SCHOOL DATABASE

PROJECT REPORT

Submitted for the course: Database Management System (ITE1003)

By

(Name of the Students)

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Certificate

This is to certify that the project entitled,

*"**School Data Base System**"*

Submitted by

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*In partial fulfilment of the requirements for the "***J COMPONENT***"*

*of "***THEORY AND PROJECT BASED LEARNING"** *in DATABASE MANAGEMENT SYSTEM***"** *for "***FALL SEM2017-18***" at the "***VIT UNIVERSITY,VELLORE***" is an authentic work carried out by them under my supervision and guidance.*

To the best of my knowledge, the matter embodied in the project has not been submitted to any other University / Institute for the award of any Degree or Diploma.

DATE: **03-11-2017**

PROF. SARAVANKUMAR K.

ACKNOWLEDGEMENTS

I would like to express my special thanks of gratitude to my teacher **PROF. SARAVANAKUMAR K**

who gave me the golden opportunity to do this wonderful project on the topic "**SCHOOL DATABASE"** which also helped me in doing a lot of Research and I came to know about so many new things I am really thankful to them. Secondly, I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time. I am making this project not only for marks but to also increase my knowledge. THANKS AGAIN TO ALL WHO HELPED ME!!

Abstract

An organised and systematic solution is essential for all school systems. All the modules for the school are interdependent and they are maintained manually. So the need is to be automated and centralised one. Information from on e module are needed by other one. Many problems related to the management of their teachers and courses to teach can be solved. They need a lot of time to capture huge amounts of data using MS Excel which is so difficult to use, where the user has to memorize all the features of the tool and it is not easy and can be the results of various errors which causes delays in their work. . There are also data management, maintaining good relationships with parents of students and other school partners who are not as easy for them. This work was designed to provide a solution that can solve such problems.

To achieve our research, we have to resort to the prototype model that allowed us to address the various stages of the creation of software to include analysis, design, development and testing of software.

Conceptual Schema

Student(SID,SFName,SMName,SLName,city,State,)

Guardian(GRS,GName,GMob)

School(SName,Address,School_code,SContact_no)

Subject(SubID,book,Period_ID)

Exam(EName,Year,Date,SubjectID)

Fees_detail(SID,Bill_no,Date_of_pay,Month,Year)

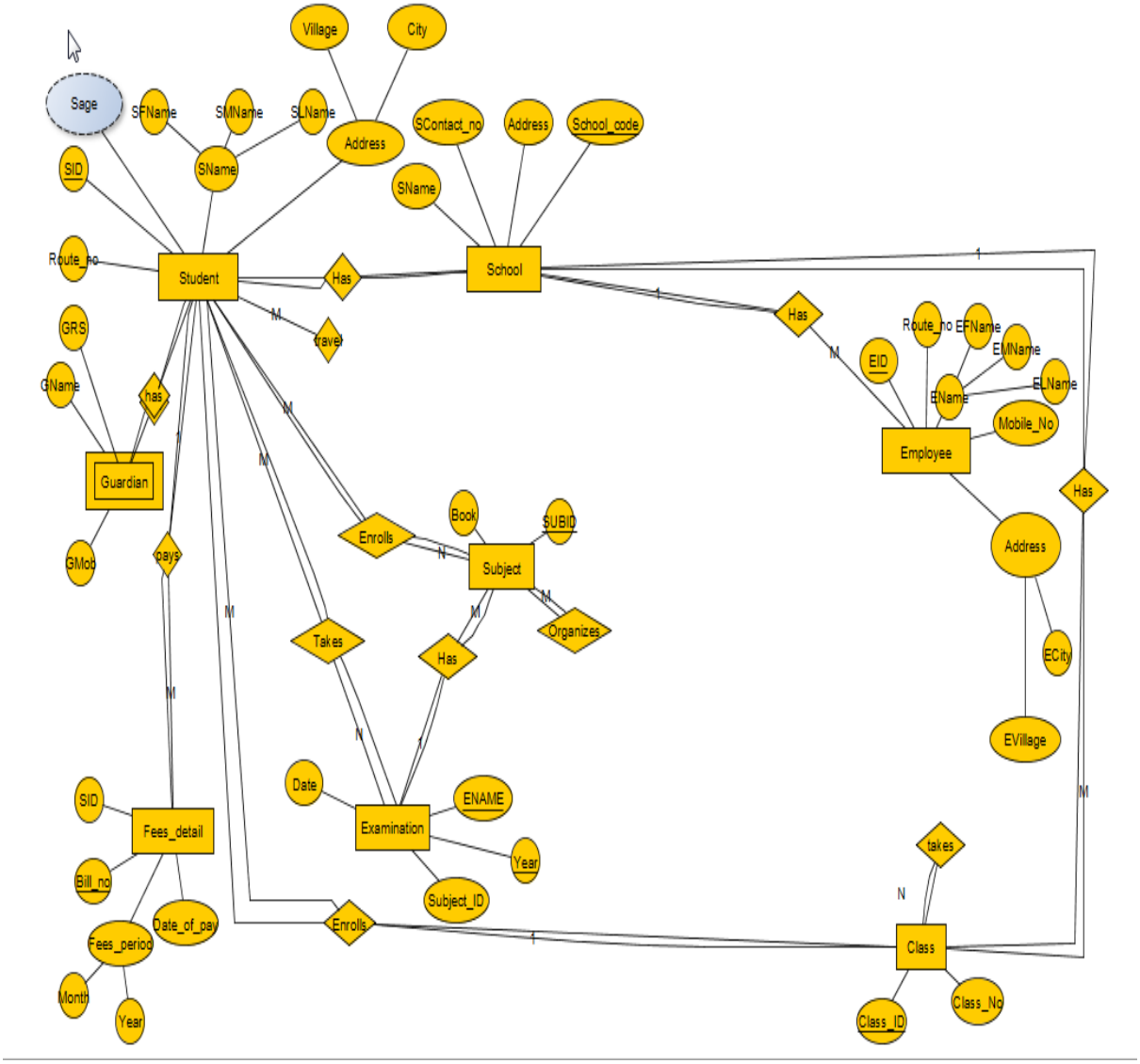
Class(ClassID,SCode,Class_no)

Employee(EID,SCode,EFName,EMName,ELName,Mobile_no,Address)

ER Diagram

Assumptions for ER-Diagram:
While drawing the ER diagram for primary school, we had some assumption which is as follows:-

- There is no elective /optional subject for any of the class in primary school.
- In school, only one guardian name will be mentioned in database and hence it is one-to-one relationship.
- One student cannot be associated with more than one class. Where as in one class, many number of student will be studying.
- One teacher can teach in several classes and in one class several teachers can teach different subjects and hence it is "many-to-many" relationship.
- One student can be thought by many teacher and vice-versa is also acceptable and hence it is "many-to-many" relationship
- One student need to pay fee every month, so that one student need to pay fee several time
- In entity student and teacher, age is derived attribute which can be derived by the date of birth.
- Since guardian is not directly involved in the process of teaching in school we consider it as week entity



Student_Subject Relationship-

Cardianlity-

One student has many subjects and also many subjects are taught to by one student.

Participation-

All the students take some subjects and also all subject are taken by students. So these entities so total participation in the relationship.

TimeTable_Class Relationship

Cadinality-

One Class has many periods and in one timetable one period has many classes.

So this relationship is many to many relationship.

Participation-

All classes has some timetable and in each timetable all cases are there.

Relational Schema

Student(SID,SFName,SMName,SLName,City,Village,TID,Class_ID,SCode,)

Guardian(SID,GRS,GName,GMob)

School(SName,Address,School_code,SContact_no)

Subject(SubID,book,EID,Period_ID)

Exam(EName,Year,Date,SubjectID)

Fees_detail(SID,Bill_no,Date_of_pay,Month,Year)

Class(ClassID,SCode,Class_no)

Employee(EID,SCode,EFName,EMName,ELName,Mobile_no,City,Village)

Many to many relationship

Student_subject(SID,SUBID)

Employee_class(EID,Class_ID,noOS)

1.Student Details

SID	SFNmae	SMName	SLName	village	city	TID	ClassID
1	Manu	Kumar	Singh	katpadi	Varanasi	2	2A
2	Neha		Verma	Jalalpur	Kanpur		3B
3	Sanatanu	Kumar		Jhabra	Varanasi		9C
4	Akash		Singh	Hathi	Varanasi	4	10A
5	Shivam	Kumar		Jansa	Varanasi	8	2C

Since we have deduced the student table from ER Diagram, the given table is already in First Normal Form as it contains only single value for each and every attribute. All attributes of Student are atomic attributes.

Every non key attribute is fully dependent on candidate key of the relation. So, the given table is already in Second Normal Form OR we can directly say that Since table contains only one primary key, the given table is already in Second Normal Form.

Transitive Dependency- A transitive dependency can occur only in a relation that has three or more attributes.

Since there is no transitive dependency, the table is already in Third Normal Form

Boyde – Codd Normal Form

Since there is only one key, the table is already in Boyce-Codd Normal Form.

2.School Details

School is uniquely defined by SCode

$SCode^{+}$ =(SCode,SContact,AddressSName)

It is in already BCNF

As it contains only single value for each and every attribute

And also the non-key attributes are fully functionally dependent on SCode the primary key

Also there is no transitive dependency

LHS of functional dependency are the candidate key

3.Employee -

EID^{+}=(EID,EFName,EMName,ELName,EMob,Street,City,Qualificatio, Post)

It contains only single value for each and every attribute. All attributes of Employee are atomic attributes.

Every non key attribute is fully dependent on candidate key of the relation. So, the given table is already in Second Normal Form OR we can directly say that the relation contains only one primary key, the given table is already in Second Normal Form.

Transitive Dependency- A transitive dependency can occur only in a relation that has three or more attributes.

Since there is no transitive dependency, the relation is already in Third Normal Form

Boyde – Codd Normal Form

Since there is only one key, the relation is already in Boyce-Codd Normal Form.

4. Class-

$(SCode,ClassID)^{+}$=(<u>ClassID</u>,SCode,ClassNo)

All property are single and simple valued so it in 1NF

The non key attribute class no is defined by ClassID and not by both Scode and ClassID

So we decompose

5.1(<u>ClassID</u>,ClassNo)

5.2(<u>ClassID,Scode</u>)

There is no transitive dependency on non key attributes

LHS of the two above functional dependency are the candidate keys

So it is now in 3NF and also in BCNF.

5.Guardian

SID^{+}=(SID,GName,GMob)

The relationship already in BCNF as the non key attributes are fully functionally dependent on Key and there is no transitive dependency and LHS of the relationship is the primary key. The table is already normalized.

6. Fee-Detail

Billno^{+}=(BillNo,SID,Month,Year,Date_of_pay)

The given functional dependencies satisfies all the requirement of the BCNF as all property are the single and simple valued, the non key attributes are fully functionally dependent on the key attributes, no transitive dependency and also the LHS of the dependency are the candidate keys.

7.Exam-

(EName,Year)$^{+}$=(EName,Year,SubjectID,Date)

Decomposition as there is transitive dependency

Year^{+}=Year,Date

Year,Ename^{+}= EName,Year,SibjectID

a)All property are single and simple valued

b) The non key attributes are fully functionally dependent on the key attributes

c) Now no transitive dependency and also the LHS of the dependency are the candidate keys.

8.Subject

SUBID^{+}=(SUBID,Book)

a) All properties are single and simple valued

b) The non key attributes are fully functionally dependent on the key attributes

c) No transitive dependency and also the LHS of the dependency are the candidate keys.

Hence the given closure is BCNF and no more decomposition required.

9.Student_Subject

(SID,SUBID)$^{+}$=(SID,SUBID)

The given relationship is in BCNF as it satisfies the following condition

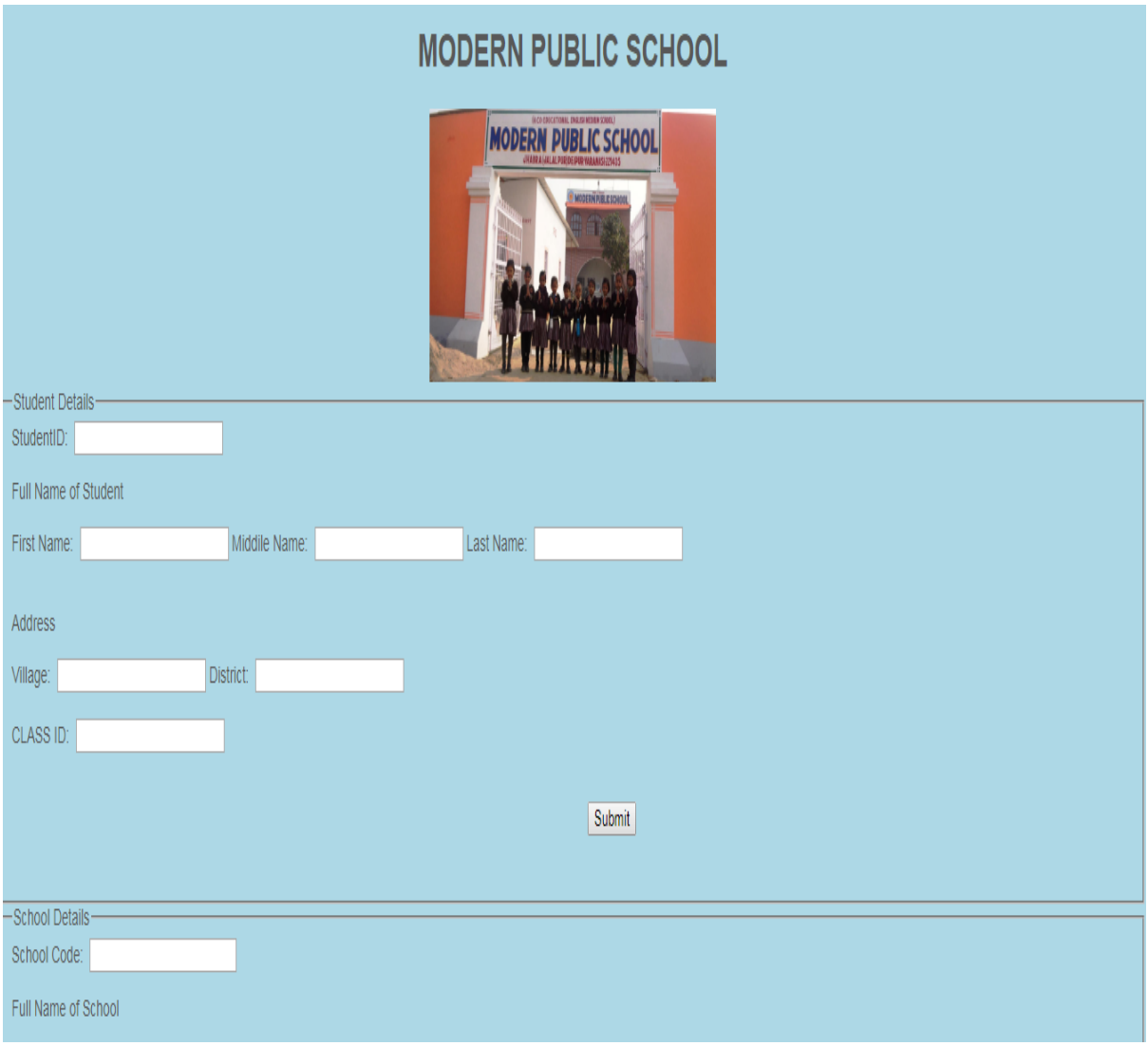
a) All properties are single and simple valued

b) The non key attributes are fully functionally dependent on the key attributes

c) No transitive dependency and also the LHS of the dependency are the candidate keys.

Final Deployment

Some Snapshots of webpage(application form)



Employee Details

Employee ID

Full Name of Employee

First Name Middile Name Last Name

Address

Village District

Mobile Number

Submit

Subject Details

SUBJECT ID

Book Name

Book Name

Submit

Fees Details

SID

Bill no

Fees Period

Month Year

Snapshot of the database server created on local host by Xampp