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Creating a registration database using Microsoft Access 97

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Creating a registration database using Microsoft Access 97

Abstract

Every business or organization that conducts any type of training, whether on a small or large scale, must deal with logistical issues. There are several ways of keeping track of relevant and important information, including anything from paper based systems to off the shelf computer applications. Very often, these methods are cumbersome or not applicable to the needs of the organization. This research project focuses on the customization of training registration information and logistics for a specific company, for the purposes of this paper called XXXX, using a database.

Specifically, a Microsoft Access database was created to keep track of the desired registration information, in a clear and easy to use format. The registration database keeps track of specific information on all employees, classes created, and the schedules for those employees scheduled to take training through company XXXX.

Creating a Registration Database

Using Microsoft Access 97

A Graduate Project

Submitted to the

Division of Educational Technology

Department of Curriculum and Instruction

in Partial Fulfillment

of the Requirements for the Degree

Master of Arts

UNIVERSITY OF NORTHERN IOWA

by

Darren A. Otte

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Introduction

Every business or organization that conducts any type of training, whether on a small or large scale, must deal with logistical issues. There are several ways of keeping track of relevant and important information, including anything from paper based systems to off the shelf computer applications. Very often, these methods are cumbersome or not applicable to the needs of the organization. This research project focuses on the customization of training registration information and logistics for a specific company, for the purposes of this paper called XXXX, using a database. Specifically, a Microsoft Access database was created to keep track of the desired registration information, in a clear and easy to use format. The registration database keeps track of specific information on all employees, classes created, and the schedules for those employees scheduled to take training through company XXXX. The database was created to allow those employees who have little experience using Microsoft Access 97 to enter, edit, or receive specific information that is needed for training registration. The information being kept was for employees being trained on an enterprise resource planning system application called SAP R/3.

The database, called *Training Registration*, was created for this company for several reasons. First, after doing research and trying out several off the shelf software packages, it was determined that there were no software packages that could really complete the tasks, could give the output that was required, or had a relatively low learning curve desired by this company's management. The training coordinator of the company decided to make a simple Microsoft Access database to keep track of the information. With little or no experience using Access, the employees responsible for

keeping track of the information for company XXXX had a difficult time with creating and using the database. To convey the magnitude of this original database, there were over 3,000 employees listed in the database, 489 different classes were scheduled, totaling more than 6,500 seats being filled with learners. So, there was a need to improve the organization of the database so it would be more efficient to work with.

Second, this database design was created so that it would be easier for those who do not know or understand Access to make desired changes without the aid of someone else. With the original database, there were only two people who could make changes due to the disorganization of the database. The new database created as part of this project will allow the majority of the changes and additions needed in the information to be completed by any employee who has some computer experience. This new database will also increase the efficiency and effectiveness of the training registration and the processes used.

Terms

1. **DATABASE** – A collection of related data for the purpose of organization.
2. **DETAIL** – One of the three parts to a form in the design view of Microsoft Access. It is in the middle of the form and considered to be the body of the form.
3. **DROP-DOWN MENUS** – Part of a field with a down arrow to the right that allows selection of information from a list.
4. **FIELD** – Part of the form where information appears and text can be entered; individual pieces of information are located here. In this database, fields that white can have data entered in them. Gray fields are for viewing only and cannot be changed. These can also be locked are edit proof, depending on how the developer sets the characteristics. The following fields are used in the database:
 - a) **BUSINESS UNIT** – The division of the company in which the employee works.
 - b) **CITY** –The city or town that in which the employee works.
 - c) **CLASS LOCATION (ROOM)** - This is a combination of the room number and the capacity of the room. The information in the class location field before the dash refers to the class rooms number and the information after the dash refers to the capacity of the room.
 - d) **CLASS SIZE** – This is the number of people that are currently signed up for attending that class.
 - e) **CLOSED** – This is checked when the class size field is equal to the capacity of the room, located in the Location code field.
 - f) **COMPLETED** – When the employee has attended a class that they were scheduled to take.
 - g) **COURSE ID** – A unique number given to each class that has been scheduled. It is a combination of the module involved, the date and the number of classes offered on that day.
 - h) **DAY/DATE** – Refers to the actual day and date that the class is scheduled for.
 - i) **DURATION** – The length of time the class is going to be schedule for, in hours.
 - j) **END TIME** – The time when the class is scheduled to end.
 - k) **FULL TIME** – Shows whether the learner is a full time or part time employee.
 - l) **INSTRUCTOR** – The name of the person teaching the class.
 - m) **INSTRUCTOR ID** – Each instructor is assigned an identification number to use during training.
 - n) **JOB TYPE** – The kind of job that the employee has for a job title. Helps to determine what classes need to be taken
 - o) **LEARNER ID** – A number that is assigned to the learner or employee for registration purposes.
 - p) **LOCATION CODE** – Specific to this company, a code that allows employees to easily recognize what plant, building or location employees are from; a unique sequence of letters and numbers.

- q) MANAGER – The person who directly supervises the employee.
 - r) MODULE – The enterprise resource planning program SAP R/3 has 12 different sections to it that this specific company uses. This constitutes what classes each employee needs to take to do his or her job. There are several classes to each module; examples include AM001, FI003, MM001, etc.
 - s) MODULE ID – This is the same thing as *module* in this database. The two words are synonymous with one another.
 - t) NAME – The name of the learner or employee.
 - u) NOTES – Room to add any additional information about the class.
 - v) SCHEDULED – A field that will allow the registrar to know whether the learner has been assigned to a class already.
 - w) START TIME – The time when the class is scheduled to start.
 - x) STATE – The state in which the employee works.
 - y) TRAINING CLIENT – This shows what computer system to log into SAP R/3 with so that practice files can be used. There are only so many people that can be working in each part at a time, therefore several clients need to be made and kept updated. Classes are assigned the training client to be used.
 - z) VAX NAME – The username of the employee for their e-mail account at this specific company.
-
- 5. FOOTER – One of the three parts to a form in the design view of Microsoft Access. It is the last section on the form.
 - 6. FORM – The part of Microsoft Access to view, add, and update table data. The majority of the interfaces on this database are forms.
 - 7. HEADER – One of the three parts to a form in the design view of Microsoft Access. It is the first section on the form.
 - 8. LEARNER – This specific company refers to employees that are taking training classes as this or also students.
 - 9. MACRO – An automated sequence of events that Microsoft Access allows the database to do once indicated by given action.
 - 10. MAIN MENU – The first screen that comes up when the database opens. This is the main form to complete most desired tasks.
 - 11. QUERY – A part of Microsoft Access used to view and analyze data in different ways. Similar to the find feature in other programs, it allows users to find information from tables and other queries.
 - 12. RECORD – All the fields of information for one item in one table. An employee's work information in one table is all one record.

13. **RELATIONSHIPS** – The connection of related data between two or more tables. It allows updating of information to occur to several places if a connection is established.
14. **REPORT** – A part of Microsoft Access used as a visual presentation of data. Reports may be viewed, printed or e-mailed.
15. **SAP R/3** – The enterprise resource planning system application that company XXXX is training its employees to use.
16. **STORYBOARD** – a set of instructions and views sketched out on paper to portray what is going to take place at each interface.
17. **SUBFORM** – A form that is embedded into another form.
18. **TABLE** – A collection of data about a specific topic. Where the information is stored in a database.

Literature Review

The majority of interaction with a computer has to do with some type of data entry. Each developer has to decide what type of interaction to use, how the information is going to be inputted, the design of the application, and many other features. The focus of this review is on the various interaction styles in computer system applications.

According to Dix, Finlay, Abowd and Beale (1998), the purpose of an interactive system is to aid the user in accomplishing goals with some application. In order to make these goals easier to accomplish, developers use several different functions to assist in the interaction with the computer. The first thing that decides the style of interaction is the type of information that is going to be entered, changed or displayed, and the design of the system. Newman and Lamming (1995) categorized three different styles of interaction – key modal, direct manipulation and linguistic. Each style represents a different way that the user can interact with the system and with the type of information and data used. The developer decides what type of interaction is appropriate for the application or system that he or she designs. Key modal and direct manipulation interactions are of primary interest in this paper. The third style, linguistic, is considered command or language based and is not related to the topic of this discussion.

Key modal interaction uses mainly keyboard or function keys to interface with the computer. One of the most traditional forms of key modal interaction is question and answer entry. The question and answer style is when a system asks a series of questions in text form and the user types in text for the answer (Newman & Lamming, 1995).

“These interfaces are easy to learn and use, but limited in functionality and power. As such, they are appropriate for restricted domains and for novice or casual users” (Dix,

Finlay, Abowd & Beale, 1998, p.118). Another type of key modal interaction is menu-based interaction. This is where options are given to the user and after a selection is made, either the entry is made or more selections are displayed. The final key modal style is function key interaction. Functional keys are often the F1...F12 keys located at the top of the user's keyboard. The function keys are used to input the information and the user must remember each key command or have a resource tool to assist them while entering information. Some systems that use this method include ticket machines, payphones, and data entry systems that use numeric keypads.

The other category of interaction that is prevalent is the direct manipulation interaction; the user can directly apply actions to the application of interest with the aid of a pointing device (Newman & Lamming, 1995). The pointing device that most people are most familiar with is the mouse. Other forms of pointing devices include light pens, joysticks, touch pads and track balls. This category has two styles of interaction, graphical direct manipulation and forms fill-in.

Graphical direct manipulation is when the system is designed to portray the information in the form of graphical objects and the user uses a pointing device to select the desired object (Newman & Lamming, 1995). Two of the most recognized examples of graphical direct manipulation are the Apple Macintosh desktop and Windows 95 or Windows 98 desktop. Some of the advantages of using graphical direct manipulation is its usability, since it reduces errors that may occur and is fairly easy for exploratory learning (Newman & Lamming, 1995). There are fewer errors made when there is a pointing device involved rather than entering text or commands as done in the other categories of interaction. It is also easier for the user to learn, not having to know

commands or text in order to navigate through the system, and can become easier to back out of an area that was not desired. However, Newman and Lamming state that one of the major disadvantages is that “it is sometimes slower to perform tasks by pointing and clicking than by pressing one or more keys”(p.313). To correct this disadvantage, many graphical direct manipulation devices have provided shortcut keys that can be substituted for the pointing and clicking feature.

The other type of direct manipulation is the forms fill in, or form fills. For this type of interaction, users are presented with a system interface that resembles a paper form with text fields that are to be filled in by the user. The information or data is then filled in the correct locations; using either a pointing device or keyboard to select the field and enter the information. The majority of the database in this project and paper is the forms fill in design. There are several guidelines and that should be reviewed before creating a forms fill in design. According to Shneiderman (1992), some of the guidelines include the following: meaningful title, comprehensible instructions, logical grouping and sequencing of fields, visually appealing layout of the form, familiar and consistent field labels, convenient cursor movements, and error messages for unacceptable values. One of the main goals of form fill-ins is to design it to be as user friendly as possible and to avoid confusion.

A developer must gather as much information as possible about the use of the system, the users, and the equipment available before designing the application. Applications are to be as user friendly, efficient and effective as possible. Determining the interaction style is one of those options that can make the difference between a successful system and an average system.

Methodology

As a co-developer and the main user of the old registration database program used at company XXXX, there was an understanding of what worked and what needed to be improved. Therefore, the first step in the creation of the new database was to look at the information gathered in the old database, along with the relevant tables, queries, forms and reports that coincided with the information. After reflecting and evaluating the old database, a decision was made to create a new database, called *Training Registration*, instead of trying to refurbish the existing database. Within the evaluation process and reflection on the experiences of the registration process, this developer took notes on the common tasks, common input and output information desired, and other items that the new database should contain.

This developer then created a questionnaire and gave it to the three main employees within company XXXX that used or supervised the original registration database. A sample questionnaire appears at the end of this document in Appendix A and the results of the questionnaire will be shared later in this report. The purpose of creating and distributing this questionnaire was to get the opinions and suggestions of other employees who worked on the original database and were familiar with the training registration process. The first two questions on the survey refer to the common tasks of the database and the most common types of information that would be ideally received as output. These two questions assisted the developer to make sure no tasks or outputs were overlooked. The third question deals with the information and features that are essential when creating the new database. Again, this question helped to make sure that there were

no sections of the database or training registration database overlooked. The last of the questions was one that allowed the employee to request something that was not essential but nice to have in the new database that was not in the original.

The next step was to compile a final list from the information that was gathered and to use this information as the foundation and main structure of the new training registration database. The compiled information on the final list was very thorough and contained almost all the information that was used during the original registration process. After reviewing the final list, time was spent looking at other Microsoft Access databases, some that were provided by Microsoft as templates, and databases that were created by other people. One reason for doing this was to see the possibilities, features and formats that other databases have used. Next, a series of storyboards were created displaying what each screen, which is one form, would look like. The storyboards were titled and given a sequential numbering system and related notes were compiled on the bottom half of the storyboards. The notes included a brief summary of what the purpose of the form was for, what would transpire on each screen and also a list of all the tables, forms and reports that were involved in that specific screen.

Once the storyboards were created and had the correct sequence and flow that was desired, it was time to open Microsoft Access and create the structure of the database. The structure refers to the essential tables and forms that are necessary for entering in the desired information. The aesthetics of the database are not important at this point of the project, just that the database worked correctly. After the structure was created, several actions and features were added to the database to make it more user friendly, to have only the desired information entered in the database, and to have other information

automatically appear once certain information is entered. The next part of the process was to create navigation buttons on each page and to create a main menu page, so the user could get from one screen to another without knowing the names of the forms or tables. Once the main menu and the navigation buttons were developed, the database was reviewed to correct any errors that may have occurred while linking forms, creating relationships or having information automatically appear. Sequential instructions were provided in each individual form to assist the user in working with that specific form.

The final aspect of this project before having it tested by subjects was to make the database look aesthetically pleasing. The last major step was to have the database tested by other users. Appendix B contains a copy of the practice tasks sheet that this developer created to assist in the testing of the database. The *Training Registration* database and the practice task sheets were then given to several users who had some experience with computers, but without really knowing what type of experience each of them had with Microsoft Access.

After the completion of the practice task sheet, another survey was distributed to the users regarding the use of the database. The survey created by this developer is located in Appendix C and assisted in the rating of the new database. The first section of the survey focused on personal experiences of the respondent's computer use, database use, and use of Microsoft Access 97. The rest of the survey focused on personal experience with this specific database, the aesthetics and navigation through the database, and his or her overall experience with this database. The end of the survey gave the users the opportunity to give written responses to this developer. The surveys were anonymous and not looked at by the developer until after all of them had been received. Various

questions on this survey were used or re-worded from "Making Computers People Literate" by Weiss (1993).

After having users individually go through the database, with this developer watching, a discussion took place to find how the process went for each user. Notes were taken on the responses of the users' answers in the discussion and from the responses on the survey. The notes were compared to the database to see if the changes were needed or even feasible. Finally, after making the appropriate changes to the database, along with some final small changes, and finishing the aesthetics, one last final check was conducted to the database to make sure it was in working order and accurate information was given.

The Project

As previously mentioned, this Microsoft Access database was created to be the main source of gathering and collecting information for the training registration of company XXXX. When creating this, there were a couple of assumptions made about the employees who may use this database. The first assumption was that the employees would have the basic computer skills of an IBM compatible computer with the minimum requirement of Windows 95 operating system and Microsoft Office application package. The second assumption was that the employees had a little knowledge of Microsoft Access 97. Although this is not necessary for using the database, it is helpful to have that knowledge, in order to be able to accomplish special tasks that this database may not offer.

As stated earlier, this developer created the database based primarily on information gathered from a questionnaire given to three employees of company XXXX who worked closely with the company's registration process. Two of the three employees who completed the questionnaire worked on the training registration process for the majority of their workweek. The third person's contribution was important because he was the project leader for the company on this specific training program. The information that they provided assisted in the creation of the structure and desired tasks of this database. Stated below are the rephrased questions posed and the most common answers given from the questionnaire:

1. What are the most common tasks that you have performed with the original database during the registration process?
 - Creating classes / editing class information

- Running reports – class rosters, daily list of classes, learner schedules, etc.
 - Sending class schedules to learners via e-mail
 - Entering / editing student (learner) info
 - Registering students for certain classes
 - What classes are open and closed
 - Historical records of who (students) took what (classes); attendance
2. What are the most common types of information that you would like to receive as output from the database?
- Show a report of employees who are not scheduled
 - Show reports of open and closed classes
 - Student schedules
 - Instructor schedules
 - Class rosters
 - Department / business unit history; employees attending training from same department
 - Learners attending training for the first time

The specific information presented about the *Training Registration* database project will involve only those screens that the employees who use the program will see. A discussion on the structure behind the interface will not take place due to the complexity and nature of its setup. This includes information on specific tables, queries, reports and macros that were created to make the interface possible.

Relationships

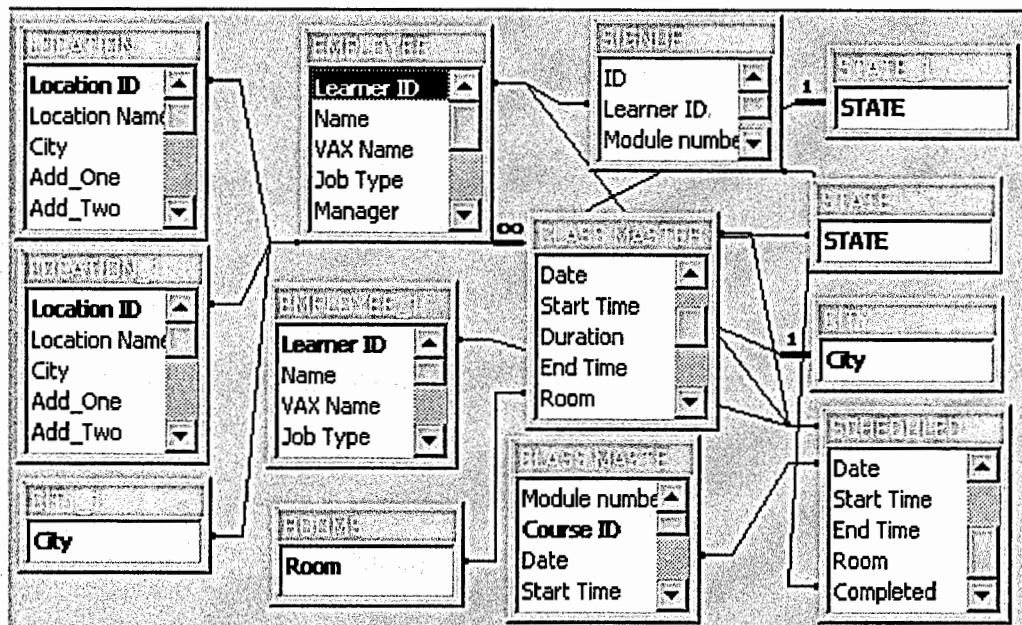


Figure 1

The table structure and relationships of the database interface to each are shown in Figure 1. Each individual rectangle is called a table, and each table lists the fields that are inside of that specific table. The line that connects from table to table represents the relationships that were constructed by this developer. This figure shows how each table is related to other tables, and in many instances, if changes are made to one table, several tables could be affected. This is not a screen that the users will have access to; it is locked off so that changes cannot be made to it. It is useful to keep in mind a general structure of the database, as it helps to clarify decisions made by this developer regarding the interface design.

The following information describes each button action. There are a total of six different forms in this database. Several of them look similar, but each serve a different

function and each form only allows data entry in certain places. For easier reference, the titles are listed below:

- *SAP R/3 Training Registration Database Main Menu, referred to as the Main Menu*
- *Taking Class Attendance*
- *Changing Class Master Information*
- *Schedule a Learner For Class*
- *Individual Learner Records*
- *View / Print / Email Reports*

Starting the program and Main Menu

Once the *Training Registration* database has been launched, a password screen will automatically pop-up. This password screen allows only those few authorized employees from the registration team to have access to the database. Once the password is correctly entered, the main menu screen automatically opens up. All the options that are common tasks show up on this main menu screen. For clarification purposes, the terminology of “screen,” “window” and “form” may be used interchangeably throughout the processes of this section of the paper.

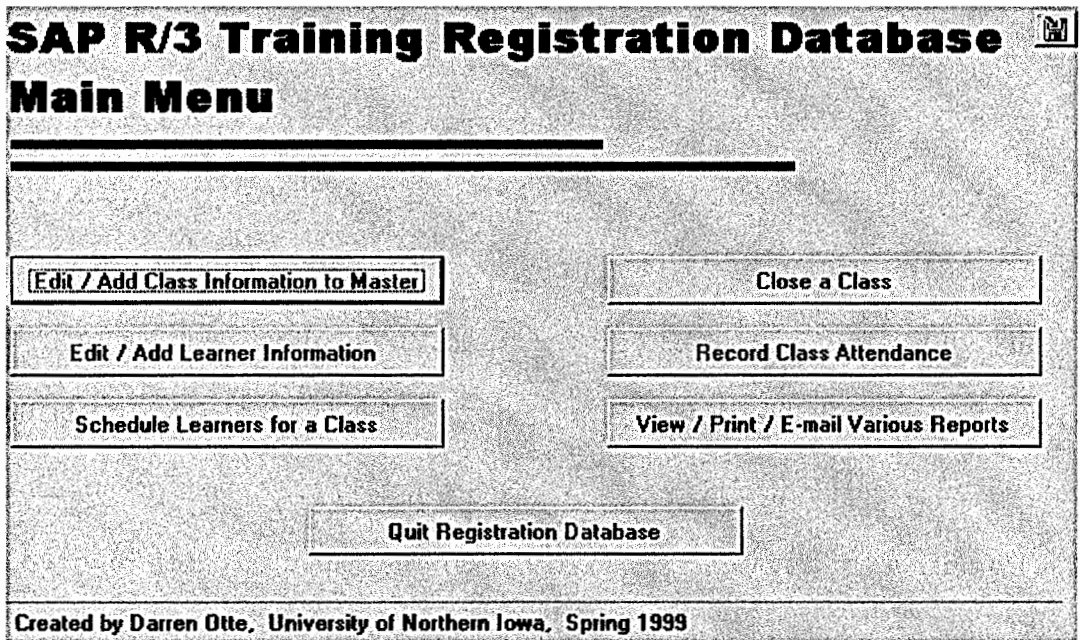


Figure 2

The main menu gives the user eight options to select from, six of them being major tasks designated by the surveys compiled (Figure 2). The seventh button, located at the bottom of the screen, is called *Quit Registration Database*. Once this button is selected, a pop-up window displays a message letting the user know that the program is quitting and then both the *Training Registration* database and Microsoft Access close.

All buttons in this database have been created to automatically close a window as a desired window opens. This ensures that only one window is open at a time. Without this feature, after clicking on several buttons, layers of windows are created which will eventually slow down the computer and make it difficult to bring up the other windows due to lack of computer memory.

Each screen has a header that displays the title and may also include additional information, fields or buttons. Some screens have horizontal scroll bars, which, when used, will keep the header of the screen in place and scroll only the information below the header up and down.

All fields in the forms are one of two colors, white or gray. The difference is white fields, if editable, allow data entries in them, while “locked” white fields and gray fields allows users to only view existing data which cannot be changed at that location. Several different things can take place within white fields, depending on how this developer set the fields. In this database, there are a couple of actions that were done to different white fields, “locking” and “editing the list.” If a white field is locked, users cannot do anything to that field; it will not let the user click within this field. If a user is allowed to edit the list in the white field, users can enter any value within this list and are not restricted to any item in the list. If a user is not allowed to edit the list in the white field, the user must select from one of the choices from the drop-down menu or leave the field blank.

With any editable white field that has a drop-down arrow box, one of three things can be done. One, any item can be selected from the list provided. Two, users can start typing and the menu will automatically bring up the word as it is typed, if it is in that specific drop-down list. Last, the user can type in a new word and it will be added to the list. If the white field has a drop-down arrow box but does not allow editing of the list, only two things can happen. The user can use the drop-down arrow and select from the list, or if it is known that the word is in the list, the user can start typing and have the word come up automatically.

For several reasons, most of the fields on the forms are drop-down menus and require that information be chosen from a list for several reasons. This reduces entry errors and makes sure that information is entered exactly as desired. If the data was not entered as desired, certain queries and reports could not run effectively and give accurate

information. For example, if the company wanted to run a report on all of the employees from Nebraska, and if there are multiple users entering data into the database, where one user could type in "Neb" for the state, others could enter in "NE" or "Nebraska," the report probably would not be very accurate. The report is designed to look only for some state called "NE" and therefore would not find those others entered differently. With a drop-down arrow box that cannot be edited, users would have to select "NE" for the state, eliminating confusion.

The characteristics of the fields are very complicated and it will take some time to get used to how they work. Wherever it was possible, a message comes up at the bottom of the screen telling the user that something specifically will not work in a certain field. This developer feels confident that as users get into a routine of using this database, they will no longer need these prompts.

On every screen there is a save button in the upper right hand corner of the screen; it resembles an arrow pointing to a floppy disk. The user should click on this button once information is entered or edited in the database to insure it has been saved. Microsoft Access 97 states that the information is automatically saved; however, this developer has found auto-saving to be unreliable and sometimes failing. It is recommended by this developer to use the save button very often when in this database.

Edit / Add Class Information to Master

Selecting the *Edit / Add Information to Master* button brings up the *Changing the Class Information Master* form. This form (see Figure 3) serves as the only way to create, edit or delete classes for the registration database.

Changing Class Master Information

1 Please select class to be edited or click button to the right to add a new class:

2. Edit class information below:

Module ID: Class ID:

Class Location: Class size: Closed:

Day/Date (ex. 10/15/99): Training Client:

Start Time: Duration: End Time:

Notes: Instructor:

Copy of class roster (cannot be edited)

Name	Class ID
WARREN, DIANE	AM0037211
STEENHOEK, NIKI LYNN	AM0037211

Form view

Figure 3

1. Please select class to be edited or click button to right to add a new class. If editing a class, click on drop-down menu arrow located next to the above statement in the header. This drop-down menu, Figure 4, gives a detailed list of the classes already established alphabetically by module. The information includes, in column format, the module number for the class, the full date, the start time, room it is located in, and

either a “yes” or a “no”. The yes/no column shows whether the class is closed. Using the scroll bar to the right of the drop-down menu allows the user to highlight the desired class. Once the class is selected in the header, all of the information pertaining to that class automatically appears in the middle part of the form.

					▼
AM003	Tuesday, July 21, 1998	8:00 AM	MH202-12	Yes	▲
AM003	Thursday, July 23, 1998	12:00PM	MH102-15	No	□
AM003	Friday, July 24, 1998	12:00 PM	MH102-15	Yes	
CO003	Wednesday, July 22, 1998	8:00 AM	MH201-12	Yes	
CO003	Wednesday, July 22, 1998	8:00 AM	MH202-12	No	
CO003	Thursday, July 23, 1998	1:00 PM	MH201-12	No	
CO003	Friday, July 24, 1998	8:00 AM	MH201-12	Yes	
CO003	Monday, July 27, 1998	8:00 AM	MH202-12	No	▼

Figure 4

2. Edit class information below. Once the first step is done, all this information is shown in the form between the two horizontal lines. Select the field that needs to be edited and re-enter the information. All of the fields for this database are defined under the term “fields” in the terms section at the beginning of this paper. The two fields that are in gray show the pertinent information; however, the changes for those fields have to be conducted on another form.

Copy of class roster (cannot be edited). This last section of this form is a list of the employees that are signed up for this class. This information also automatically comes up when the class is selected. To make edits to this part, the user must go to the *Schedule a learner for classes* form. The rationale for putting a copy of the class

roster in this form was to make sure that a class was not deleted when there were employees already signed up.

If adding a new class, select the first of the three buttons in the middle called *Add a class* button. Selecting this button will send the form to the last record and make a new record with all blank fields in step two. After the information is entered into these fields and the form is saved, the new class record will show up in the drop-down menu from step one.

The second button in that section, *Delete a class* will delete the class that is portrayed in the second step fields. Selecting this button will give the user a warning, asking if he or she wants to permanently delete one record. Before anything happens, the user has to answer yes or no to this question. "Yes" will delete the class permanently and "no" will cancel the procedure. The last button, *Return to main menu*, will close the current form and open the main menu form.

On this form there are six buttons, three in the upper right hand corner and three in the middle. The three in the upper corner saves a record, goes to the previous record and goes to the next record respectively. These three buttons are on almost all of the forms in the same location and will let the learner know what the buttons will do by hovering the mouse over the top of them to see a text box.

Edit / Add Learner Information

Selecting the *Edit / Add Learner Information* button brings up the *Individual Learner Records* form (Figure 5). The purpose of this form is to add or edit the employees work information, add or delete the classes that are needed and also see a schedule of the classes the learner is already scheduled for.

Individual Learner Records						Add New Learner	◀	▶	🖨
1. Select learner's last name, first name and press or select the "Add New Learner" button.						WARREN,DIANE			
2. Edit learner information below:						Return to Main Menu			
Learner ID	2	VAX Name	WARRENDR	Fulltime	<input checked="" type="checkbox"/>	Schedule For a Class			
Last Name,First Name:		WARREN,DIANE		Manager:	STEENHDEK,NIKI LYNN	E-mail Schedule			
Job Type	ADMIN ASST	Business Unit:	ADMINISTRATION	Print Schedule					
Location Code	JD42AD	City	Johnston	State	IA				
3. Enter in classes that need to be taken and check off once scheduled:									
Modules Needed	Scheduled	Delete Module							
GC004	<input type="checkbox"/>	✕							
CA001	<input type="checkbox"/>	✕							
MM001	<input checked="" type="checkbox"/>	✕							
Copy of learner schedule									
Module ID	Class ID	Date	Start	End	Room	Completed			
MM001	MM0017211	Tuesday, July 21, 1998	8:00 AM	10:00 AM	MH101-16	<input type="checkbox"/>			

Figure 5

1. Select learner's last name, first name and press or select the *Add New Learner* button.

Once the learner's name is selected from the drop-down menu, the rest of the information automatically comes up for the user.

2. Edit learner information below. The entire drop-down menu fields in this section only allow entries made from the list. The *learner ID* field is the only field that is not editable. This field is an automatic number system given by the system to each learner for identification purposes. If a new learner is added to the database, the next *learner ID* will be the next available number.

3. Enter the classes that need to be taken and check off once scheduled. This section has the user enter in the classes that need to be taken for the specified learner. At company XXXX, the supervising manager of each learner looks at a course catalog given to them and provides the registration team with the list of classes that needs to be taken by each subordinate. This is just a list of the classes that need to be taken and is not to be mistaken for classes that have been scheduled. The user then uses this list to schedule the learners for specific classes. There is also a button next to each module that might be needed to delete that record. This button helps to easily eliminate any classes that are no longer necessary without leaving blank lines in the form. Once the user has scheduled the learner, he or she must go back to this screen and place a check mark in the field called *Scheduled*.

Copy of learner schedule. Once the learner is scheduled for classes and is selected in the individual learner record screen, a copy of the learners schedule will be displayed. This will assist the user in finding a time to schedule learners for other classes.

Adding a New Learner. The first button in the header is the *Add New Learner* button. Selecting this button will create a new learner record with all blank fields. The user will proceed to step 2 and enter the data in the blank fields.

The last three buttons that have not been mentioned are for scheduling a learner for a class, printing and e-mailing a schedule. The first button, *Schedule For a Class*, sends the user to the next screen that will be discussed, *Schedule Learner For a Class*. The other two buttons will allow the user to either print or e-mail a schedule. Selecting either of these buttons will cause a pop-up window to appear. In this pop-up window will be a dialog box asking for the last and first name of the desired learner. Once this information is entered, the schedule will print, or the default e-mail program will be launched on the user's computer and the schedule will be sent as an attachment to the recipient.

Schedule Learners for a Class

Choosing the *Schedule Learners for a Class* button will bring up a form with the same name (Figure 6). This screen is used to schedule learners for a particular class. This screen is probably also the most complicated screen to use because several actions will need to take place in order to keep all records accurate.

Schedule A Learner For Class

1. Enter in desired class:

2. Check to make sure class is correct:

Module ID: Class ID: Return to Learner Records

Days/Times: Class Location: Return to Main Menu

Start Time: Duration: End Time:

Training Client: Class size: Closed

Notes:

3. Click on "add learner" button below and enter in learner's last name to schedule for this class.

5. Close class by checking box when class is full, the capacity of the class are the numbers after the dash in the "room" field.

6. Click SAVE button.

Add Learner to Class

Name	Class ID	Delete Learner
<input type="text" value="JENNINGS, SHEILA K."/>	<input type="text" value="C00037231"/>	<input type="checkbox"/>
<input type="text" value="CROUSE, JANETTE L."/>	<input type="text" value="C00037231"/>	<input type="checkbox"/>
<input type="text" value="HAMPEL, LYNNE S."/>	<input type="text" value="C00037231"/>	<input type="checkbox"/>

Figure 6

1. Enter in desired class. Using the same drop-down menu as displayed earlier, the user selects the class in which to schedule the learner. The information for the class automatically enters in the fields below.

2. Check to make sure class is correct. This next section gives a better description of the class that was selected to verify that this is the class into which to schedule the learner. Notice that all the fields are gray except for two, the *class size* and *count*. The reason for the fields being gray is that it is for verification purposes only and is not intended to let the users make changes to this information. An explanation of the two fields that are currently white will be given shortly.

3. Click on the *add learner* button below and enter in learner's last name to schedule for this class. After selecting the button *add learner*, the cursor automatically goes to the subform to add a new learner. The user may either use the drop-down arrow box or type in the name. This field has been set up to only accept entries that are from the drop-down list, therefore making sure that those employees who need to be in classes have their history records in the database. Next to the class ID is a button to delete a learner from the class if needed. By clicking on the button, the name immediately to the left will be deleted. Before being permanently deleted, a warning box will appear making sure that the user wants to delete the specified record. If the record is to be deleted, select "yes"; however, if the record should not be deleted select "cancel" and the record will not be deleted. The class ID field is there to verify that the subform created is scheduling the learner for the correct class.

4. Re-enter current class size number after each learner is scheduled. Once the learner or learners are scheduled or deleted from the class, the user needs to return to step two

and change the information in the *class size* field accordingly. This will accurately keep track of the number of people in the class.

5. Close class by checking box when class is full. The capacity of the classes are the numbers after the dash in the *room* field. Once the class size equals the capacity, the user should place a check in the *closed* field. This tells the database that the class is full and also changes the yes/no status from the drop-down menu that was shown earlier. If a learner is being removed from a closed class, the user should uncheck the field to show that it is still open.

Steps 4 and 5 of this form are very crucial in the success of this database. If these steps are not followed, the correct number of learners may not be in class and some learners will be without seats. It will also not accurately show when the yes or no feature closes a class. The only new button on this current screen will take the user back to the *Individual Learner Records* screen.

Close a Class

Selecting the *close a class* button will take the user to the exact same screen as shown with the last button. A separate button was created because, according to the previous registration process, this is a common task and deserved a separate button to avoid confusion. Once this button is selected, the user checks the information and places a check mark in the *closed* field.

Record Class Attendance

Company XXXX expects their employees to attend class and records need to be kept for this purpose. Therefore, a form was created to bring up the class roster (Figure 7). For every class offered, a class roster is given to the instructor to take attendance. Once the class is over, the instructor brings the roster to the registration person. Almost everyday, the user of the database will take the day's class roster and enter in the information. The user will select the *record class attendance* button and the *Taking Class Attendance* screen displays.

Taking Class Attendance

1. Please enter class to record attendance: AM003

Days/Times: Tuesday, July 21, 1998 ex. 10/15/99

Start Time: 8:00 AM Duration: 2.0 End Time: 10:00 AM

Training Clie: QA2/141 Class size: 2 Closer:

Class Locator: MH202-12

Notes: This class is cancelled, please contact the people [Return to Main Menu](#)

3. Place a check next to names once they have completed class.

Learner ID	Class ID	Complete
WARREN,DIANE	AM0037211	<input checked="" type="checkbox"/>
STEENHOEK,NIKI LYNN	AM0037211	<input checked="" type="checkbox"/>
	AM0037211	<input type="checkbox"/>

Figure 7

1. Please enter class to record attendance. The user will select the class from the familiar drop-down menu. Automatically, the class information and class roster appears.

2. Check to make sure class is correct. The information that appears is all located in gray fields. Again, this is for clarification purposes and edits cannot be made.

3. Place a check next to names once they have completed class. In this subform, the learner's names cannot be changed. The only field on this screen that can be edited is the *completed* field, where the user can check or uncheck the box. The check mark notes that the learner has attended the class. Once the field is checked or unchecked, this information is portrayed in the individual learner record schedules to show if the class has been completed.

View / Print / E-mail Reports

The final major task button, *View / Print / E-mail Reports*, is the button that produces all the desired output for the database. Once this button is selected, the *View / Print / E-mail Reports* screen comes up (Figure 8), with three tabs – view, print and e-mail. Each of the tabs have the same buttons on them and produce the same report; the decision is what type of medium to use and selecting the desired tab. To make sure that the user is on the desired tab, each window of the tab is labeled.

Using the view functions will display the reports on the monitor in a preview mode. In this mode, the user may have to use both the vertical and horizontal scroll bars to see entire report. To return from this view to the *View / Print / E-mail Reports* screen, instructions are provided on the print reports tab. Selecting the print option will automatically send the schedule to the default printer. Selecting a button on the e-mail tab will automatically launch the default e-mail system. Company XXXX has Microsoft

Outlook 97 as their default e-mail system and so the email function in the database would be set up to their configuration. The e-mail function will only work to the specification of the company and would have to be changed for the e-mail to work outside of the company's mainframe computer system.

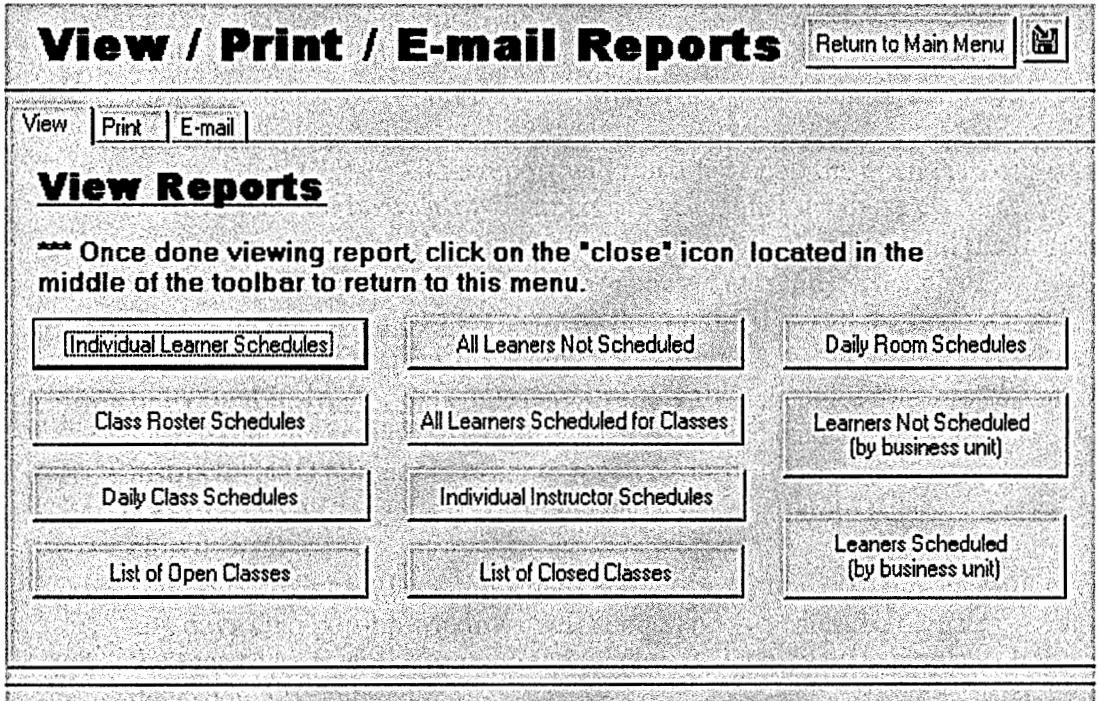


Figure 8

All the buttons that were created refer to the major reports that are needed for the registration process. With this report screen, there should be a reference sheet on the desk of the users containing specific information on rooms, instructor ID numbers, and business units. Since most of the reports require the user to specify the data in a pop-up window, the

reference sheet will be a useful tool until the user gets accustomed to the codes and numbers. Below is the list of the buttons and what the reports will display:

- Individual Learner Schedules – will show the schedule for any individual learner. When selecting this button, a pop-up window will prompt the user to enter the last name and first name of the desired learner.
- Class Roster Schedules – will show the class information and learners registered for each class. The desired class is found by entering in the desired class id into a pop-up window.
- Daily Class Schedules – this displays all of the classes that will be displayed for the current day. A pop-up window will appear asking for the preferred date.
- List of Open Classes – this report will run a list of all the open classes that are still available and how many learners are scheduled for those classes.
- All Learners Not Scheduled – this will run a report displaying all the learners that need take specified classes but are not yet currently scheduled.
- All Learners Scheduled for Classes – this report show all the people that have been scheduled for specific classes.
- Individual Instructor Schedules – will show the schedules of each instructor for the training session. A pop-up window is displayed asking for the instructor's ID number in order to receive schedule.
- List of Closed Classes – this will display a list of all of the classes that are closed
- Daily Room Schedules – this report shows the activities of any classroom on any day. Two pop-up windows will appear, one to enter the date desired and the second to enter the room. Each window will show an example of how the data should be entered.
- Learners Not Scheduled (by business unit) – will display all of the learners that are not scheduled by the business unit they work in,
- Learners Scheduled (by business unit) – will show all of the learners that are scheduled for classes by their business unit.

Conclusion and Recommendations

The overall process of creating a database can be very tedious and many little things can be done to improve the design, flow and process of any database. As a resource tool for this company, the overall aesthetics of the database was not a major concern to them or this developer. If this database was going to be a marketable application and for sale, then the aesthetics and addition of graphics would be critical. This database was created to be viewed and used on a fifteen-inch color monitor. The main intention of the *Training Registration* database was to increase the efficiency of the company and make it be an easier process than had been previously used.

The results from the usability questionnaire in Appendix C were very favorable. Other than the responses mentioned below, no major changes to the database were necessary. During the testing of this database, the flow of the information was brought up a few times. Before testing occurred, font color of the step-by-step instructions was black. It was suggested by two subjects to make the instruction portion of the screen stand out better, as they were having trouble locating them. Therefore, the instructions were changed to a maroon color and bold-faced for easier viewing. The positioning of the buttons was changed, based on usability tests. Before testing, buttons were placed in various places around the screen. After usability testing, the buttons were then placed in the same area of every screen to avoid confusion.

A couple of recommendations can be made about this project. First of all, with more of a computer language background, the database could be more automated than it already is. For instance, on the *Individual Learner Records* screen, once the *location code*

is entered, the city and state could automatically display. Another suggestion would be to create a counting function to keep track of every class and how many learners are scheduled and then automatically fill in the *class size* field. Once the class size field reaches the capacity level, the database placed a check mark in the *closed* field. The truest test to see if this database works is when company XXXX uses it for their training registration needs.

In order for this database to be effective, it is the belief of this developer that some training should be provided to the users to make sure that no problems arise. The creation of this database should assist with the collection and distribution of the majority of the information and tasks done with company XXXX's registration process. However, if additional information or reports are needed, the user should seek someone who understands Microsoft Access 97 to assist them. Overall, the development of this database should increase the efficiency and effectiveness of the next registration process for company XXXX.

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Appendix A

This survey is to find out what are the most common tasks that the registration database was being used for. This will assist in the creation of the database to focus on those items first and then build around that for any other “ nice to have’s”. Not all questions may be applicable to your job.

1. What are the top five most common tasks that you have performed when using Pioneer’s registration database? Please be as specific as possible.

-
-
-
-
-

2. What are the most common types of information that you would like to receive as **output** from the database? Please be specific and these answers may or may not coincide with the above question.

-
-
-
-
-

3. Please list the essential information and features that you would like to see this database contain.

- | | |
|---|---|
| • | • |
| • | • |
| • | • |
| • | • |
| • | • |
| • | • |

4. Please list those features and collected information that would be nice to have.

- | | |
|---|---|
| • | • |
| • | • |
| • | • |
| • | • |
| • | • |
| • | • |

Appendix B

This survey is to find out the results of how the employees doing the initial registration felt about the Microsoft Access registration database used at Pioneer Hi Bred International during the first phase of training. You may either select the provided response or if more accurate choose the imbetween response.

Personal experiences with computers, applications and databases

How experienced are you in using a computer?	Beginner		Intermediate		Advanced	NA
How experienced are you in using Microsoft Access 97?	Beginner		Intermediate		Advanced	NA
Have you used any other types of databases?	Yes				No	NA
If yes, overall, how did this database compare to the other ones you used?	Easier		About the same		The most difficult	NA
How long have you worked with this training database?	A few weeks		A few months		Over a year	NA
What was your typical feeling when you use this database?	Frustrated		Content		Satisfied	NA

Personal experiences with the registration database

	Easy		Average		Very Difficult	
How easy was it to learn this database?	1	2	3	4	5	NA
How easy was it to complete your work with this database?	1	2	3	4	5	NA
How easy was it to get the output that you desired?	1	2	3	4	5	NA

Presentation and look of the database

Did you know where and how to enter specific data?	Yes		Sometimes		No	NA
Were the fields and names of the forms, tables and queries easily recognizable?	Yes		Sometimes		No	NA

Navigation - How easy it was to move around in the database?

How often did you know where you wanted to begin when using the database?	Rarely		Frequently		Always	NA
Was it easy to navigate through the database?	Yes		Somewhat		No	NA
Was the database in a logical, working order?	Yes		Somewhat		No	NA
Did you find that you get "lost" in the system?	Rarely		Frequently		Always	NA
Being able to get where you want to go	Rarely		Frequently		Always	NA
Being able to get back to where you were or a previous screen	Rarely		Frequently		Always	NA
Being able to tell the differences between each of the forms, tables and queries	Rarely		Frequently		Always	NA

Overall opinion of the registration database

	Very Poor		Average		Very Good	NA
How would you rate the overall usability of this database?	1	2	3	4	5	NA
How would you rate the easiness to input the information?	1	2	3	4	5	NA
How would you rate the easiness to receive information?	1	2	3	4	5	NA
How would you rate your overall experience with this database?	1	2	3	4	5	NA

Additional comments

Various questions on this survey were used from "Making Computers People Literate" by Elaine Weiss, 1993.

Appendix C

Training Registration Database Test

Please do the following transactions on the *Training Registration* database. Make a note of where you find some confusion or would see some improvements. Thank you for your time, it is appreciated.

1. Change the learner information for Max Wineland, he has been transferred to the location code WOODPP, in Woodhull, California.
2. The class CO003 on July 24, 1998 has been changed to start at 9:00 am in room 103. Please make the correct changes to the database.
3. Please view the report for all classes scheduled for July 24, 1998.
4. We have a new employee: Jeff Nordine, he is an administrative assistant for Diane Warren in Administration. The location in JO40AO and is a full time employee. The classes that he has to take are listed below.
 - MM001
 - FI003
 - AM001
 - CO003

Please go ahead and schedule him for FI003 and CO003 for right now.

5. Please add a new class for AM003 for room 103 August 17, 1998 from 8am to 12pm. The class ID is AM0038171 and the instructor will be Dan Hoy.
6. Please view the report for room 104 on July 8, 1998. (The code for room 104 is MH 104.)