Databases: User-friendly database design
The small print

Prerequisites

Time in the classroom is precious – it is an opportunity for you to interact with the workshop leader and other participants through questions and discussions and to share your experiences and concerns. To make the most of this time we sometimes ask you to carry out learning activities ahead of the workshop so that everyone comes into the class with the same basic knowledge. We keep this prior learning to a minimum and often make use of Lynda.com videos. Lynda.com videos can be accessed by University members anytime, anywhere, through a browser or app.

The workshop description will tell you if any prior learning is required. If you don’t have an environment where you can do this learning, you can come along to one of our ‘Lynda Labs’. These are scheduled every week, and are a quiet space where you can work through Lynda.com videos or other workshop resources.

If you turn up to a workshop without having done the prior learning, the workshop leader may suggest that you come back on another session.

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About the workshop designer

Pamela Stanworth has over a decade’s experience working on databases with researchers and departments throughout the University. She brings a pragmatic approach to building projects that are effective, reliable and sustainable.

Pamela’s roots are in engineering, with blue-chip industrial companies, technical consultancy and small businesses. Her commitment in teaching and consulting is to enable people to use appropriate technology in their work, efficiently and to a high standard.

Revision history

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About this workshop

This workshop will take you through the process of making your database user-friendly.

It is important to provide a set of forms (or views, or web pages, or whatever your software provides), so that your users can enter and correct the data and review the data saved there. They need to review the data in a relevant and interesting way. You should also manage the workflow – the user experience needs to be “safe, efficient and easy”.

What you will learn

We will start by trying out an existing database, to understand the role of forms and reports. We will create new forms and manage their content. We will discover what makes a good layout and explore how to help users enter their data accurately and safely.

We will compare different ways of automating the user experience, to help people find their way around the database. Finally, we will look at how to structure a series of forms into an efficient working environment.

What you need to know

The ideas and techniques covered in this workshop will apply to a range of tools. We will demonstrate using Access, whose graphical interface is a good medium for learning in. However, the concepts will be the same, whatever relational database software you decide to use.

I will assume that you have already built your database, with tables and fields, and with joins between the tables to manage the one-to-many relationships in your data. This uses the ideas covered in the course “Databases: Building a database”.

I will assume that you are reasonably confident in using the tool you have chosen to use to create your database. If you don’t yet have a preference, then I suggest you use Access to get started. With your chosen tool, you will need to be able to:

- Create and save a new document
- Insert and format text and data
- Move and rearrange graphics and shapes
- Create tables with fields
- Set up joins between tables
- Navigate the commands and menus, using Help as necessary

If you need to review these activities, Lynda.com is a great place to get guidance. Here are some relevant videos:

“Access 2013 Essential Training”, choose some topics from chapters 1, 2 and 3.

The resources you need

Sample data and databases that you can use to experiment with will be available, but you may like to bring along your own.

Unless you have been told otherwise, there will be a computer available for you to use with Access installed.

You can bring along your own laptop with your preferred tool installed if you want to – just bear in mind that I am not an expert in every tool (although I am sure that between us we will be able to solve most issues!).

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Using the database files for exercises

*Access 2013* files for these exercises have been provided for you on a network drive. Your area of the drive is called the Home Drive H:

Please note that *Access* only trusts files if they have been saved in a “Trusted Location”. The Home Drive H:, used for most IT Learning Centre courses, has been designated an Access Trusted Location. If you make copies of the files for these exercises, and save them on your own computer in a location that is not trusted, you may not be able to carry out all the activities described.

About the tools you can use

There are many applications that you can use to create a relational database, each having different strengths and applications. For example, the selection will depend on how many people are expected to use it (a handful of people, several dozen, thousands?) and how they will get access to it (saved locally or data viewed and contributed on-line? free software or paid-for?). You should also think about the devices that you and other users will be using (Windows, Mac, web browsers on a variety of devices?) and what features will be needed (design your own custom forms, produce charts?). Also what support will you need (courses from IT Learning Centre, videos online, existing expertise in your own team?).

The Database Chooser tool is designed to help you compare your software options, to select one that will suit your project. It is itself a database that runs in *Access*, and a copy is included with the student files for this workshop. The Chooser is currently in beta form, so we hope you will find it useful but if you have any problems using it – or have suggestions about improving it – please contact us using courses@it.ox.ac.uk.

Web App or Desktop Database?

*Access 2013* can also be used to create a web app database: where users work on the data via a web browser. This would require communication using *Office 365* or *SharePoint 2013* (not currently available at Oxford University), and is not the subject of this course. We will work on a desktop database, which is saved locally on your computer or a network drive.
Learning Objectives

This workshop has the following learning objectives:

Learning Objective One – Try some existing forms and reports
Learning Objective Two – Create a form, starting from blank
Learning Objective Three – Arranging controls in a form
Learning Objective Four – Adding special controls on a form
Learning Objective Five – Formatting elements of a form
Learning Objective Six – Managing the form structure
Learning Objective Seven – Automatic actions
Learning Objective Eight – Welcoming your users

Study Videos

During the workshop, I will point you to a variety of resources that will help you in achieving these objectives.

Videos to support these topics are available from Lynda.com. Find the playlist for today’s course in the ITLC Portfolio: visit http://portfolio.it.ox.ac.uk and search for “user-friendly playlist”.

Watching these videos requires an Oxford University account with Lynda.com. Read about Lynda.com here: http://portfolio.it.ox.ac.uk/resource/lyndacom/lyndacom-welcome-about-these-videos-and-learning-resources
Learning Objective One – Try some existing forms and reports

You will look around a database file, exploring its tables, forms and reports. Get a feel for the value of using forms for viewing the data in a table, and for entering fresh or edited data.

Open a database such as Pendleton Products.accdb and examine the data that is stored in tables, with fields and joins.

Use a form such as frmEmployees to review existing data and correct or add fresh data. Use a report such as rptEmployees to present existing data.
Learning Objective Two – Create a form, starting from blank

Although the wizard is the easiest way to create a simple form, if you want more options you need to work on the design separately.

Create a new blank form. You can choose which fields appear as text boxes on your form. Add controls for fields from a table such as tblCustomers.

Resize and rearrange controls neatly on the form. Make some of the controls more understandable by editing the label text.

Use your new form to edit some data.
Learning Objective Three – Arranging controls in a form

In **frmDetailsOfCustomers**, practice moving several controls at once. Find how to align several controls and how to manage the way controls overlap.
Learning Objective Four – Adding special controls on a form

You can help your users to enter data correctly (without mis-typing) by providing easy-to-use controls on the forms.

Some helpful kinds of controls appear automatically, such as a checkbox or date picker – this depends on the way the fields were defined in the table design.

In Woodstock Road Dentist.accdb, use the form frmNotesForPatients, and add some more objects:
- Add a display of the current time into the form footer
- Insert a date picker control, for the Date field
- Create a checkbox for the field CopyGivenToPatient

A combo box (drop-down list box) is a helpful way to enable your users to enter their data, with less risk of mis-typing or entering the wrong information. A combo box is a particularly good way to help your users to enter the data for the joining field between tables.

Use the form frmPatientsPlain and add
- A combo box for people’s titles (Mr, Mrs, Miss etc.)
- A combo box for choosing which school each patient attends (if any), taken from tblSchool

Add data using the revised forms – try out the date picker, the checkbox and the combo boxes.
Learning Objective Five – Formatting elements of a form

It is worth spending a little time on the appearance of a form, so that objects are neatly arranged and easy to read. Simple colour and format choices can help your users recognise where they are and what they should be doing in each of your forms. You will try out different ways of changing the appearance and formatting for elements of a form.

In *Pendleton Products.accdb*, in *frmDetailsOfCustomers*, experiment with different ways of changing the appearance of controls on the form:

- Try some different themes to change the appearance of a whole form
- Use the Ribbon buttons to change popular formats of some individual controls
- Change the background colour of the form
- Use the Property Sheet to change other formats of individual controls
- Change formats of the form itself
Learning Objective Six – Managing the form structure

You will arrange the structure of the form, so that your users can enter and review the data easily and efficiently.

In *Woodstock Road Dentist.accdb*, work on the structure of *frmSchoolsPlain*. Rearrange the field controls onto two tabbed pages, so that the address information is kept separate from the contact information. Arrange the tab order to be more convenient. Add helpful text and perhaps an image in the header and footer.

Forms often display just one record at a time, but other arrangements are possible. Now create a new form for the schools, arranged so that the user can scroll down through multiple records continuously down the screen (just show a few fields).

Where two tables are related with a one-to-many join, a main form with a subform may be a convenient way for working on the related data. On *frmSchoolsWithPeople*, add a subform showing for each school the patients who attend that school.
Learning Objective Seven – Automatic actions

You will set up events that happen automatically, when the user clicks a button or on certain actions in the database.

On the form frmPatientsPlain, add a button which opens the form frmSchoolsPlain. Improve the appearance of the button.

Create a macro that opens a report; include some other actions such as filtering, message box, and create a button on a form that will run this macro.

Set a macro to run when one of the forms opens: for example, set the macro mcrGoToRecord to run when frmAllAssets is opened.
Learning Objective Eight – Welcoming your users

Build a navigation form, with buttons that open various forms and reports or run macros. Have one more button for the user to exit the application. Set this navigation form to be the first thing that a user sees when they open the database.
Further information

Getting extra help

Clinics

The IT Learning Centre offers bookable clinics where you can get pre- or post-course advice.

About Lynda.com

Lynda.com is free to all members of the University. Visit courses.it.ox.ac.uk/lynda and sign in with your Single Sign-On (SSO) credentials. Some courses recommend pre- and/or post-course playlists of Lynda.com videos to support your learning. You can watch these anywhere, anytime, and even download them on to a tablet or smartphone for off-line viewing.

If you need a quiet place to work through playlists away from distractions, the IT Learning Centre offers frequent Lynda Labs that you can book onto.

About the ITLC Portfolio online

Many of the resources used in the IT Learning Centre courses and workshops are made available as Open Educational Resources (OER) via our Portfolio website at http://portfolio.it.ox.ac.uk.

About the IT Learning Centre

The IT Learning Centre delivers over 100 IT-related classroom-based courses, and gives you access to thousands of on-line course through Lynda.com.

Our team of teachers have backgrounds in academia, research, business and education and are supported by other experts from around the University and beyond.

Our courses are open to all members of the University at a small charge. Where resources allow, we can deliver closed courses to departments and colleges, which can be more cost effective than signing up individually. We can also customize courses to suit your needs.

Our fully-equipped suite of seven teaching and training rooms are available for hire for your own events and courses.

For more information, contact us at courses@it.ox.ac.uk

About IT Customer Services

The IT Learning Centre is part of the Customer Services Group. The group provides the main user support services for the department, assisting all staff and students within the University as well as retired staff and other users of University IT services. It supports all the services offered by IT Services plus general IT support queries from any user, working in collaboration with local IT support units.

The Customer Services Group also offers a data back-up service; an online shop; and a PC maintenance scheme. Customer Services is further responsible for desktop computing services – for staff and in public/shared areas – throughout UAS and the Bodleian Libraries.
Databases –
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Your safety and comfort are important

Where is the fire exit?
Please tell us if anything does not work
The toilets are along the corridor outside the teaching rooms
The rest area has vending machines and a water cooler

Resources for your learning

Activities for you to practice today
Workbooks
Work at your own pace!
Be selective

Video playlists with today’s topics in Lynda.com

Follow-up work
Continue with exercises after the session
Course Clinics
Today: An interface for your database users

Getting Started

Getting started with Access

Start Access
Use a desktop icon or Start menu etc.

Access version 2013 in teaching rooms

Enabling active content?
Today, the exercise files are in Home Drive H:\

Creating a Form

Forms are used for entering and editing data

A form presents data from the table
Laid out suitably for using on computer screen
Typically show one record at a time
Good layout helps the user to enter data accurately
Type-in boxes, drop-down list boxes and other controls are easy to use
3 views of a form

Editing the data
Using the form

Sample data is visible but not editable
Rearranging the form

No data values
Detailed design changes

Starting with a blank form

Create a new form in Design View

Save the form
  Form names conventionally begin with frm
  No spaces and limited punctuation

Objects in a Form
Adding objects onto a form

Add a label

Add the first text box
Binds the form to the table
Add more text boxes
Each text box is bound to a field
Try the form in Form View

Manipulating a text box

Each text box has a label
Selecting
Re-sizing
Moving - together or separately
Edit text inside a label

Working with multiple controls

Selecting multiple controls
Hold Ctrl key then click several objects
or Drag an enclosing rectangle
or Drag on a ruler

Arranging multiple controls
Overlapping objects have a stack order
Useful tools for positioning and aligning
Adding other types of control

Some controls are built automatically
- Check box for a Yes/No field
- Combo box for a field with a lookup
- Date picker for a Date field

A combo box offers choices

Built using the Combo Box wizard

Properties of a combo box
- Allowing other values?
- Adding an item to the list

or use a combo box for navigating records

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Look at Learning Objectives One to Four

Helpful videos at Lynda.com
Visit [http://courses.it.ox.ac.uk/lynda](http://courses.it.ox.ac.uk/lynda)

Restart at 10:15
If you want to continue with the Exercises, you could ...

Copy the Exercise files to a memory stick
Download the files (and more) from the IT Learning Portfolio at http://portfolio.it.ox.ac.uk
Download “Step by Steps”

Improving a Form’s Design

Theme transforms the form (optional)
Quickly change the whole look of a form using the Theme Gallery
Buttons for popular formatting options

Font formatting
Colours, lines and fills
Number, date formatting

The Property Sheet

More properties for controls

A form itself has properties
Record source for its data
Scroll bars, buttons etc

Form Structure
Make the form easy to use

**Tab order**
Rearrange for a more convenient field order

**Tabbed pages (extra pages on a form)**
Insert more pages
Name property to show better text on the tabs

**Header and Footer**
Automatically appear when title or logo is inserted

A form that shows many records

**A “Multiple Items” form**
Continuous Forms view
Similar to table view, but with easy-to-use form controls

Subforms

**Why use a subform?**
To show a one-to-many relationship

Create a subform from within a form
Subform names begin with fsub
Resize as necessary
Databases - User-friendly database design

Look at Learning Objectives Five to Six

Restart at 11:15

Databases: User-friendly database design

Look at Learning Objectives Five to Six

Helpful videos at Lynda.com
Visit http://courses.it.ox.ac.uk/lynda

Restart at 11:15

A Friendly User Interface
Trusting the File Location (optional)

A button on a form

In Design View:
Add a Button
The wizard starts
Choose a category and an action
Choose button face (text or picture)
Format the button
colour, shading, shape using buttons
Or Quick Styles
User can click the button when ready

Building a macro

Create a new macro
Choose Actions
More under RunMenuCommand
Save - macro names begin mcr
Running a macro

Macros are listed in the Navigation Pane
Double-click the macro name to run macro

Or attach macro to a form or an event
Macro runs automatically

Attaching a macro to a form/report (optional)

In Design View, show the Form/Report Properties
On the Event tab, choose an event, such as On Activate
Choose a macro name from the list

Try it out: when the form/report is started, the macro is run

A button for running a macro

Use the Command Button wizard
User decides when to click the button and start the macro
A navigation form

- Drag a form name from the Navigation Pane
- Drag other forms and reports
- Format the buttons, improve the text
- Hide all window control tools on all the forms (min/max, close etc.)
- May add a minimal “first page”

A display form

- A form that appears when the file opens
- Among the File Options for the Current Database
  - Set a display form
  - Suppress other features
    - Hide the Navigation Pane
- Over-ride: hold Shift key while opening a file

More About Databases
Other related courses

Next steps:
- Databases - Building a database
- Databases - Queries and data analysis

- see the schedule online

Lynda.com videos on databases and other topics

If you want to continue with the Exercises, you could ...

Copy the Exercise files to a memory stick
Download the files (and more) from the IT Learning Portfolio at http://portfolio.it.ox.ac.uk
Download “Step by Steps”

Databases:
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Look at Learning Objectives Seven to Eight

We finish at 12:15