	23-Apr	
	4361	363683	18-Apr	
	4364	751687	23-Apr	
	4484	234695	23-Apr	
	4538	690218	18-Apr	
	4555	614367	20-Apr	
	4613	437224	19-Apr	
	4650	964843	21-Apr	
	4735	159629	22-Apr	
	4783	413147	23-Apr	
	4819	847914	20-Apr	
	4863	126698	23-Apr	
	4938	418132	20-Apr	

	librarian_ID	First_Name	Last_Name	Address	Email	Gender
▶	121674	Roth	Villarreal	7759 Nunc Road	duis@hotmail.org	M
●	271400	Guinevere	Mitchell	Ap #107-8347 A Avenue	quisque.porttitor@outlook.ca	M
●	315033	Sebastian	Barnett	Ap #663-867 Pede, St.	felis.donec@google.net	M
●	347087	Anthony	Carey	3441 Libero. Ave	rhoncus.proin.nisl@yahoo.edu	M
●	470499	Bruno	Hess	573-6220 Non Rd.	sed.molestie@hotmail.ca	M
●	500621	Mason	Hardin	9139 Tincidunt. Rd.	magna.ut.tincidunt@protonmail.net	M
●	505251	Mary	Oliver	723-1723 Tellus. St.	non.feugiat.nec@google.org	F
●	516577	Abbot	Sargent	Ap #251-6835 Arcu Av.	velit.quisque@hotmail.couk	F
●	538633	Julian	Hull	938-878 Ornare, Avenue	eget.massa.suspendisse@outlook.ca	M
●	542202	Emmanuel	Benson	6336 Adipiscing. St.	nisi.dictum.augue@google.org	M
●	622681	Joel	Price	P.O. Box 543, 920 Con...	curae.phasellus@yahoo.edu	M
●	636603	Hilel	York	5489 Eu Rd.	egestas.lacinia.sed@hotmail.couk	F
●	671421	Burke	Morales	Ap #505-3588 Cubilia Av.	quisque.ac@outlook.net	M
●	712911	Jayme	Cunningh...	955-7863 Donec Avenue	et.magnis@aol.edu	M
●	732834	Veda	Ballard	P.O. Box 439, 9679 Ne...	elit.nulla@aol.edu	F
●	738134	Wang	Lang	364-9877 Fusce St.	at@outlook.org	M
●	755442	Wang	Oliver	Ap #131-454 Ac, St.	odio.sagittis@google.couk	M
●	787808	Maite	Sullivan	P.O. Box 954, 9465 Lu...	donec.non@icloud.ca	F
●	799556	Ryan	Lara	679-6751 Ac Rd.	purus.in.molestie@outlook.ca	M
●	800688	Linda	Salas	8617 Odio St.	turpis.egestas.fusce@protonmail.ca	F
●	803184	Hakeem	Good	Ap #951-8414 Quis Rd.	senectus.et.netus@aol.ca	M
●	872021	Oleg	Hurst	P.O. Box 645, 7757 Fel...	dis.parturient@aol.net	F
●	897339	Lesley	Marshall	P.O. Box 429, 2733 Nat...	orci.in@aol.ca	F
●	906303	Matthew	Woods	P.O. Box 625, 8115 A,...	dignissim.maecenas@icloud.edu	M
●	920720	Alden	Vaughn	267-3227 Vitae St.	cursus.diam@aol.ca	M

	form_ID	form_name	
▶	4201	Articles	
●	4203	MP4	
●	4349	PDF	
●	4586	Book	
●	4673	MP3	

	book_ID	user_ID	date_borrow...	date_due	
▶	3128	827075	Apr 9 2022	Apr 16 2022	
	3518	415616	Apr 15 2022	Apr 25 2022	
	3568	892585	Apr 13 2022	Apr 25 2022	
	3587	499263	Apr 8 2022	Apr 25 2022	
	3632	163463	Apr 16 2022	Apr 7 2022	
	3635	148838	Apr 7 2022	Apr 16 2022	
	3760	857971	Apr 6 2022	Apr 25 2022	
	3893	668621	Apr 7 2022	Nov 17 2022	
	3998	953368	Apr 6 2022	Nov 17 2022	
	4085	554655	Apr 2 2022	Apr 25 2022	
	4193	616514	Apr 8 2022	Nov 17 2022	
	4300	534953	Apr 8 2022	Apr 16 2022	
	4334	104275	Apr 10 2022	Apr 25 2022	
	4361	363683	Apr 1 2022	Apr 25 2022	
	4364	751687	Apr 17 2022	Apr 16 2022	
	4484	234695	Apr 4 2022	Nov 17 2022	
	4538	690218	Apr 5 2022	Apr 16 2022	
	4555	614367	Apr 17 2022	Nov 17 2022	
	4613	437224	Apr 7 2022	Apr 25 2022	
	4650	964843	Apr 4 2022	Apr 25 2022	
	4735	159629	Apr 15 2022	Apr 25 2022	
	4783	413147	Apr 4 2022	Apr 25 2022	
	4819	847914	Apr 11 2022	Nov 17 2022	
	4863	126698	Apr 14 2022	Apr 20 2022	
	4938	418132	Apr 9 2022	Apr 25 2022	

	book_ID	book_name	book_edition	genre	copies_available	isBorrowed	author_ID	publisher_ID	form_ID	
▶	3128	lorem	2	Romance	6	Yes	4059	3150	4201	
●	3518	vestibulum	3	Action	28	No	3775	3150	4586	
●	3568	sit	1	Drama	7	No	3756	4158	4203	
●	3587	facilisis	2	non-fiction	45	Yes	3641	4360	4586	
●	3632	sollicitudin	1	non-fiction	37	No	4941	3150	4586	
●	3635	rutrum	3	Drama	6	No	4534	4710	4673	
●	3760	interdum	3	Horror	8	No	3614	4360	4349	
●	3893	tincidunt	3	Drama	17	Yes	4521	4158	4673	
●	3998	quam	2	Drama	19	No	3854	4360	4349	
●	4085	amet	3	Romance	18	No	4290	4158	4349	
●	4193	consequat	4	Romance	27	Yes	4965	4158	4586	
●	4300	sodales	1	Educatio...	33	No	4983	4710	4673	
●	4334	facilisis	3	Educatio...	4	Yes	4485	3394	4673	
●	4361	a	4	Action	28	No	4532	3150	4349	
●	4364	non	2	Horror	23	Yes	4504	4158	4203	
●	4484	arcu	4	Drama	35	Yes	4279	4360	4203	
●	4538	Ut	2	non-fiction	36	No	4324	4710	4349	
●	4555	et	4	Action	38	No	4270	3394	4673	
●	4613	fames	3	Educatio...	38	Yes	4879	3394	4201	
●	4650	magnis	3	Educatio...	15	Yes	4163	4158	4673	
●	4735	eget	2	Horror	20	No	3802	4158	4203	
●	4783	Praesent	4	Romance	26	No	3823	3394	4203	
●	4819	non	3	Romance	25	Yes	4438	4158	4201	
●	4863	consequat	1	Action	31	No	4281	3394	4673	
●	4938	dolor	3	Horror	22	Yes	4323	3394	4203	

	author_ID	First_Name	Last_Name	Gender	
▶	3614	Jael	Terrell	F	
	3641	Clayton	Gibson	F	
	3756	Guy	Logan	M,	
	3775	Octavius	Brooks	F	
	3802	Ina	Vang	F	
	3823	Joelle	Phelps	F	
	3854	Orla	Vaughan	F	
	4059	Maxwell	Roberts	M,	
	4163	Heather	Cameron	M,	
	4270	Gage	Carrillo	F	
	4279	Vernon	Mayo	F	
	4281	Imelda	Mayo	F	
	4290	Laith	Hutchinson	M,	
	4323	Leslie	Woodward	M,	
	4324	Gil	Alvarado	M,	
	4438	Jerome	Roach	F	
	4485	Lane	Payne	F	
	4504	Kennan	Carney	M,	
	4521	Ima	Flynn	F	
	4532	Callum	Stokes	F	
	4534	Baxter	Butler	F	
	4879	Virginia	Tucker	F	
	4941	Dacey	Chase	F	
	4965	Susan	Booker	F	
	4983	Iris	Lee	M,	