The Development of a School Management Software Module

Atul Sharma   Ali Qasim   Omead Hussain Agha

Department of Banking & Financial Sciences,Cihan University, Erbil

Abstract

In the near future, Jim Corbett School will have a larger number of students as the number of students is increasing every year as the population of the city grows. Key to Jim Corbett School success will be to have an automated system which can take care of most of tedious manual efforts put in by the personnel. We need to adopt a quick and efficient system to take care of all our manual time consuming exercises. The development and implementation of an automated system will lead to better time management. On the other hand it will also bring in the efficiency in most of the covered fields. This solution will involve the development of a relational database in the FileMaker Pro software platform. To achieve this goal, significant efforts will need to be invested in the development of an all-encompassing process flow diagram. This development will lead to the development of repository tables in which data will be collected and stored. The integration of these repository tables into the process flow diagram will lead the developer to the establishment of a data relationship map; hence a relational database has been proposed as a potential solution to the management of the school with respect to development growth. Successful completion of the relational database solution will involve the development of agile scripting, a software development style in which the developer controls the user's fate through clever manipulation of the user's navigational and transactional options within the database dashboard.

2b Table of Contents

3a <u>And then there was light</u>:

The use of database software always interested the author of this project. As it is rightly said that '**necessity is the mother of invention**' the same was found true in the case of Jim Corbett School. Henceforth it was agreed upon to automate various processes of the school which was all being done manually in registers earlier. Many useful applications were defined & written to handle multiple data applications. For example, to view the current Fees structure a simple database was defined & implemented with the option to share it as well.
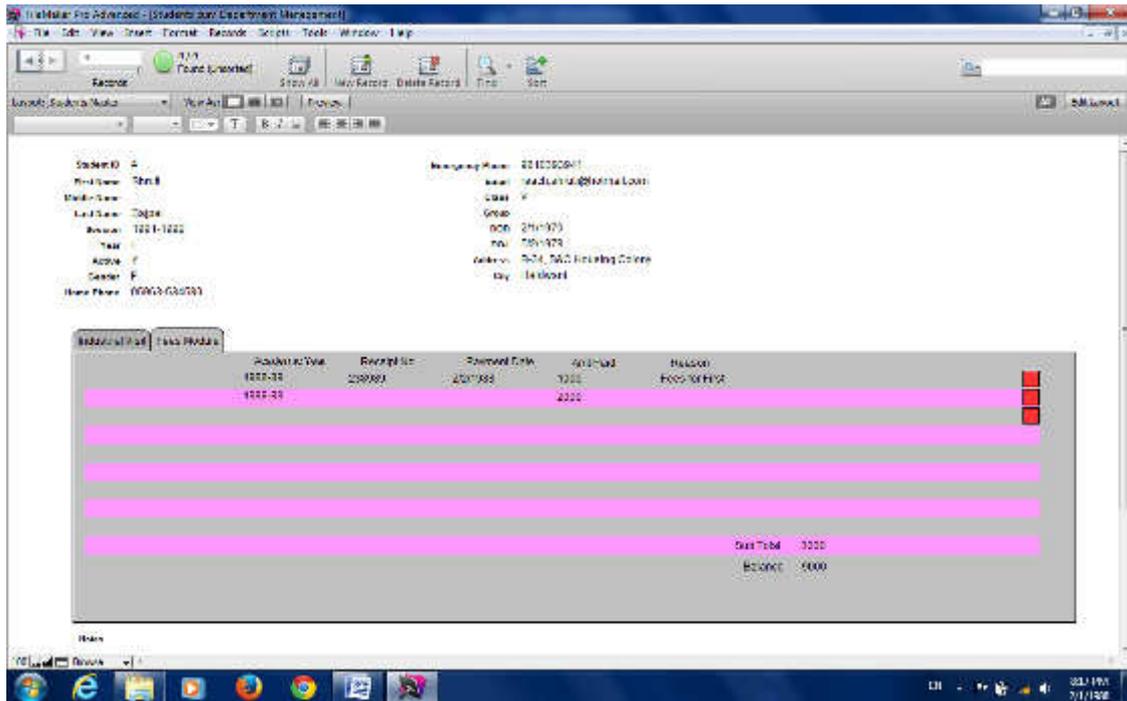
Figure 1: Current status of student Fees
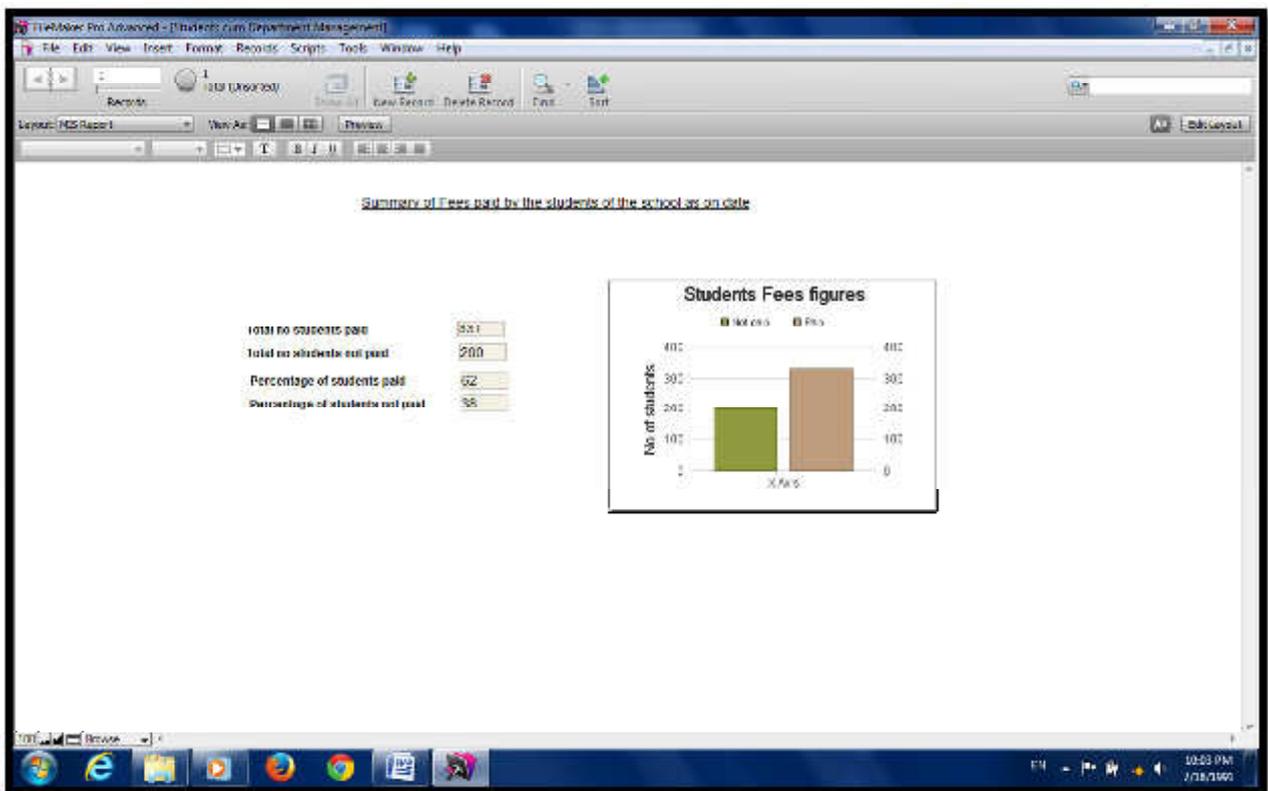
Figure 2 - Graphical representation of student fees

3b About FileMaker Pro

FileMaker Pro is a cross-platform relational database application from FileMaker Inc., formerly Claris, a subsidiary of Apple Inc. It integrates a database engine with a GUI-based interface, allowing users to modify the database by dragging new elements into layouts, screens, or forms.

FileMaker evolved from a DOS application, but was then developed primarily for the Apple Macintosh. Since 1990 it has been available for Microsoft Windows and Mac OS, and can be used in a cross-

platform environment.

FileMaker Pro is an application that allows you to store and organize information in a database and to search and report out on that information. Sometimes FileMaker Pro is referred to as a database solution because it fulfills both storage and reporting needs!

4a About the Institution (Jim Corbett School):
Name of Institution: Jim Corbett School
Affiliation Number: 3530269
Address: Polysheet, Tedhi Pulia, Kathgodam, District (Nainital), Uttaranchal.
Postal Address: same as above
Contact Phone Number: +91-5946- 222325.
Name of Principal/ Head of Institution Ms. Reena Sharma, M.A., M.Ed

4b. Mission & Vision of Jim Corbett School: Education is more than an investment. Gone are the days when parents and families decided upon the school based on proximity to home, stringent and from friend's opinions. What percentage of parents will be ready to choose a school? Where overall development of child of children is focused upon rather than treating kids as rank procuring machines? Although many may claim that when choosing the best CBSE School or a matriculation school, child's overall development is the parent's concern, they certainly do not want to let go of the top priority for academics.

Keeping this in mind Jim Corbett School, Kathgodam began its voyage with just 100 students in the year 1982. However with the untiring attempts of the staff members, zealous performance of the students and constant support of the parents this small beginning became big and touched the pinnacle of success.

At Jim Corbett Secondary School, Kathgodam, we are committed to the pursuit of excellence. We channelize the potential of the child to the optimum so that he becomes a successful professional, a good citizen and above all an asset to the human society.

The school's vision encompasses life's vision for us, we at Jim Corbett School believe:

"Life's battle don't always go,
To the stronger and faster man,
But sooner or later the man who wins
Is the man who thinks he can"
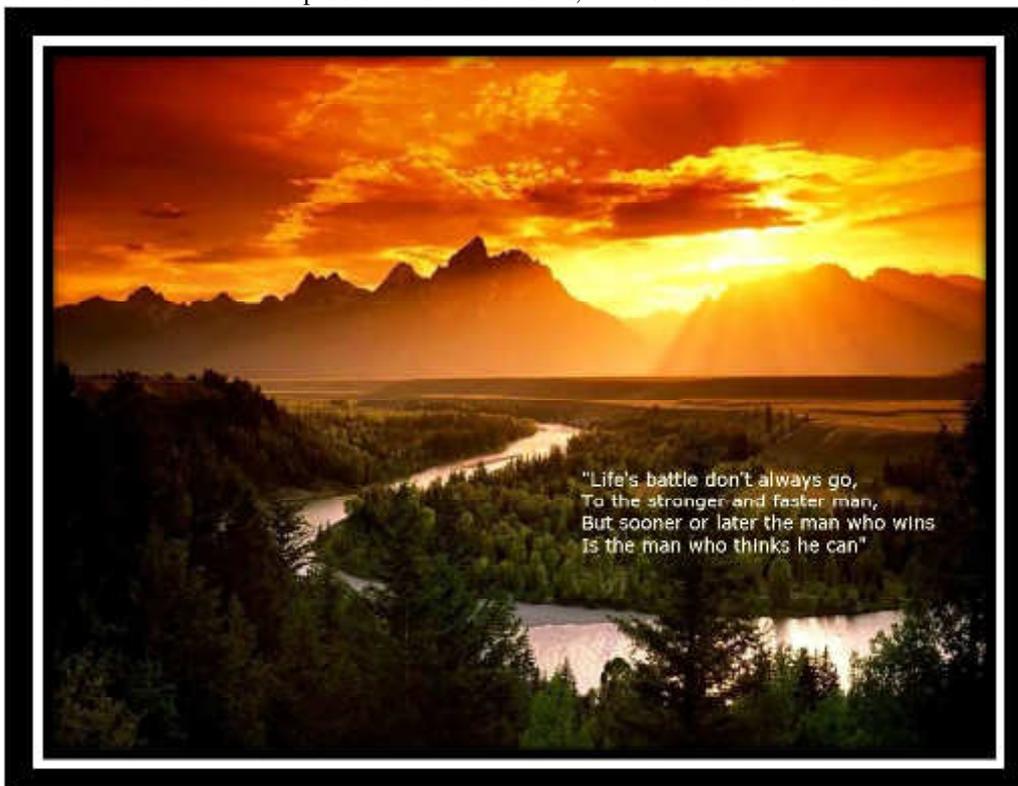
Figure 3 - Vision of the School

Striving hard for excellence is the prime objective of every student at Jim Corbett Senior Secondary School, Kathgodam. Once you stop learning, you cease to grow. Therefore the school's main objective is to see that it becomes absolutely necessary for a student to plan, prepare and perform well right from the beginning.

Every child is potentially the light of the world …… We, at Jim Corbett Secondary School ignite that fire within the child so that he can fly with the wings of fire and reach out greater heights …..

4c. About Jim Corbett School (Pictorial View):
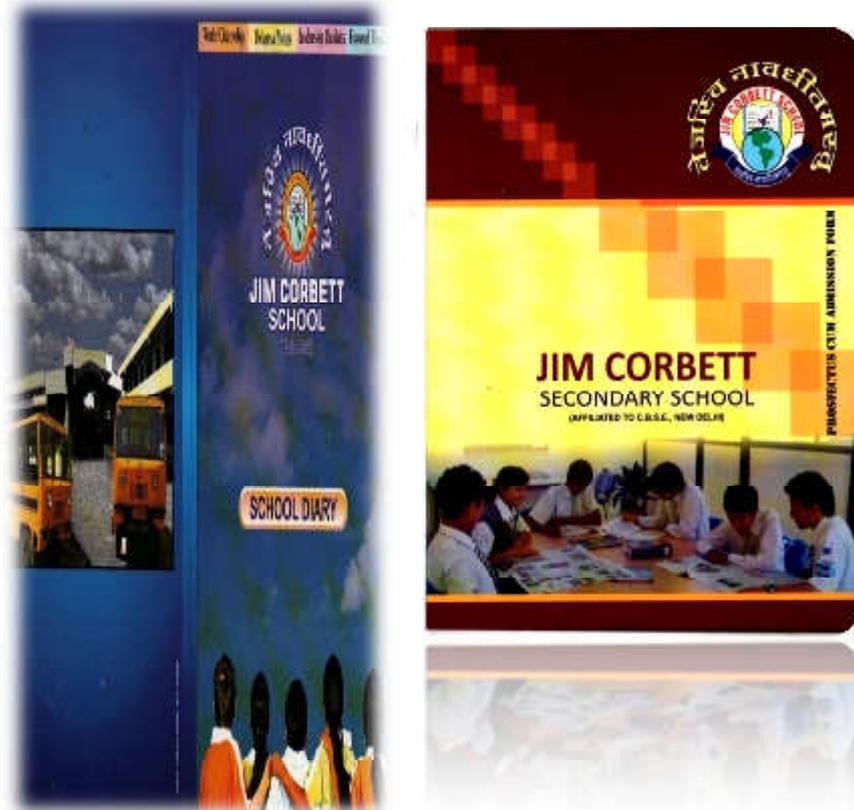
Figure 4: Some pictures of the school

Figure 5: Background of the school (pictures)
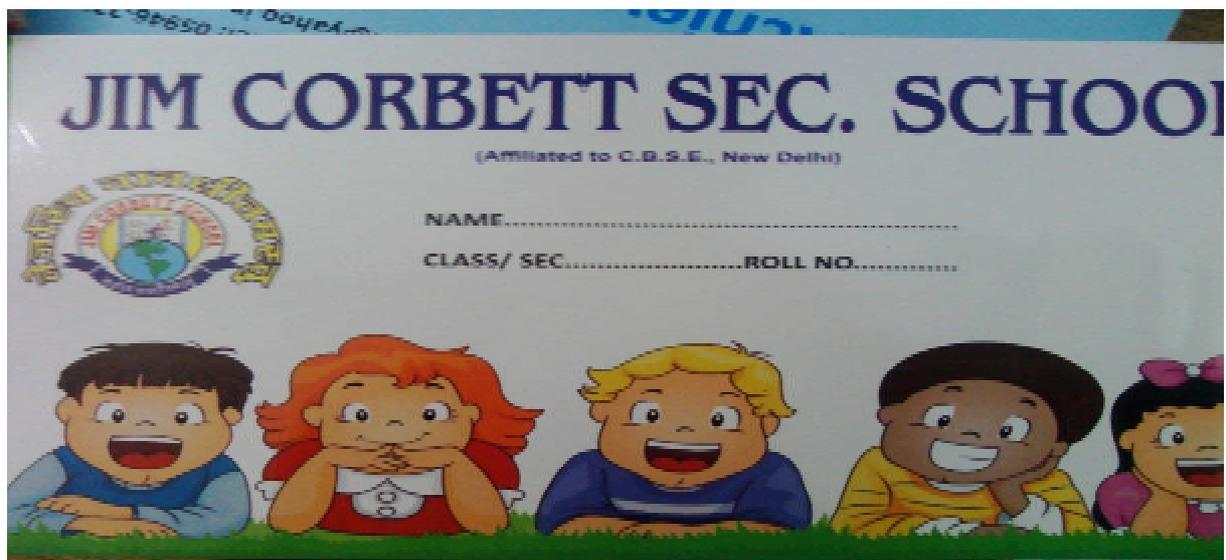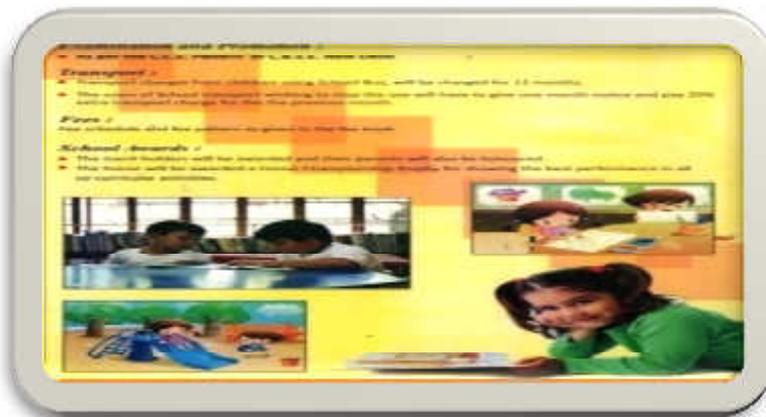
Figure 7: School Diary
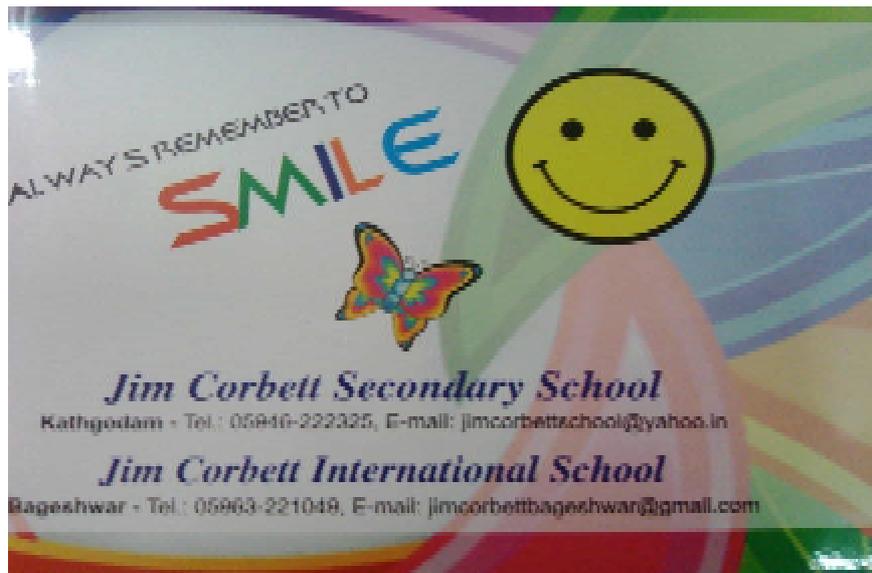
Figure 8: School Diary

Figure 9: School Diary

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Figure 10 - Marks record register maintained manually in the school

Figure 11 - Daily assignment register maintained manually

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Figure 12: Attendance record register maintained manually

Figure 13: Teacher's Diary maintained manually

5a. The Evolution of Database Systems

 "Database management systems were first introduced during the 1960s and have continued to evolve during subsequent decades.

In early 1960's, database structure was comprised of traditional flat files. Much of this effort was driven by the Apollo moon landing project. During this period initial standardization was initiated by a Data Base Task Group.

In the 1970's, database management became a commercial reality. Hierarchical and network database management systems were developed largely to cope with increasingly complex data structures such as manufacturing bills of materials. During this decade the relational model was first defined by E. F. Codd, an IBM research fellow, in a paper published in 1970.

In the 1980's, computing power allowed code writers to develop the Structured Query Language

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(SQL), a valuable tool which enabled the use of fast and efficient data retrieval.

In the 1990's, the appearance of first generation client / server computing and the Internet drove database structures to increasingly more important roles. To cope with increasingly complex data (including graphics, sound, images, and video), object-oriented database structure was developed and refined, and by the year 2000, artificial intelligence became a reality."

5 b A basic review of database theory

A database, in its simplest form, is an "organized collection of logically related data. It is important to note that raw data on its own cannot be considered a database; however organized data (i.e., information) is most commonly associated with a database because it leads a user to increased knowledge." Central to a database is the connection or, better stated, the relationship between the data.

In a database, a set of data is grouped in a TABLE. Thus a table is a repository of data in a form of records. The figure below describes the dataset in two unique tables, Table (Husband) and Table (Wife). For each table there are six unique records.

Record	Table (Husband)		Record	Table (Wife)
1	Jeff		1	Sandy
2	John		2	Mary
3	Jack		3	Beth
4	Rob		4	Sarah
5	Michael		5	Ann
6	Charlie		6	Julie

Figure 14: Example of two sets of Tables

5ba The Relationship between the dataset

Records in one table can be related to records in a second table via a common connection: The Relationship. The relationship between data can be divided into two different groups, one-to-one relationship and one-to-many relationships.

5bai The "One-to-One" Relationship

In its simplest form, records in one table can be related to records in a second table in a "one-to-one" relationship. Using the example below, a set of data in the "Husband" table is related to a set of data in the "Wife" table as follows:

Record	Table (Husband)
1	Jeff
2	John
3	Jack
4	Rob
5	Michael
6	Charlie

Record	Table (Wife)
1	Sandy
2	Mary
3	Beth
4	Sarah
5	Ann
6	Julie

Figure 15: One-to-one relationship between two sets of tables

6. Project Goal:

The goal of any academic project would be mainly to speed up the entire education process (cycle) encompassing the school. This statement is applicable mainly to those academic institutions where much of the constructive time is lost in going about all manual clerical work. We keep on doing the same things again & again manually which results in much waste of time & money. We need to find a set of automation tools which result in efficiency and accuracy of regular job work related to the school. It has been found that organizations that do not automate their systems & procedures are unable to compete in this competitive world.

Just imagine of the country like Singapore doing the insurance services for its citizens without the use of Technology. It was a big mess before the computerization of the entire process. Now we find things moving in a right direction with the involvement of the Technology. Look at the example of a report generated by the system using Foxpro system below which makes our life so simple.

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Figure 16: A sample insurance report generated using foxpro

FileMaker as the name indicates is a very effective integrated development set of tools involving the following activities:-

- *Recording (data)*
- *Maintaining (data)*
- *Presenting (information)*

As shown in the figure 17 we input Data into the computer system. This data is processed in the system with the help of processor in the computer. The end product of the entire cycle is the Information.

Figure 17 - Block Diagram of Computer System

As in our Student Management System we have the data in the form of:

- *Details of students*
- *Detail of marks*
- *Detail of attendance*

Now we can integrate all these by the use of one of the most popular relational database called FileMaker which can be used very effectively in the following types of Networks:

- Local Area Network
- Wide Area Network
- Web

Student Data				
Roll No	Name	Class	Section	Age
1011	Rajesh Kumar	A	B	25
3022	Ajay Saxena	B	A	27
5011	Rishabh Dogra	C	B	24

Marks Statement		
Roll No.	Computers	AI
5011	24	32
3022	34	25
1011	40	32

Attendance	
5011	90%
3022	75%
1011	83%

Figure 18 – Three data tables

Now we can very conveniently relate all these three tables which have data to produce the output (information) which is useful for us:

Student Data					Marks		Attendance
Roll No	Name	Class	Deptt	Age	Computers	AI	%
1011	Rajesh Kumar	A	BUS	25	40	32	83
3022	Ajay Saxena	B	BNK	27	34	25	75
5011	Rishabh Dogra	C	IT	24	24	32	90

Figure 19 – Setting up relationship between Tables

7.0 About Institute of Management Technology (known as IMT):

Figure 20 - Institute of Management Technology, Ghaziabad

Institute of Management Technology abbreviated as **IMT**, is a private business school with its main campus at Ghaziabad, Uttar Pradesh, India. It is consistently ranked as one of the best business schools in India.

IMT is a fully autonomous university and offers several post graduate, doctorate and executive education programs in management. In addition to its main academic programs IMT also offers distance learning and collaborative programs.

IMT Ghaziabad is especially renowned for its marketing related courses and has been ranked 5th in the 'Marketing' by Economic Times (2011 rankings). Apart from this it is well known for its International Linkages and has been ranked 5th in the same by CNBC- TV18 (2013 rankings).

IMT has four campuses: The first one is in Ghaziabad (established in 1980); the second campus is in Nagpur (established in 2004); a third campus in Dubai (established in 2006) and a fourth campus

in Hyderabad (established in 2011).

IMT Nagpur has been conceptualized as a centre for corporate excellence. The IMT Dubai campus is primarily for international education.

- IMT Ghaziabad
- IMT Nagpur
- IMT Dubai
- IMT Hyderabad
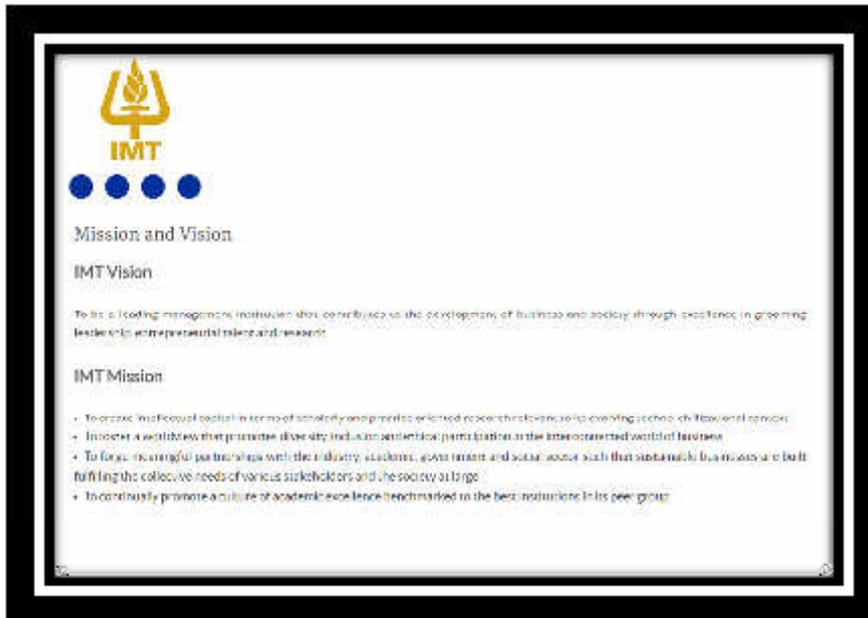
Figure 21 - IMT Vision & Mission Statement

8. <u>About the school management application (Smart Class)</u>:

We have majorly four ways to execute/run our application.

1. We install full version of Filemaker in the concerned system. We can invoke any related application with the click of a button.
2. We create a runtime file (exe) of our application & install it in different systems. This process is called 'compilation' in the computer terminology.
3. We have the option to share it over the Local Area Network (LAN). All the users connected to the same network can access the common application with great ease.
4. Further we also have the option to share our application over the web.

In order to make the interface more user friendly for the end user we can create a shortcut to execute the application as shown below:-
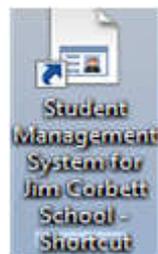
Figure 22 - Shortcut to invoke our application

We can invoke the Student Management System known as '**SMART CLASS**' by clicking on the shortcut which can be placed anywhere in our system. When we click on this shortcut our full screen application can be accessed as shown in Figure 12.

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Figure 23: Main Screen (Smart School)

On clicking the shortcut from the desktop which we have created as per page no. 37 we get the screen (Main Screen) as shown above.

Our main screen comprises of:-
- ✓ FileMaker main screen
- ✓ Logo and title of our application
- ✓ A sunset picture
- ✓ Two push buttons namely :-
    a. Main Menu (to access Main Menu)
    b. Exit (to quit the application)

This is a very simple screen which has been made on a basic building block called layout in FileMaker. It is like a canvass for making screens. These layouts form one of the main building blocks in the FileMaker applications. On clicking the Main Menu as shown in the Figure 23 we navigate to the following screen which we call as Charms Menu in our case:
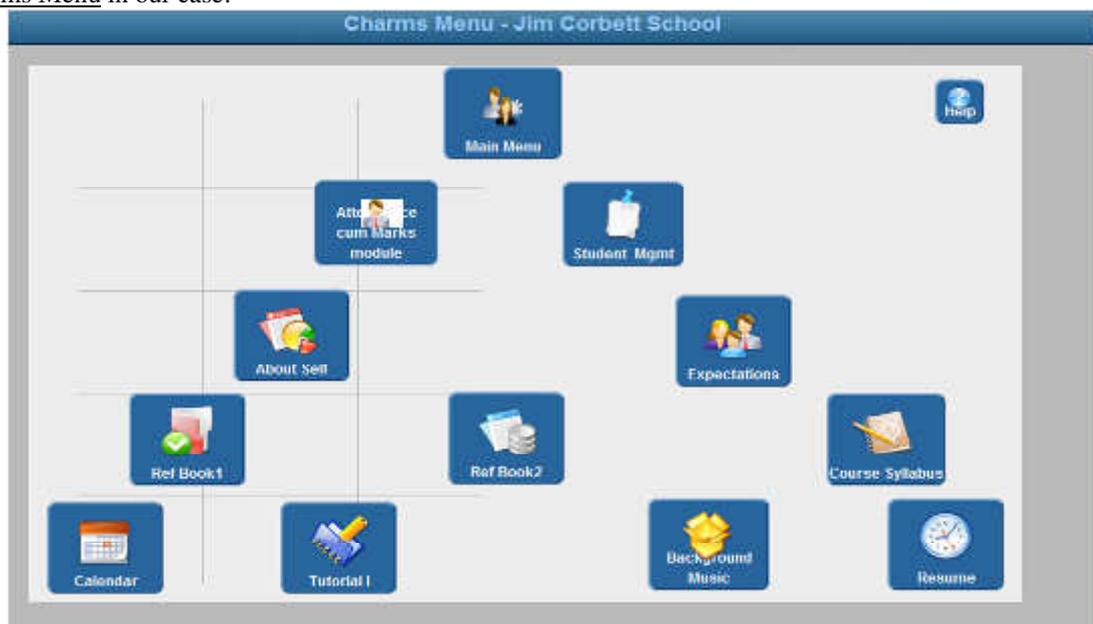
Figure 24: Charms Menu

Charms Menu as shown above comprises of the following modules:

S.No	Module Name	Function
1	Main Menu	Option to go back to our main screen of the application.
2	Attendance cum marks	Recording of daily attendance of students as well as marks scored by the students in respective exams.
3	Student Management	Integrated Fees module
4	About Self	Brief description about self
5	Expectations from students	Expectations from students in brief
6	Ref. Book 1	Description of reference book required
7	Ref. Book 2	Description of reference book required
8	Course Syllabus	Course outline
9	Calendar	Recording of daily activities
10	Tutorial	Offline course video
11	Background Music	Option to play background music at a right time
12	Resume/Philosophy	Here we may incorporate teachers details like resume/philosophy etc.

Figure 25 – Main choices of Charms menu explained

8a Main Menu: This option takes us to the main menu of the application as shown in Figure 23 above.

8b Attendance cum marks module: - This is the most important module dealing with the regular attendance of each student. Here we record the daily attendance of each student based on physical presence or absence in the respective class. We can classify the daily attendance in following three options:

S.No.	Status	Description
1	P	Present
2	A	Absent
3	L	Leave

Figure 26 – Various choices for the attendance

Here we can also mark the students as 'Late' as well. We also have an option to record a special comment date wise. This can be very useful for any reference later on. Further we record the attendance of the students based on the portal which is one of the most important feature of FileMaker Pro.

We have the option to add/delete any portal row which reflects the status of attendance of a student on a particular day which can be any of the three values (P/A/L) as explained in Figure 24. These days can be sorted on the basis of any field or a combination of fields. Here we can filter the records as well, based on any condition. For example if we wish to display the records for the month of January and the year 1992. We can apply this condition as shown in following figure. Here we can also specify if portal rows can be deleted or not. We also have the option to display or not display the vertical scroll bar. We can also specify the number of rows to be displayed in the portal. We can also fill color of our choice. The rows can be updated (sorted) automatically in case of any update (add or delete).

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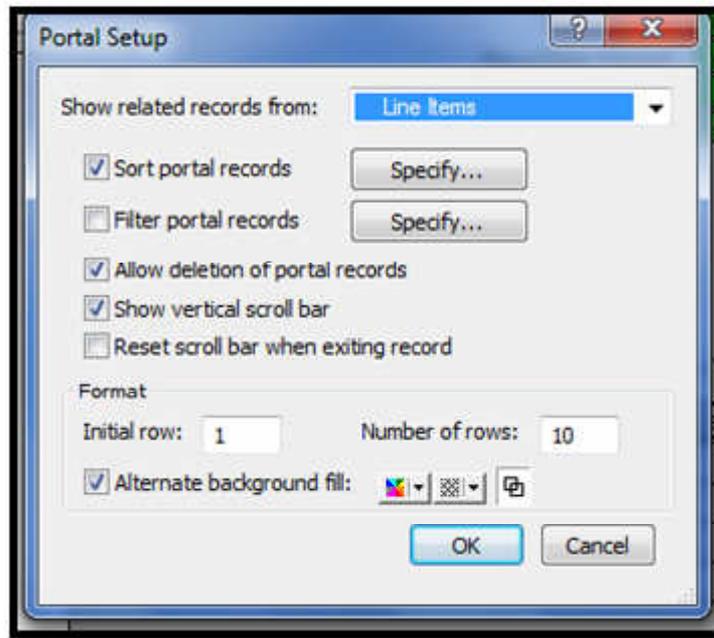
Figure 27: Portal explained
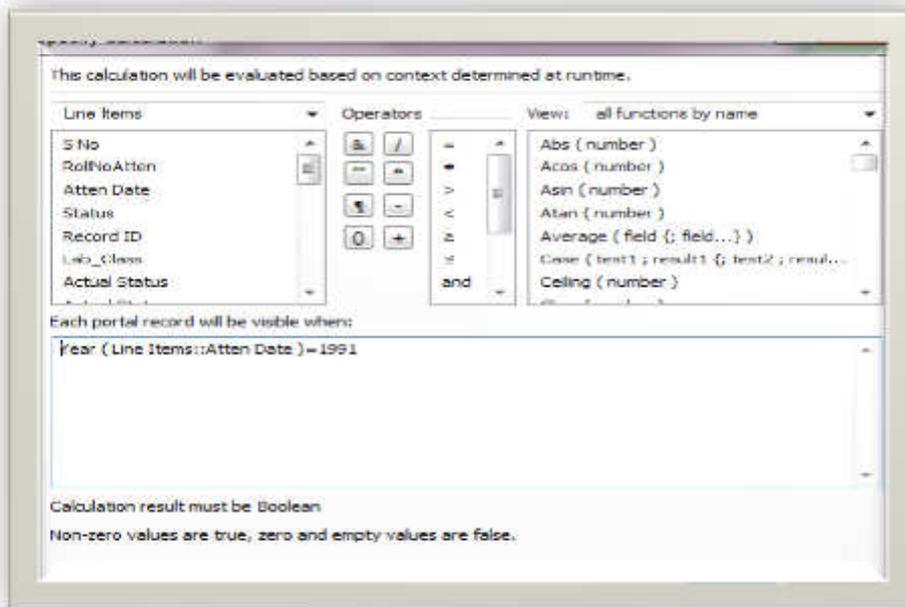
Figure 28: Specifying condition in Portal

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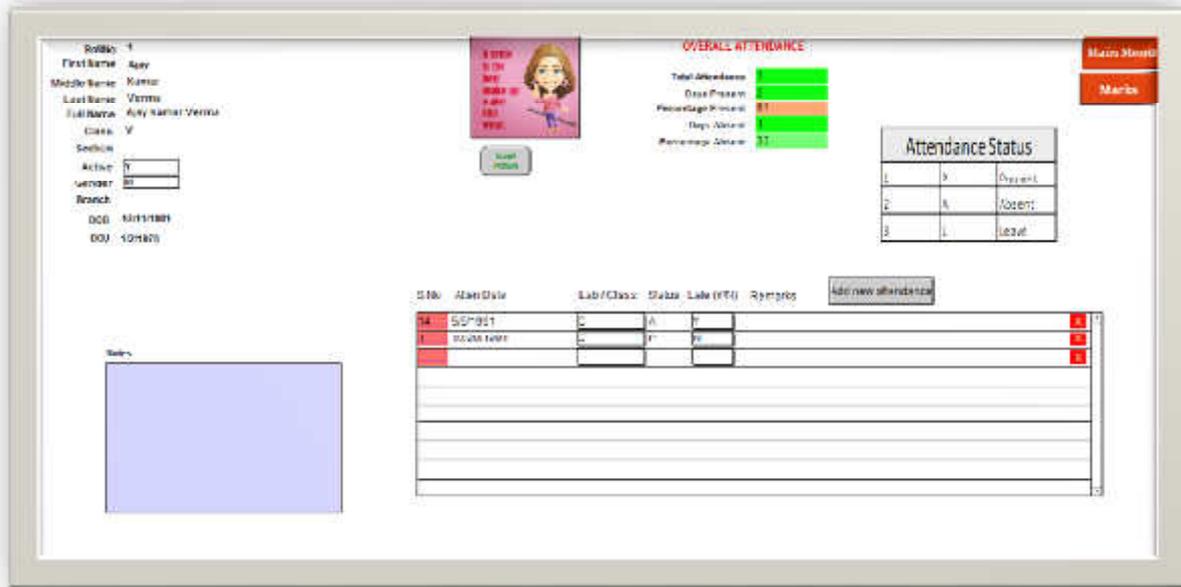
Figure 29- Filter for year=1991

8c <u>Student Management</u>: - This module is majorly related to the commercial aspect of the school. Here we can very easily record all the inflow of the funds. This module records the breakup of fees paid by the students. This means it acts like a ledger of accounts showing the amount paid/unpaid by the students at any moment of time. It is like a master-detail relationship between the students & the fees component. At any given moment of time we can get to know the exact financial status of each & every student. For more details please refer to the section 'And then there was light' explained earlier on page number 10.
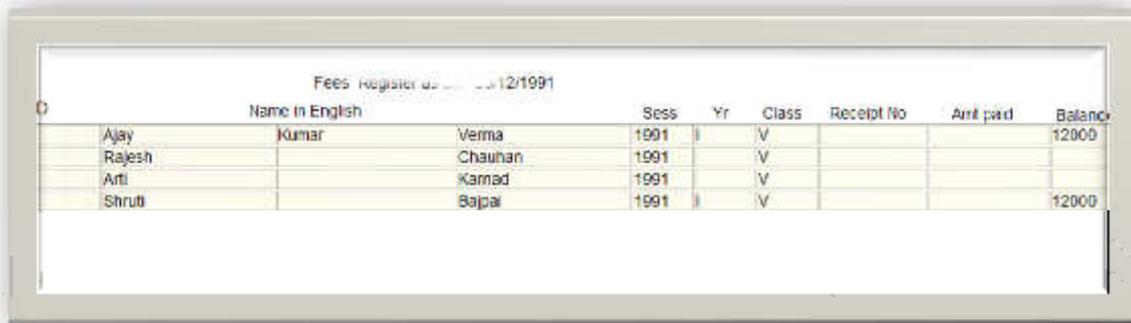
Figure 30- Students Fees Register

8d. <u>About Self</u>: This page is like '*breaking the ice*' between the teacher & the students. The teacher briefly discusses his/her profile with the students covering the points like the name, qualifications, experience, languages, contact details etc. It helps to build a stronger relation between the teacher & the students. Students can get to know about their teacher's personal details like name, qualifications, experience & contact details about the teacher for future reference. An intelligent teacher shares his/her details with the students to have a better communication between the two. Communication plays an important role in any perfect teamwork. If the soccer players know about the captain then it would result in a better overall understanding between the two.
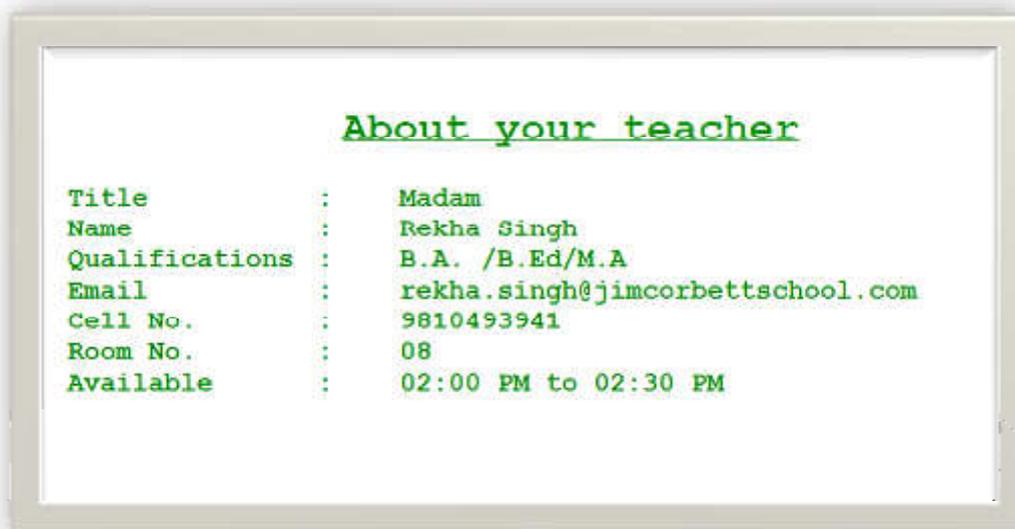
Figure 31 – About teacher

8e. Expectations from students: - Setting up the right expectations at a right time is the key to success. A teacher is very well able to convey the message to the students in a right manner. It helps in developing better relationship between the students and the teachers. It is like the summary of some do's & don'ts. It helps to eradicate later misunderstanding between the teacher & the students.

S.No	Details
01	Regular Attendance is a must for every student. Anything less that 95% not accepted.
02	Five minutes grace allowed. No entry in the class after that.
03.	Please read text books. Don't ask for any other material from the instructor.
04.	Ask any questions related to the subject before the Exams. Don't ask for any help during Exams.
05.	Marks for attendance, class participation & quiz would be given on performance.
06.	Keep silence in the class.
07.	In case of leave please take written approval from Dr. Nasrat (HOD).
08.	Finish your assignments on time.
09.	Please come with notebooks/pens in the class.
10.	Please write your names/roll no. etc in ENGLISH.
11.	All mobiles to be silent/off during the class.
12.	Please visit library for reference book / internet.
13.	Availability in Room No. 6012 / Library

Figure 32 - Expectation from students

8f Reference Book I: This module talks about the prescribed reference book for the concerned subject as recommended by the school authorities/board. It is always better to carry the book digitally rather than carrying it physically. We can very easily embed the picture of the book for the reference of the students. We can also link a copy of eBook with the system. The student can take picture of the book. The teacher can also email the cover page of the book to all the students in one go using FileMaker send mail feature which has been explained in point no. 3 i.e. Student Management Module of the application.
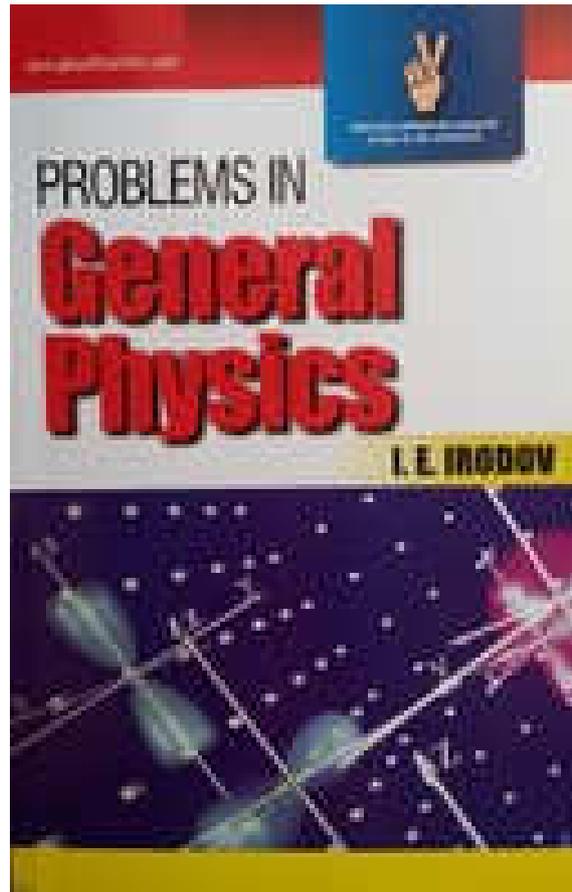
Figure 33 - Display of a reference book

8g. <u>Reference Book II</u>**:** Same as above for reference book II.

8h. <u>Course Syllabus</u>**:** We can integrate our course syllabus which is a like a course book comprising of the content of the course. It is just a simple click which gives us access to the course syllabus. Course syllabus can be any type of document namely word, portable document format (PDF) or any other. We can have output of the same in any form like print, email or picture. Again it can be clicked as well.

1. The following syllabus has been developed keeping the philosophy of the Yashpal Report and the National Focus Group for Teaching Learning Mathematics in view. Keeping in mind the reality of the number of hours that teaching actually takes place in the school, we have kept a thumb rule of 140 periods, of 30-40 minutes each, per year for mathematics. Within this the number of periods allotted to each area is given in the syllabus. However, this is just to give an **approximate idea** of the weightage to be given to a particular topic by writers and others who are transacting the syllabus. This break-

Figure 34 - Copy of Syllabus (course book)

8i. <u>Calendar</u>: We can very easily keep on recording our events which can be very useful for the future reference. This acts like a school diary which is provided to each teacher to make a note of important points/events. We do have the option to print our calendar as well. We can print it & file it. We do have to change the color of the

fonts as per our choice from the available list. Recording events at a right time is the key to success. This module is especially very useful to keep a track of important events since maintaining physical diary is very cumbersome. This acts like a digital diary.
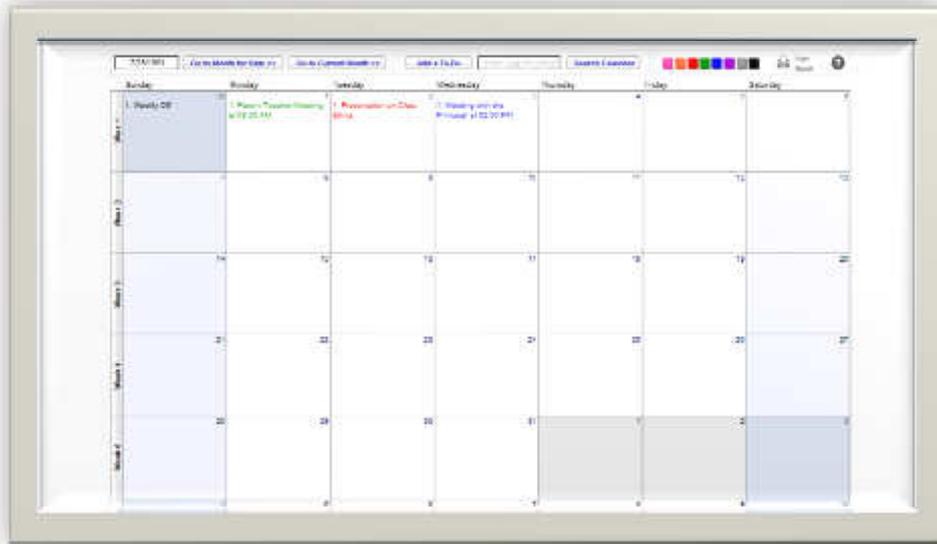
Figure 35: Calendar in FileMaker
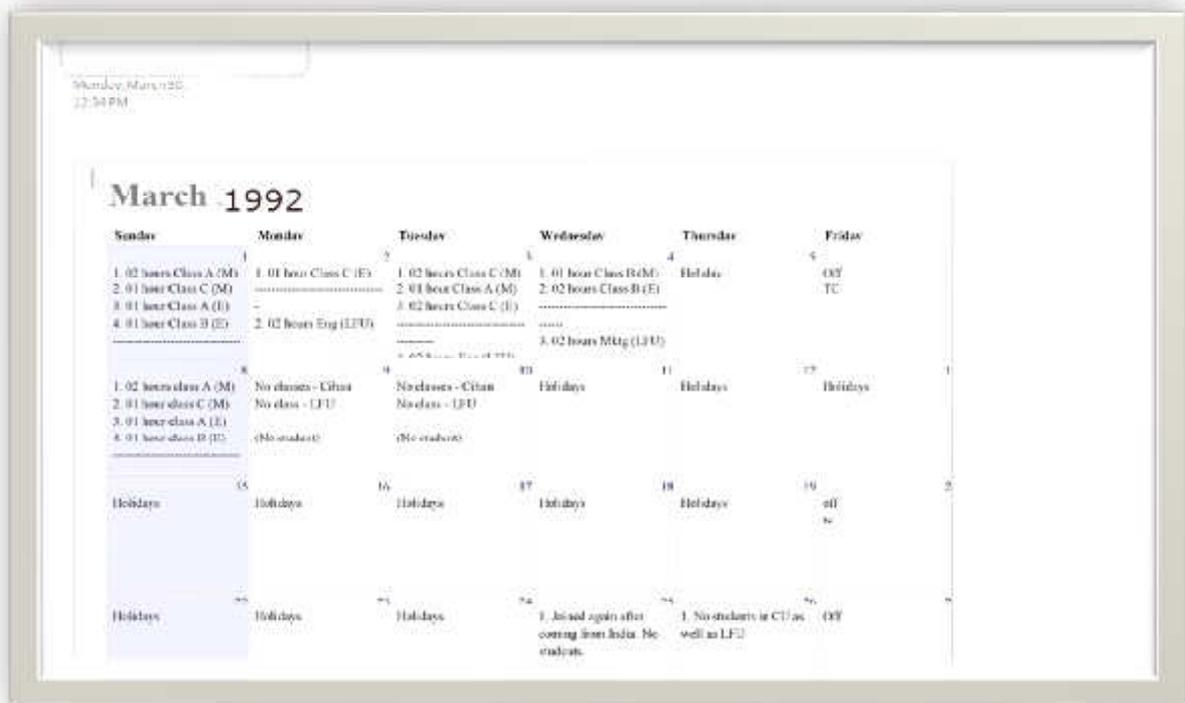
Figure 36 - Report generated for Calendar

8j. <u>Tutorial</u>: This is one of the most convenient ways of enhancing the knowledge of the students using audio/video aids. We can very conveniently embed any tutorial in the form of audio/video format in any FileMaker application. We also have the option to invoke an online tutorial or a video like the one from YouTube provided we are connected to the internet. In other words we can invoke any lesson/tutorial which can be online or offline.

8k. <u>Background Music</u>: This option can be used if we wish to play music in the background for any special

occasion like during a seminar/presentation or like a congratulation/birthday song at a right moment.

8l. Resume/Philosophy: We can very easily incorporate the concerned teacher's resume/teaching philosophy in this module. This option can be invoked at an appropriate time. We can very conveniently have an output of the same at any time.

9.0 About FileMaker Pro :

FileMaker Pro has been a relational database for the Microsoft Windows and Mac OS platform since version 3.0. This means that a FileMaker Pro files can be defined to have multiple tables and that these tables can be related to each other by at least one key field. A table in FileMaker is defined to be a collection of one type of "thing", like a collection of customers or a collection of products. A key field is a unique way of identifying one customer in a table or one item in your collection.

When you have these two components in place you are able to display information from one table in another table. For example:

- On an invoice you could display a list of all the items on that invoice.
- On a student's record you could display a list of all the classes that student is taking.
- On an actor's record you could display all the movies that actor has been in.

Records from another table are displayed using a FileMaker Pro layout object called a portal. A portal displays the data of related records in rows with one row in a portal representing one related record in the related table. A portal can be configured to display as many records as you want and can be filtered and sorted as your needs require. In addition, if you allow it, a portal can be used to add, delete and edit records in the related table. For more details please refer to Attendance cum marks module on page no. 41.

We can mark all the students as present (P) or absent (A) by using one of the most powerful tools provided in any relational database called scripting. The writing of scripts requires just the basic knowledge of flowcharting, & writing codes/programming.

10. Types of modes in FileMaker Pro:

We have four types of modes in all versions of FileMaker. These are:

S.No	Types of modes
1	Find
2	Browse
3	Layout
4	Print

1. Find mode : Here we find that we have the best use of 'Find' mode which helps us to filter our database based on a particular condition like if we wish to perform the following query:

Class	A
Section	B
Session	M

In this case our query can be Class='A' and Section='B' and session='M' as shown above.

In other words we can very conveniently filter our unorganized database to filter records as per our requirement. Like in the figure above we can very easily find out all students who study in class A, Section B & whose session in (M)orning. We can query our database based on the field Student's name as well. We can very easily avail the auto complete option anywhere in our application as shown in the picture below:-

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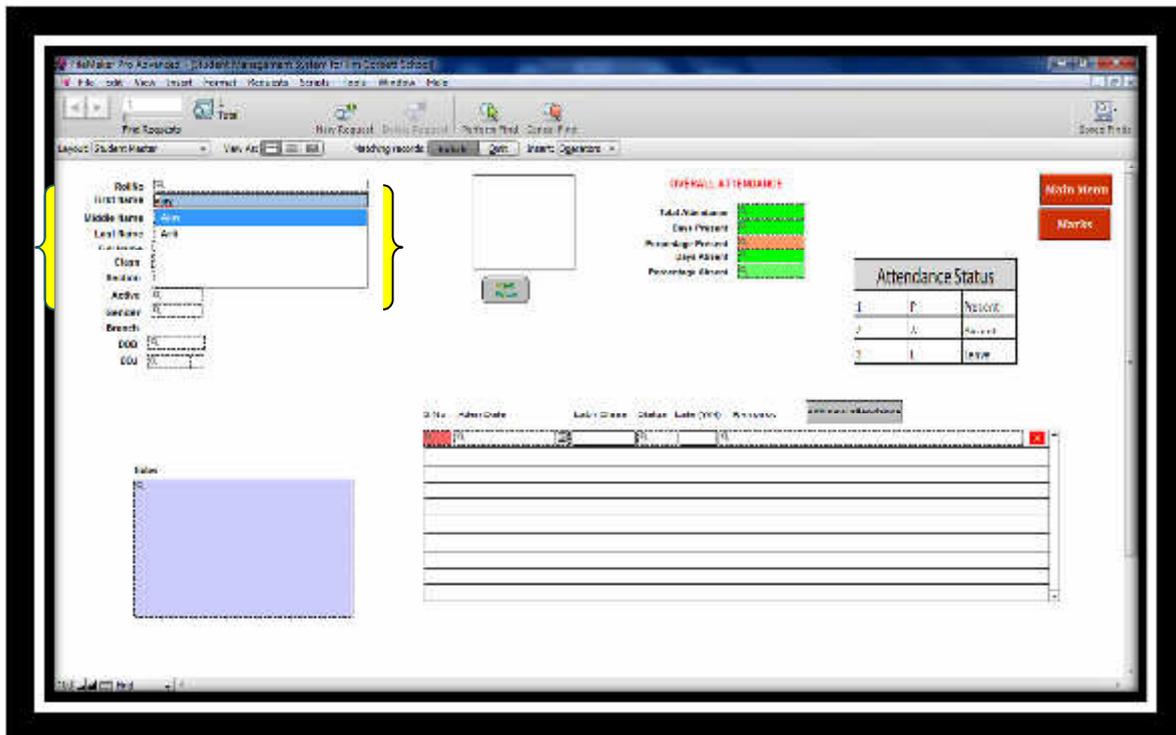
The unique number (roll number) assigned to each student serves as the primary key in our master database (Student master). Currently the roll number has to be entered manually but this can be automated as well. Since we can break up any name into three fields namely:-

- First name
- Middle name
- Last name

the chances of making an error in identifying any student is practically reduced to null. We can also use the option of 'Auto fill' to populate any list that we want. This option is especially very useful to us in case we have multiple students with similar names but yes we do have pictures (snaps) of students also uploaded in our database.

2. Browse Mode :
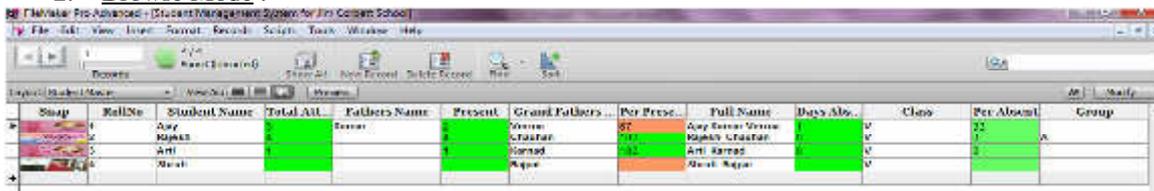
Figure 39 - Explanation of Browse Mode

In browse mode we work with the data in our database: Enter data, view record, create new records, and delete records, sort records. We have the following views in this segment:-

a. Form View
b. List View
c. Table View

3. Layout mode:-

This is the basic mode in FileMaker to create, edit & delete forms. This is the basic form to customize your form (Layout).
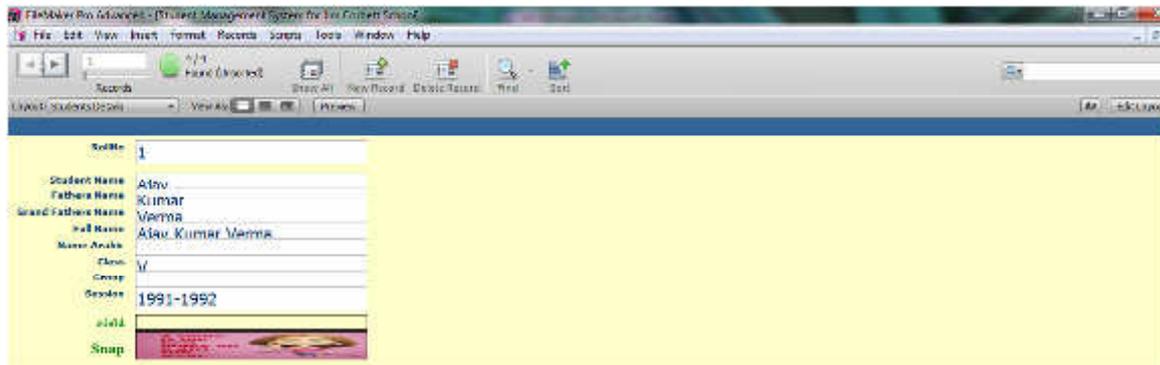
Figure 40 - Layout Mode

This is the basic mode in FileMaker to create, edit or delete forms. This is the basic form to customize your form (layout).

4. Preview Mode: - This is the basic mode to present an output. We have various options for this type of output. We have majorly three types in this category :
   a. Save as Excel
   b. Save as PDF
   c. Print

11.0 Other features

We can sort our database based on field or a combination of fields at any point of time. We also have the option to insert/remove the picture (snap) of any student. We can also record the remarks against any student in the field named '**Notes**' for any future reference. We also have the option to record important details against each student in a separate layout since these are highly confidential set of personal information.

   a. Emergency contact no.
   b. Email address.
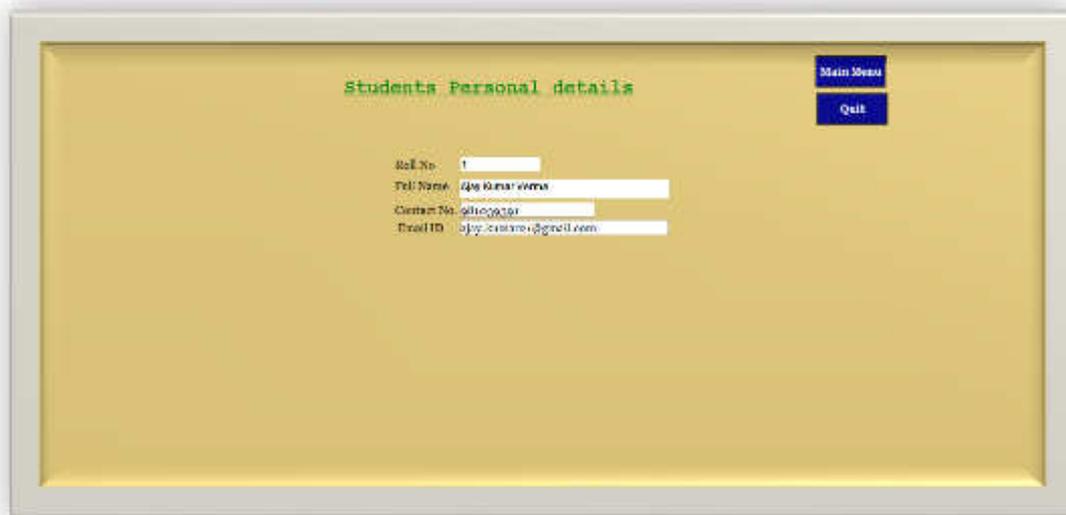
Figure 41 - Form to enter personal data

12. Communication using FileMaker

As we all know that email forms a most important form of communication. We can very easily send our thoughts & ideas to anyone in our database. We can conveniently send email to all or a group of selected mankind using the mail option of FileMaker Pro. Here we can very easily integrate any email client like Outlook Express, Microsoft Outlook etc. to exchange emails.

We can exchange emails through FileMaker in following two ways:-
   • Through Email client
   • Through any SMTP (Simple Mail Transfer Protocol) which supports exchange of emails.
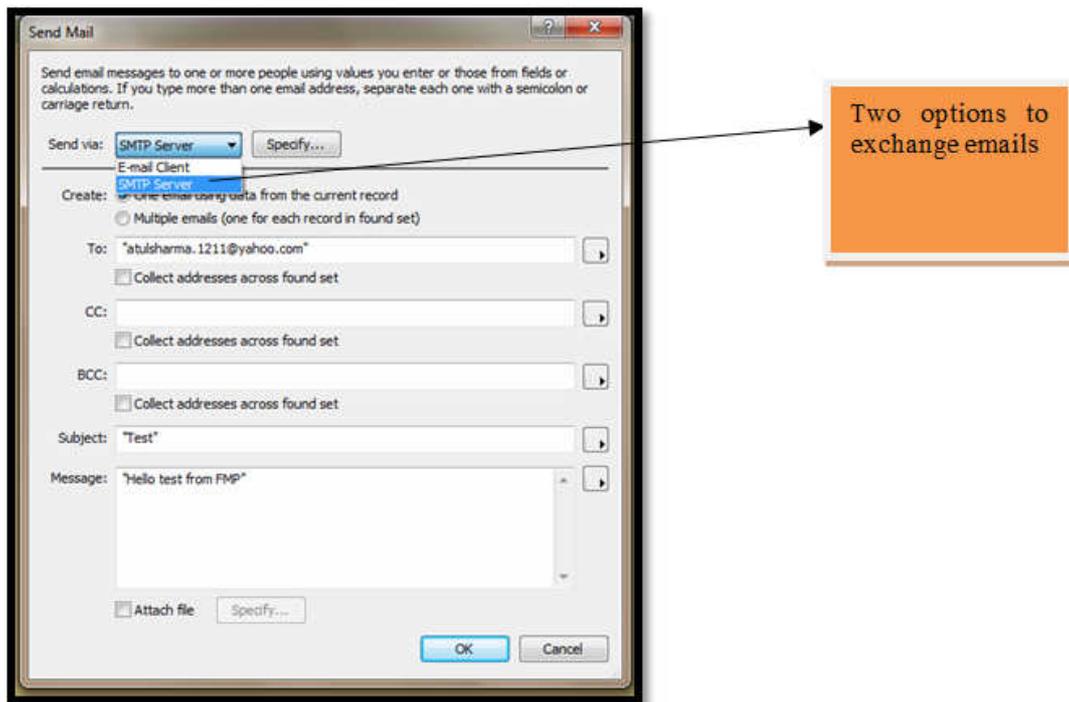
Figure 42 - Interface to send emails

We also have one more option to exchange our emails/SMS. We can very easily query our database to filter the records as shown below:-

	Cihan No	Title	Name	Deptt	Email Address	Cell No.1	Room No.	Status	DOJ	+
	1	Mr.	Amit Shah	ACC	amit.shah@gmail.com	9810393956	A8006	Y	8/23/1991	
►	4	Mr.	RajaMohan	HRD	rajamohann@hotmail.com	9823578567	B2008	Y	8/16/1991	
	15	Mr.	Khurram Sultan	IT	k.sultan@msn.com	9718882678	C5009	Y	8/23/1991	
+										

After filtering our database we export the email addresses in the csv (comma separated values) format. Now we can very easily incorporate these selected email addresses in our email client & exchange customized emails via Outlook. We can use all the features of Outlook in this case. In this case we have complete history of each email exchanged with anyone outside.
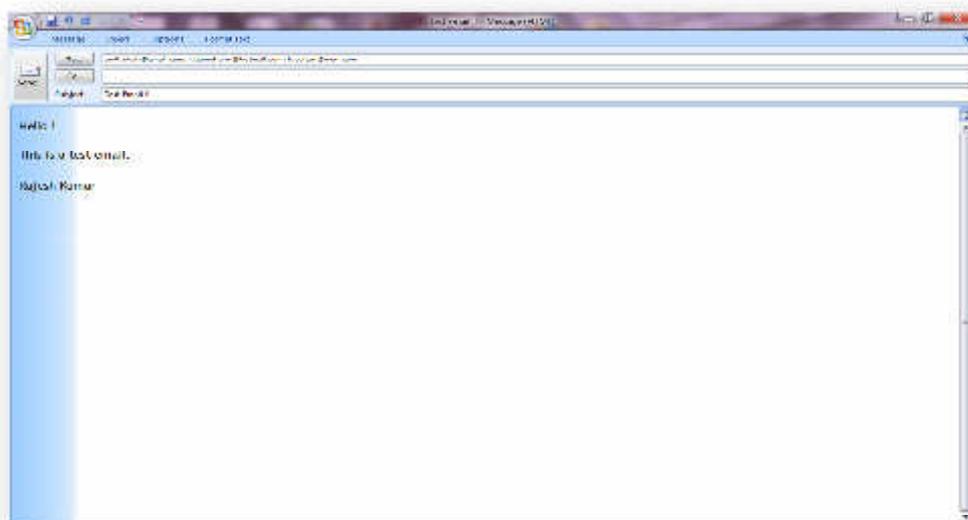
Figure 43 - Outlook interface to exchange emails

The figure above shows Outlook interface to exchange emails using features of FileMaker.

In case we exchange emails using Microsoft Outlook, Outlook Express or Thunderbird we can very conveniently use attachment as per regular emails. The details of the message sent out appear in the '**sent item**' folder of the email client in both the cases. In case any person replies back, the reply goes back in the concerned email which has been specified in the settings of the FileMaker. These two options have limited features only. In the third option which uses the email client to exchange emails we can exchange emails in a more professional manner like using signatures, stationery etc.

13. Using Short messaging service (SMS) with FileMaker:

We can use FileMaker to send out SMS (short messaging services) to an individual or a group of people as per our choice. Earlier we use to have a free option to send out SMS through Gmail (email service provider) but later on they restricted these services. Now we need to find out a gateway to send out our messages. These services may or may not be free. Based on this we may need services of our service provider to exchange SMS
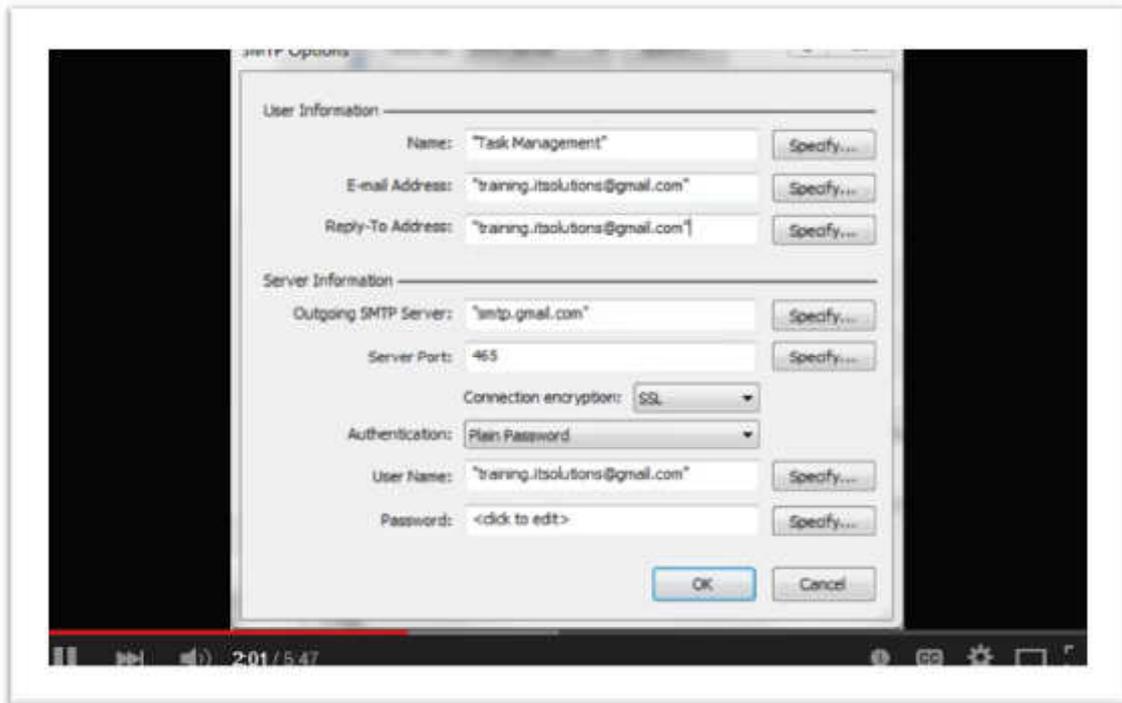
Figure 44 - Simple Mail Transfer Protocol settings
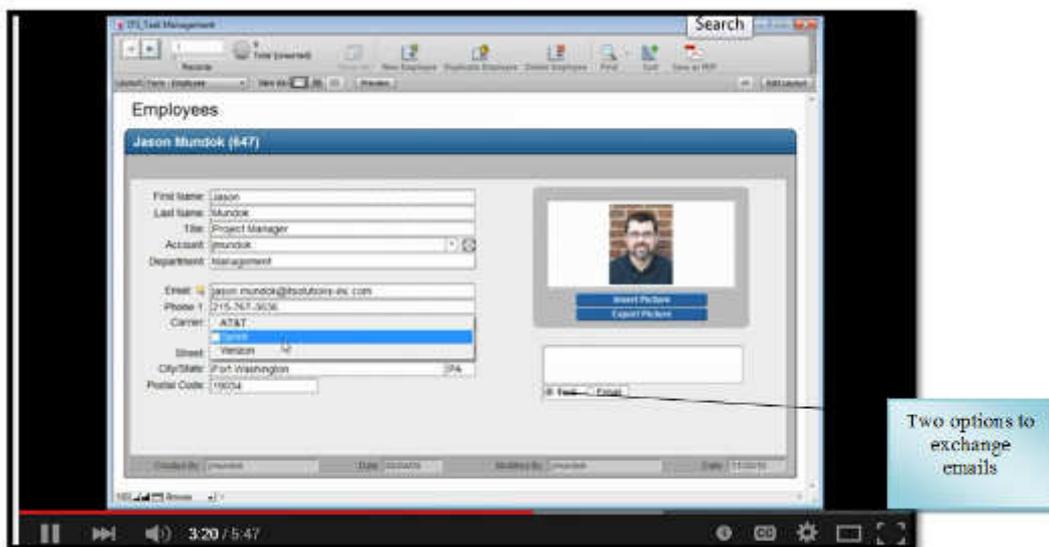
Figure 45 - Two options to exchange emails

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The figure above shows the user interface for sending out SMS's in the form of:

1	Text
2	Email

Finding & sorting records

Our database is a collection of records. Sometimes we will work with all of the records in the database (to mail out an annual catalog for each customer, for example). Often, however, we will work with a subset of your database—people who come from a particular city, for example, or records that fall within a particular range of dates.

In FileMaker Pro, this process of searching for records that match particular criteria is called *finding* records.
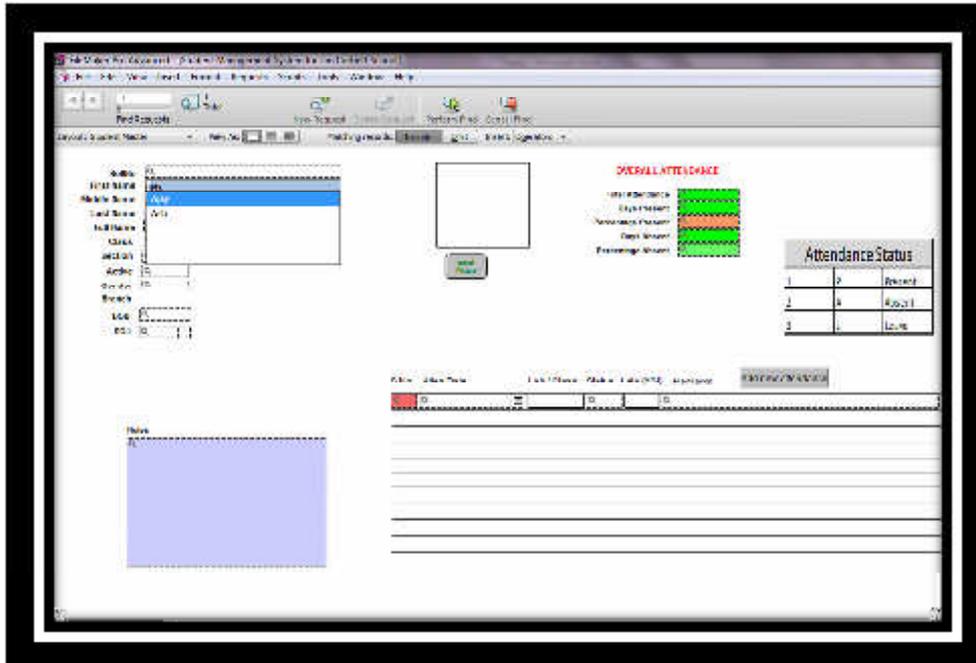
Figure 46 - How to use the Find mode

Once you've found the records you want to work with, you can change their order by *sorting* them. Records can be sorted in ascending or descending order as shown below:
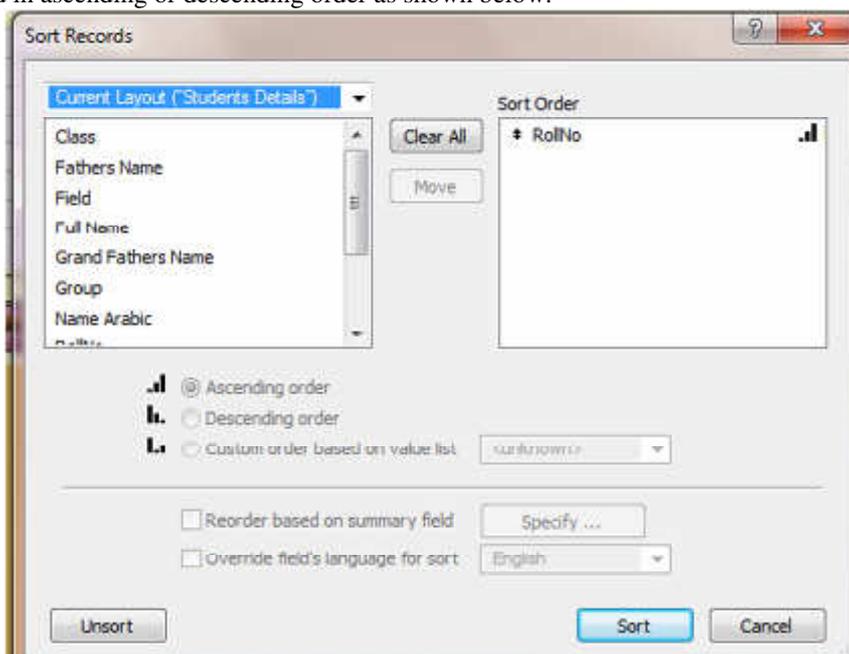
Figure 47 - Ways to sort the database

Here as we can note that we can sort our database in majorly three ways:

a. Ascending Order
b. Descending Order
c. Custom order based on value list
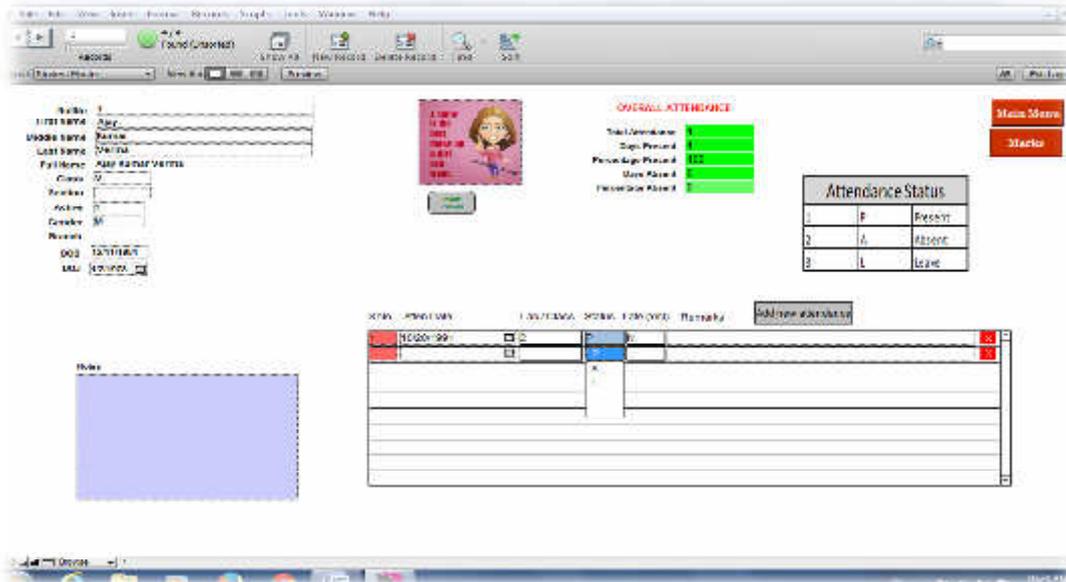
Database Design

The development of a database requires the management of three database structures: (1) tables, (2) fields, and (3) relationships. FileMaker Pro, a relational database software, provides a user friendly "front end" to define the said structures.

Database tables

The development of tables in FileMaker Pro is a straightforward process. The image below provides a screen capture of the database management front end used to establish database tables
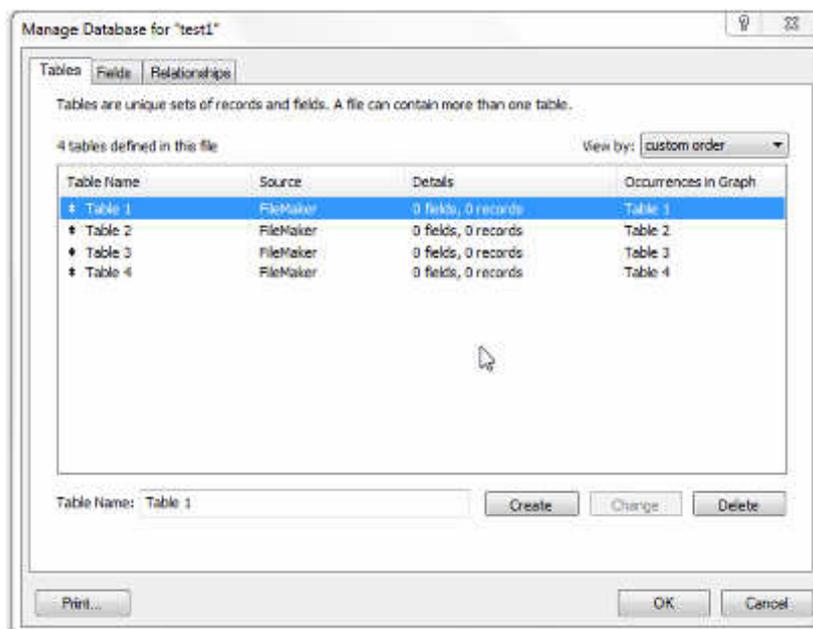
Figure 41 - Database table list

This example established four unique tables (table 1, table 2, table 3, and table 4). The process involved the establishment of a unique name. In this environment, table names can be changed, added, or deleted in a simple manner.

Database fields

For each specific table, a set of specific placeholders (i.e., fields) can be created to house specific data. The image below provides an example of FileMaker Pro's field front end. In this particular example, table 1 has 4 unique fields: field 1 (text), field 2 (text), field 3 (number), field 4 (date).
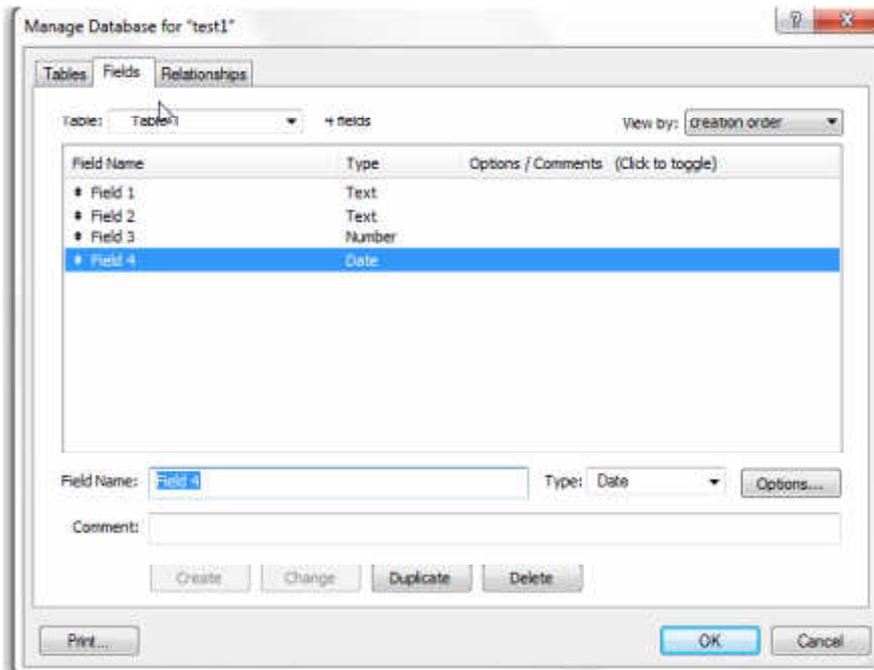
Figure 42 : Database Field List

Database relationship map.

FileMaker Pro: The simple solution

FileMaker Pro provides a database development tool that is intuitive, friendly, and easy to learn. Given these benefits, the author of this project has selected FileMaker Pro as the software of choice in the development of Class Management Software to address the new product development expansion as well as the introduction of a new branding scheme.
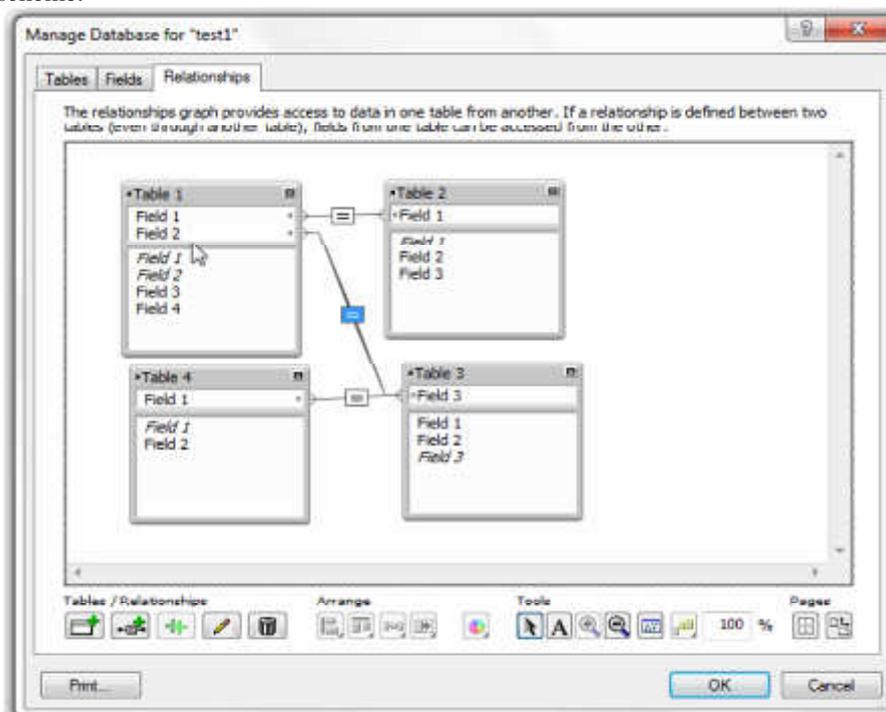
Figure 3 : Database relationship map

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Figure 4 - Relationship diagram I used in application

Figure 5 : Relationship Diagram II used in application
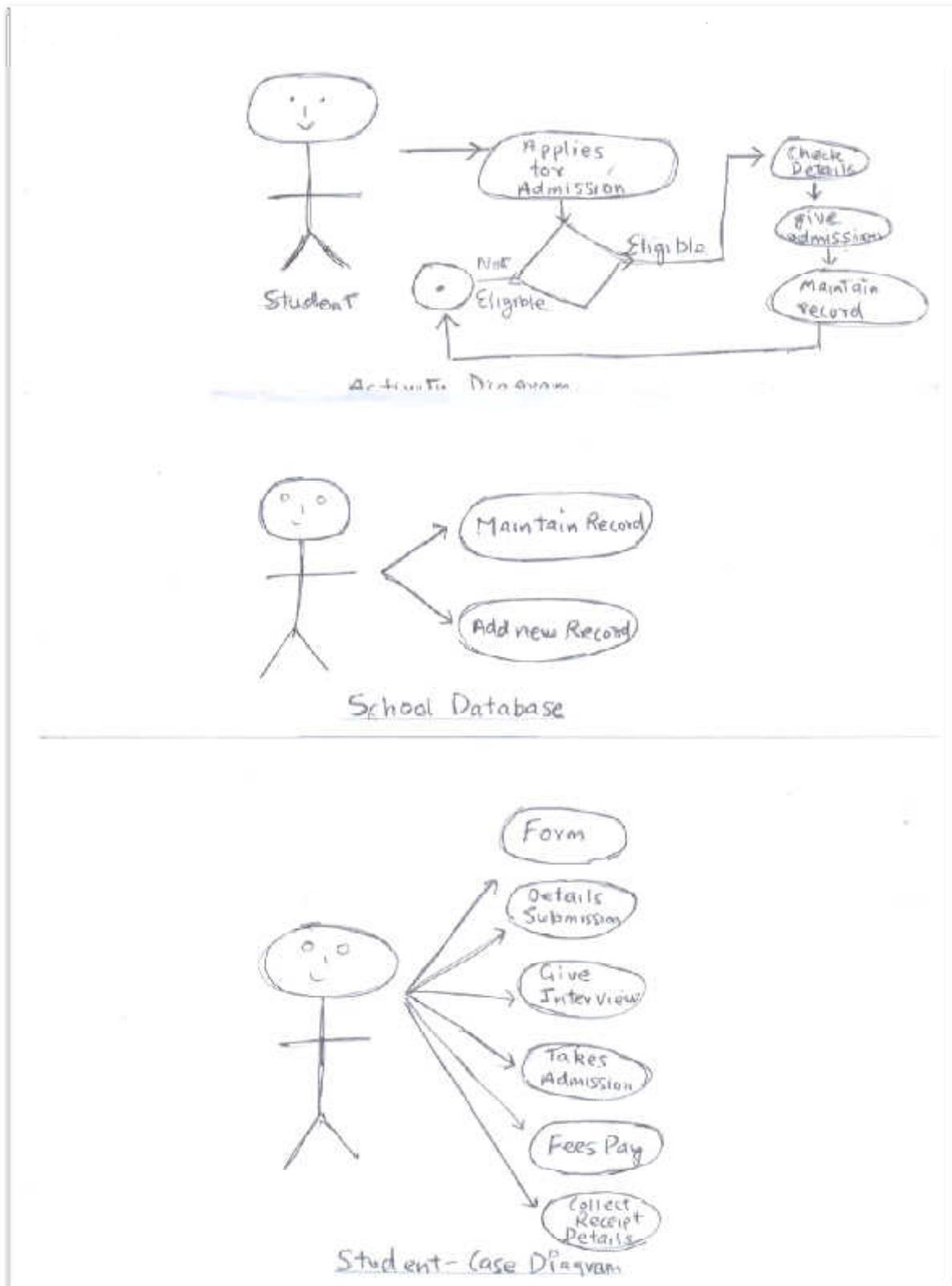
Figure 53- Process Flow Diagram

As per the diagrams above:-

a. We note that student applies for admission in the school. First we check for eligibility like age etc. If he/she is found to be eligible we check the details of the student. If everything goes well the student is admitted to the school. The record of the student is entered into the database as explained in figure

above.

b.   All the details of the student are entered into the system. The student becomes the part of the database. In other words we maintain proper database with additions/deletions/modifications as required from time to time.

c.   In the third diagram above we note that a student fills in the form. After that the student submits the required details. After that the student has to give an interview. If he passes it he/she takes admission in the school. At this stage the student makes the payment to the school. He/she is provided with the fees receipt.

Conclusion:

We conclude that with the growing times we need to upgrade our skills/systems with ever-growing Technology. Those institutions/individuals who do not have value addition time to time are nowhere in the market. We have to be a part of fast moving technology. We have to polish our skills time and again.

References:

1.   FileMaker Pro 11 Tutorial
2.   Wikipedia
3.   FileMaker.com