Case Study: ER – Diagram

Consider a Medical Laboratory application which lets the patients register themselves to view the tests, book appointments etc.

They can even opt for home services according to their requirements. The admin maintains all the records as tables .

All the details pertaining to Medical Laboratory  application are stored in the form of relations.

Few of the relations mentioned below,

* Patient: details of patients such as name, age gender, etc
* Technician: details of technicians who performs the tests.
* Doctor: details of doctor who attends the appointments.
* Test: details of tests done such as name,price
* TestReport: details of the medical test Report.
* Appointment: details of booking appointments.

**Problem Statement 1: Enlist all the Entities and Attributes.**

**Patient: patientId,patientFirstName,patientLastName,ages,gender,patientPhoneNumber,patientEmail**

**Test:testId,testName,category,price**

**Doctor: doctorId,doctorFirstName,doctorLastName,doctorPhoneNumber,doctorEmail**

**Technician:technicianId,technicianFirstName,technicianLastName,technicianPhoneNumber,technicianEmail**

**TestReport: testReportId, patientId, technicianId,doctorId,price**

**Appointment:appointmentId,doctorId,patientId,testId,date timeSlot**

**Problem Statement 2: Identify the candidate key, primary key and foreign keys for the above relation.**

**Table                             primary Key                              Foreign Key                              Candidate key**

**Patient                           patientId                                                                                        patientPhoneNumber,phoneEmail**

**Test                                testId                                                                                            testName**

**Doctor                          doctorId                                                                                         doctorPhoneNumber,doctorEmail**

**Technician                    technicianId                                                                                  technicianPhoneNumber,technicianEmail**

**TestReport                    testReportId                      patientId,technicianId,testId**

**Appointment                appointmentId                    patientId,doctorId,testId**

**Problem Statement 3: Draw the ER model for the above relation.**

**Problem Statement 4: Identify the Degree of Relationships and Cardinality of all identified relationships.**

Consider the above ER-Diagram pertaining to Retail application scenario and answer the questions below:

1. How many entities are present? Name those entities.
2. There are 6 entities,they are Patient,doctor,Test,Technician,Appointment,TestReport
3. How many relationships are present? Name those relationships.
4. There are 5 relationShips they are patient-has-TestReport,Doctor-has-Appointments,patient-takes-appointment,techncian-tests-testReport,test-has-testReport
5. Mention the degree of all identified relationships.
6. Cardinality of all identified relationships.