Database Design: Laboratory Management System

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Database selected: **MySQL**

Reason to select the MySQL as database: As this system's database have relationship between data stored in different tables then it is best suitable to use the MySQL database because it is relational database and is much less complex to set up and administer than larger systems. As well as having such great features as following:
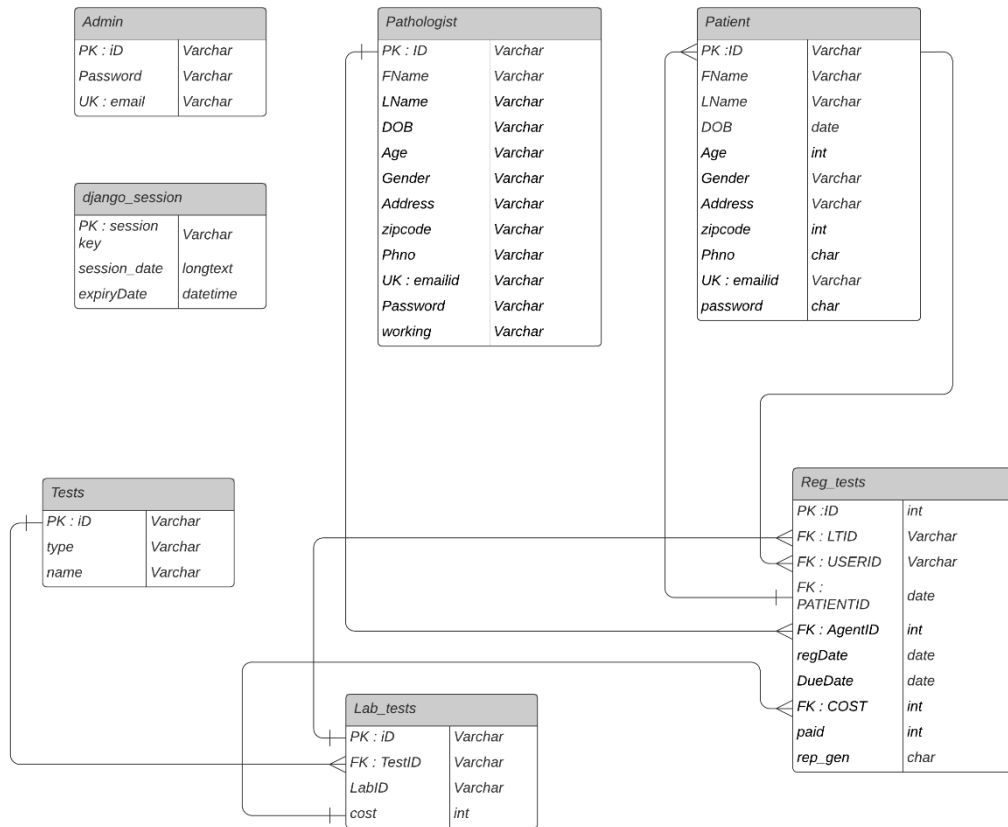
- Query language support.
- Capability
- Connectivity and security
- Portability
- Small size
- Availability and cost
- Open distribution and source code

Tables used:

1. Admin
2. Patient
3. Pathologist
4. Lab_tests
5. Tests
6. Reg_tests
7. Django_session

ER Model:

Admin

PK : iD	Varchar
Password	Varchar
UK : email	Varchar

django_session

PK : session key	Varchar
session_date	longtext
expiryDate	datetime

Pathologist

PK : ID	Varchar
FName	Varchar
LName	Varchar
DOB	Varchar
Age	Varchar
Gender	Varchar
Address	Varchar
zipcode	Varchar
Phno	Varchar
UK : emailid	Varchar
Password	Varchar
working	Varchar

Patient

PK :ID	Varchar
FName	Varchar
LName	Varchar
DOB	date
Age	int
Gender	Varchar
Address	Varchar
zipcode	int
Phno	char
UK : emailid	Varchar
password	char

Tests

PK : iD	Varchar
type	Varchar
name	Varchar

Reg_tests

PK :ID	int
FK : LTID	Varchar
FK : USERID	Varchar
FK : PATIENTID	date
FK : AgentID	int
regDate	date
DueDate	date
FK : COST	int
paid	int
rep_gen	char

Lab_tests

PK : iD	Varchar
FK : TestID	Varchar
LabID	Varchar
cost	int

Table's structure:

1. Admin table structure:

#	Name	Type	Collation	Attributes	Null	Default
1	ID	varchar(15)	latin1_swedish_ci		Yes	NULL
2	password	char(32)	latin1_swedish_ci		Yes	NULL
3	emailid	varchar(25)	latin1_swedish_ci		No	None

2. Patient table structure:

#	Name	Type	Collation	Attributes	Null	Default
1	ID	varchar(10)	latin1_swedish_ci		No	None
2	FName	varchar(15)	latin1_swedish_ci		No	None
3	Lname	varchar(15)	latin1_swedish_ci		Yes	NULL
4	DOB	date			No	None
5	Age	int(11)			Yes	NULL
6	Gender	varchar(6)	latin1_swedish_ci		No	None
7	Address	varchar(20)	latin1_swedish_ci		Yes	NULL
8	zipcode	int(11)			Yes	NULL
9	phno	char(15)	latin1_swedish_ci		No	None
10	emailid	varchar(25)	latin1_swedish_ci		No	None
11	password	char(32)	latin1_swedish_ci		No	None

3. Pathologist table structure:

#	Name	Type	Collation	Attributes	Null	Default
1	ID 🔑	varchar(10)	latin1_swedish_ci		No	None
2	FName	varchar(15)	latin1_swedish_ci		No	None
3	Lname	varchar(15)	latin1_swedish_ci		Yes	NULL
4	DOB	varchar(255)	latin1_swedish_ci		No	None
5	Age	varchar(11)	latin1_swedish_ci		Yes	NULL
6	Gender	varchar(6)	latin1_swedish_ci		No	None
7	Address	varchar(255)	latin1_swedish_ci		Yes	NULL
8	zipcode	varchar(11)	latin1_swedish_ci		Yes	NULL
9	phno	varchar(255)	latin1_swedish_ci		No	None
10	emailid	varchar(255)	latin1_swedish_ci		No	None
11	password	varchar(255)	latin1_swedish_ci		No	None
12	working	varchar(3)	latin1_swedish_ci		Yes	YES

4. Lab_tests table structure:

#	Name	Type	Collation	Attributes	Null	Default
1	ID 🔑	varchar(10)	latin1_swedish_ci		No	None
2	TestID	varchar(10)	latin1_swedish_ci		No	None
3	LabID	varchar(10)	latin1_swedish_ci		No	None
4	Cost	int(11)			No	None

5. **Tests table structure:**

#	Name	Type	Collation	Attributes	Null	Default
1	ID 🔑	varchar(10)	latin1_swedish_ci		No	None
2	Type	varchar(20)	latin1_swedish_ci		No	None
3	Name	varchar(30)	latin1_swedish_ci		No	None

6. **Reg_tests table structure:**

#	Name	Type	Collation	Attributes	Null	Default
1	ID 🔑	int(11)			No	None
2	LTID	varchar(10)	latin1_swedish_ci		No	None
3	UserID	varchar(10)	latin1_swedish_ci		No	None
4	PatientID	varchar(10)	latin1_swedish_ci		No	None
5	AgentID	varchar(10)	latin1_swedish_ci		No	None
6	RegDate	date			No	None
7	DueDate	date			No	None
8	cost	int(11)			No	None
9	paid	int(11)			No	None
10	rep_gen	char(3)	latin1_swedish_ci		Yes	NO

7. **Django_session table structure:**

#	Name	Type	Collation	Attributes	Null	Default
1	session_key 🔑	varchar(40)	utf8mb4_general_ci		No	None
2	session_data	longtext	utf8mb4_general_ci		No	None
3	expire_date 🔑	datetime(6)			No	None

Uses of tables:

1. **Admin table:** it is used to store the admin user login and all other details
2. **Patient table:** It is used to store the patient login and all other details
3. **Pathologist table:** It is used to store the pathologist login and all other details
4. **Reg_tests table:** It is used to store all the tests registered by the patients
5. **Lab_tests table:** it is used to store the tests with its related lab id
6. **Tests table:** it is used to store the all-tests details like name, price etc performed by the laboratory
7. **Django session table:** it is used to store the users session info.