

# of course

VOLUME 4, NUMBER 2

AUTUMN 2004

## **A mint on the pillow**

**Providing more than you'd expect from  
an open source training company**



## **PHP 5**

**Should you make the switch?**

## **Our brag page**

**Students we've taught, places we've been**

**We reveal our web site  
from the inside and  
show what drives it**



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## Coming up in the next issues

GeekCruising the Mediterranean. Perl Whirl, Linux Lunacy and MySQL Swell with Larry Wall, Rasmus Lerdorf, Monty Widenius and others (Spring 2005).

Well House Consultants - the first ten years. How we've bucked some trends and grown from nothing to a training outfit with our own courses and training centre. (Autumn, 2005).

**Using short tags in PHP**

In PHP you can usually use a short open tag `<?>` in place of the longer and universal `<?php>`. Did you know that if the `<?>` tag is supported on your system, you can also use `<?=>` to specify a PHP variable or expression to be printed?

```
<? $today = date("dS"); ?>
<html>
<head><title>Short tags in PHP</title></head>
<body>
Today is the <?=> $today ?> of the month, and I'm going to
mention that it's the <?=> $today ?> several more times.<br />
<br />I am writing this page on the <?php print ($today); ?> of
the month. Get that? It's the <? print $today ; ?> ... ;-)
</body>
</html>
```

Authors of JSPs (Java Server Pages) will find this very familiar - JSP supports `<%>` tags for Java code, and `<%=>` tags for Java expressions.

## Consider the legal aspects of a web site

Writing scripts that are going to be publicly visible on the web, or using personal or third party information in your work? You may not be a legal expert, but you or someone at your place of work needs to consider:

- Data Protection and registration
- Freedom of Information Act, 2000.
- Privacy and credit card security issues
- Unsolicited commercial emailing and mailing lists.
- Copyright, Advertising standards and other content issues
- Web site and other service accessibility

There's no single authoritative source that pulls all this information together and much of the law is new and still awaiting cases to be tested to define (for example) what is "reasonable effort" to make a web site accessible.

We've put together 12 pages of notes to overview these subjects and to give you links and contacts for the appropriate authorities. We include the notes on our Java, PHP, Perl and other relevant courses, and the notes are also available for anyone to download from our training note samples at <http://www.wellho.net/downloads>.





A WORD FROM GRAHAM ELLIS

## We put the “mint on the pillow” because you’re more than a student; you’re a friend

Is it really six months since I last sat down to write an introduction to “Of Course”? I guess it must be! Time flies when you’re busy, and we’ve been very busy at Well House Consultants. We’ve had courses running nearly every weekday, and, even in August as I write this editorial, my schedule at what I would expect to be a quiet time of year is crammed with on-site courses. Our recent scheduled courses booked well too, and there’s every sign of a busy Autumn.

Why are we so busy? Is the whole marketplace as busy? I’ve looked around, and I don’t think so; I think there are two reasons. Firstly, the quality of our training is second to none, and our prices are competitive. Many of our trainees are recommending us to their friends, and new client companies are liking the service they get and are re-booking us for further staff training. You’ll find the cover feature, on pages 12 and 13, describes how we provide “the mint on the pillow” on our courses – it’s a policy decision of ours to provide one step better than our customers expect, with the extra short-term financial investment being more than repaid in terms of future business. In a hotel, the extra tuck-in of the mint left before bedtime isn’t required, but it makes people feel special. We want you to feel special too, because you’re more than important to us, you’re our friend.

Secondly, we’ve been pleasantly surprised by just how well our Python courses have grown over the past six months. Although Python has been around for a number of years, it seems to be a language that’s really coming into its own in the UK now, and I’m proud to be helping people to learn Python – often as their first Object Oriented language.

We’ve got a busy schedule of public courses this Autumn at our Melksham, Wiltshire training centre. You’ll find dates and brief descriptions inside the back cover and very full information on our web site at <http://www.wellho.net>.

We also run a considerable number of private courses, both at our centre and at customer’s offices. Such courses can be tailored to suit your company’s individual requirements and they’ll make financial



sense for you if you’ve got four or more staff who need the same training at the same time.

If you’re wondering what’s the best solution or course for you, please do email me or Lisa and we’ll be happy to advise you. We know we spoil you for choice with an increasing selection of courses on PHP and Linux, matching in number the already-wide range on Perl.

We say “come as a student, leave as a friend”. To all our friends, we hope you’re well, and enjoying Open Source. Please keep in touch, please ask questions on “Opentalk” and please drop by if you’re passing. Lisa’s persuaded me to start a “Blog” to which I’m posting daily nuggets about Open Source programming, what we’re doing at Well House Consultants, and thoughts on the world in general. Visit our front page, and click on “The Horse’s Mouth”. Like what you read? Then visit [www.bloglines.com](http://www.bloglines.com) and you can subscribe to a regular feed of information.

Many of our students have been asking about blogs and it was time we put in practice the things we teach, as in many of the other things we incorporate in our web site. In fact, we go into this philosophy in more detail in a feature in this issue that begins on page 8. We lift our bonnet to show you how we use PHP and Perl to make our web site run.

Again, we’ve been turning our cameras on you as well, as you’ll see by our Bragging on page 5.

## The speed of three

Our training centre now has a three Mbit-per-second connection from the Internet. This means that we can download a megabyte of data in about three seconds, and that every trainee on a full course will get a better response here than he or she would off a standard 512k ADSL connection, even when everyone’s using the link at the same time.

Is such a fast link worthwhile? For us, yes. For heavy Internet browsers, usually. But you’re likely to find that with some sites your access speed is now limited by the connectivity of the web server and there’s no real gain on those with more than a 1.5 Mbit link. For light users, you’ll probably have better things to spend your money on than upping your bandwidth beyond 512k.

Although three Mbit is the highest speed you’ll commonly find in the UK, in Belgium and The Netherlands, a connection at four Mbits is fairly widespread. It’s no coincidence that these are both smaller countries with a fairly high population density and modern telecom systems.

With such speeds, the future is now. The high speed broadband network equipment is capable of supplying video on demand – watch the film you want, when you want it, without having to make the journey to your local Blockbuster.

## A numbers riddle

What has 238 modules and 2,970 pages?  
Answer: Our current training notes.

We run a wide variety of courses, and typically cover between 60 and 100 pages per day. So, does that mean if you attended each course, one after the other, you’d be at our centre for three months, including weekends? Well, we do serve a good cup of coffee.

# What's in the bookshop?

*Graham Ellis gauges what's popular in open source by looking at book-selling trends*

Traditionally (if it's possible to be "traditional" in our business), we have taken opportunities while travelling to visit bookshops in other parts of the world to browse their computer sections. By seeing what subjects are filling the shelves, especially in the USA, we've gained a valuable insight into which of the up-and-coming technologies are generating bulk-user interest.

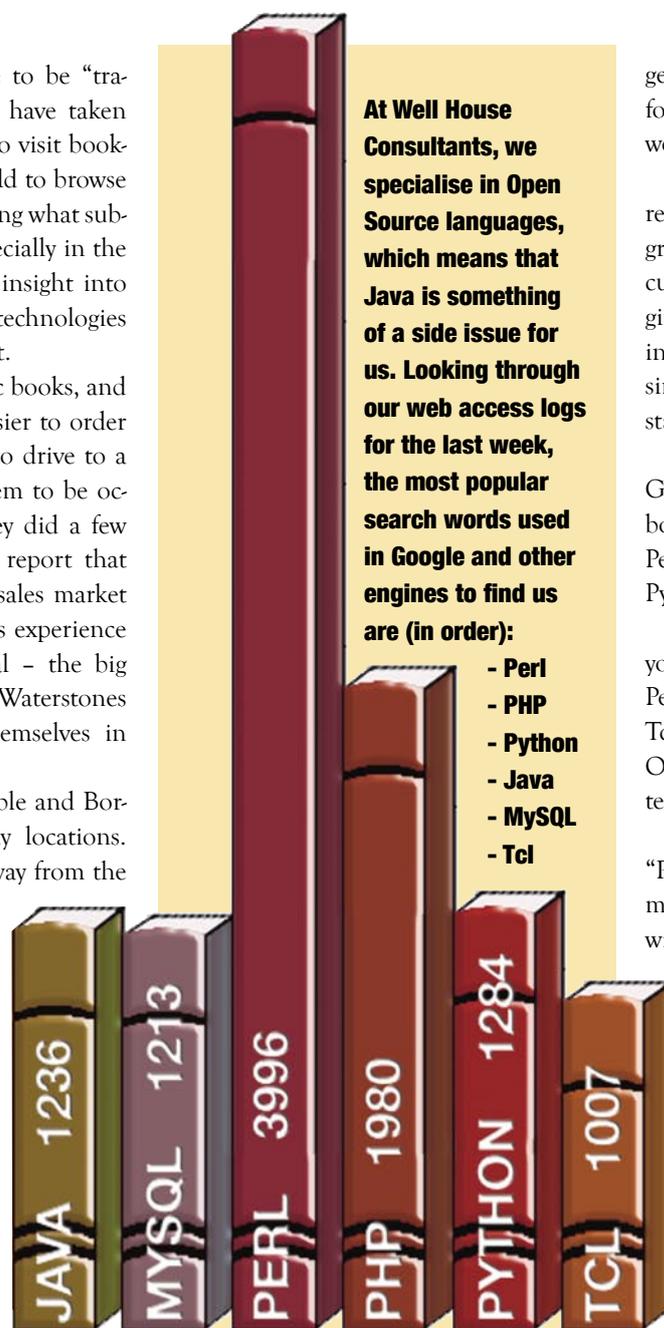
With the advent of electronic books, and the geekiest of us finding it easier to order the printed page online than to drive to a bookstore, computer books seem to be occupying fewer shelves than they did a few years back. Nielsen Bookscan report that the UK retail computer book sales market shrank by 9.58% last year. This experience doesn't appear to be universal - the big London stores of Foyles and Waterstones (formerly Dillons) excelled themselves in my estimation on a recent visit.

In the USA, Barnes and Noble and Borders remain excellent at many locations. The reductions appear to be away from the Capital in the UK, and in the coverage provided by the smaller stores in the USA.

What do we see? On open source programming languages, a thriving range of PHP books and a rush in to books that shout "Covers version 5". Plenty of books on Perl and a few on Python (many more than there were two years ago). Still huge coverage of Java, a lot of which now covers the extra Java technologies, and a big rise in ASP, .NET and C# books.

Away from the programming languages, there remains a good choice of MySQL books, and there's a still-widening range of Linux books, with Fedora being the current distribution that's generating a lot of new publications.

As well as looking at our existing interests, we also scan to see what's available in related topics, both to keep up with the big-



**At Well House Consultants, we specialise in Open Source languages, which means that Java is something of a side issue for us. Looking through our web access logs for the last week, the most popular search words used in Google and other engines to find us are (in order):**

- Perl
- PHP
- Python
- Java
- MySQL
- Tcl

**with the numbers here being the number of visitors who have clicked on a link to our main web site after entering a search including the given word. Note, the word "in" also scored more than one thousand hits with people searching for topics such as "dictionaries in Python".**

ger picture, and to ensure that we're ready for the next emerging technology on which we should consider training.

I've spent a few interesting hours recently reading up on new books on extreme programming, and I've enjoyed many of the current spate of books that relate to web engineering, topics like mining the web, making the most of Google and Amazon, and simply engineering your web site to make it stand out amongst all the others.

Which are the BIG subjects that we cover? Go into any bookstore, and you'll find more books on Java than on Perl, more books on Perl than on Python, and more books on Python than on Tcl.

Have a look at the O'Reilly catalogue and you'll get a confirmation Java (46 titles), Perl (21 titles), Python (seven titles) and Tcl (three titles) in the current catalogue. O'Reilly is now the second biggest computer book publisher behind Microsoft.

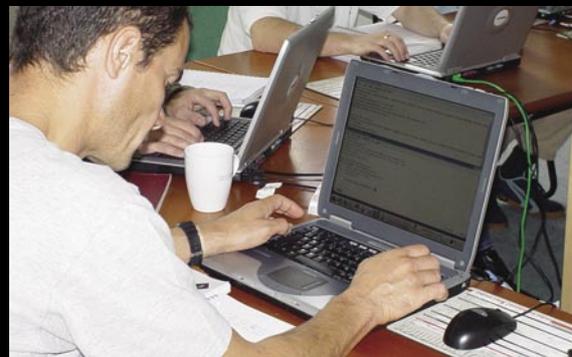
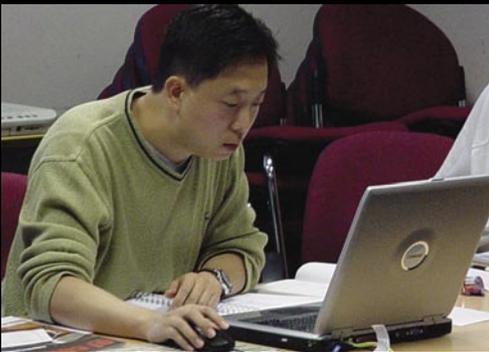
Searching on Amazon, you'll find that "PHP and MySQL for Dummies" is their most popular PHP book, ranked 469th, with Ivor Horton's "Learning Java" ranked at 497. "Perl Programming" comes in at number 1,780. I couldn't find any more popular Perl book, but there are a lot of books on the subject! Mark Lutz's "Learning Python" is ranked at 6381. I couldn't find any Tcl/Tk books with high rankings, and in any case there's no obvious "most popular" book on the subject.

I'm sometimes asked which is our most popular subject. I don't know. Over the past few months, it would be a close choice between Perl and PHP, with Python and Tcl following a little ways behind. But then Tcl is a language that's been around for many years and trainees tend to come in occasional large groups making it hard to spot trends, and Python's a much newer subject to us. At this stage I wouldn't like to predict whether we'll see a growth or flattening off in Python training in the next six months.

# Brag Page

*Ah, it's a hard life, but someone's got to do it.*

We have a great number of students to brag about! These pictures are taken either at our training centre or at their site. It's been very difficult to choose the best, so we hope you enjoy a just mere sampling.



# PHP5: Should you switch,

PHP 5 is here!

But does that mean you should run right out and use it, or should you wait before updating all your code?

The first production release of PHP 5 was available from 13th July, and one of its key features is a new object model with “dozens of new features”.

It’s a much truer object model now, since copying an object no longer duplicates; rather, it adds a second reference.

This means that code like:

```
<?php
    $ourfirstdog = new dog("Rover",12,"Lisa and Graham");
    $ourseconddog = $ourfirstdog;
    $ourseconddog -> setname("Rex");
    $name = $ourfirstdog->getname();
    print "Our first dog is called $name<br>";
    $old = $ourseconddog->getage();
    $name = $ourseconddog->getname();
    print "Our second dog is called $name<br>";
?>
```

will report a “Rover” and a “Rex” in PHP4, but two “Rover”s in PHP5.

Object orientation hasn’t been hugely used in the majority of PHP applications we’ve see in the past, so it’s probably a good time for the model to have been changed. As the power of PHP grows release by release, so does the size of applications that can be realistically written. And as applications grow in size, it becomes more and more advantageous for PHP to be used in them.

Additions to PHP’s OO model include the ability to declare members as being private and protected, thus preventing access by the application programmer to elements within your class that you would rather weren’t accessed directly, a new way of defining a constructor method that doesn’t rely on the class name, and a destructor method.

You can now define abstract classes and interfaces too, and extra facilities are provided for cloning objects, serialising them so that they can be transferred via the network, saved to disk, etc. An autoload facility eases “just in time” loading - very useful where time is paramount during a web response.

We don’t expect to see all the ISPs that provide PHP as a part of their service in a headlong rush to PHP5, as PHP4 isn’t bust. But we do see it gently making significant in-roads over the next year or so.

Some books already shout “PHP5!” from their front covers. We have six different ones on our shelves, all of which were published

even before the updated language itself, but in the case of some of the more fundamental books, there’s little content change, and there doesn’t need to be. We now provide both PHP4 and PHP5 servers on our public PHP courses, and trainees can upload to either, or both. In fact, students even have a choice of operating systems.



# or wait?

For experienced PHP programmers, our new Object Oriented Programming in PHP course covers OO techniques, and the facilities offered by PHP versions 4 and 5. It's an advanced course, and will be ideal if you're going to be using PHP within a medium to large project, and you've previously attended our PHP Programming course, or have equivalent PHP skills already. No prior experience of using Object Orientation is assumed.

<http://www.wellho.net/course/pofull.html>

## Latest Versions of Open Source Software

as of 1 September 2004

The big news since our last newsletter is the release of version 5 of PHP in July. PHP 5 includes the new Zend 2 engine at its core to make it run quicker, and a new object model. This object model corrects one slight design flaw in how objects were handled in PHP 4, and anyone unfortunate enough to have written their code to use this flaw will need to do a little bit of debugging and testing. The new model adds extra features such as abstract classes, interfaces, and private and protected members, and I expect to see a lot of larger PHP users starting to make use of objects over the next six months to a year.

We have introduced a one-day "Object Oriented Programming in PHP" course. It's run a couple of times already and the next public course is on 15th November.

Java is undergoing a re-numbering. The next Beta release was originally styled as 1.5.0, but it's now to be known as Java 5.

Expect 5.42.1 is for Unix and Linux platforms. Because of its architecture, Expect has never been easy to implement on Windows platforms. ActiveState now have a release based on 5.39 of Expect, but it's a product that you must register for a license rather than it being Open Source.

Perl	5.8.5 Stable	<a href="http://www.perl.com">www.perl.com</a>
	5.9.1 Development	
Tcl/Tk	8.4.7	<a href="http://www.tcl.tk">www.tcl.tk</a>
Expect	5.42.1	<a href="http://expect.nist.gov">expect.nist.gov</a>
PHP	5.0.1, 4.3.8 Production	<a href="http://www.php.net">www.php.net</a>
	4.3.9 Release Candidate 1	
Python	2.3.4 Production	<a href="http://www.python.org">www.python.org</a>
	2.4 Alpha 2	
MySQL	4.0.20 Generally Available	<a href="http://dev.mysql.com">dev.mysql.com</a>
	4.1.3 Beta	
	5.0.0 Alpha	
Tomcat	5.0.27	<a href="http://jakarta.apache.org/tomcat">jakarta.apache.org/tomcat</a>
Apache httpd	2.0.50	<a href="http://httpd.apache.org">httpd.apache.org</a>

DIGITAL VISION



# Making a web site visible

*Lifting the bonnet on  
our own to illustrate*

# ter training

Well House  
consultants Ltd

computer language training

reseller &amp; price info

MySQL • Tcl/Tk • Linux • Python

## What's New?

Keep up to date through *Of Course* published every six months, through Opentalk with frequent technical questions and answers and through the Horse's Mouth for daily jottings. Find out more.



### Of Course!

Our latest newsletter is crammed full of Open Source news. Get your copy and find out why our readers can't wait until the next issue. Find out more.

## Opentalk Forum

A resource for you even if you have never been on our courses. See latest new topic - PHP - php.ini under Mac OS X updated on 21/08 at 08:22 or 10 most recent posts.

In this article, we lift the bonnet on the Well House Consultants' web site and show you some of the techniques we use to get maximum return from the time we invest in the site.

The Well House Consultant's web site is key to our business. It's a sales and marketing tool, an integral part of our business operation, and it's how we keep in touch with and support customers after their courses. There's a lot of material available – a Google search within the *www.wellho.net* domain reports thousands of pages, and yet there's just a team of two updating this web site. How do we do it?

### Templating

We maintain the look and feel of the site in just three HTML web pages – the home page, Opentalk forum pages, and then all the

rest – and in four CSS (Cascaded Style Sheet) files which we use to provide the accessibility options.

The data behind the site is held in separate files, some of which are in XML, and others, for historic reasons, are held in text files with our own markup format. The templating and content systems allow us to make a single change and have it reflected on all relevant pages simply by running a Perl script. For example, if we were to schedule an extra public Python course, we would add a line to the *diary.txt* file:

```
4,5,2005 YP 7
```

– that's a Python (YP) course starting on 4th May 2005, maximum of seven trainees. Then we run the program "mksite" to update the

*continued on next page*



## Creative Software Solutions for Product Development and Technical Business Problems

For more than 15 years, MPC Data Limited has been developing high-quality software, providing cost-effective and innovative solutions to our blue-chip client base. We have implemented many solutions based on open source components including Java, PHP, Apache, TCL and Linux.

Our clients include some of the world's largest multi-national organisations as well as some of its smallest specialists. Though our name may not be familiar to you, the chances are you will have heard of many of our clients and you will have encountered systems that we have developed for them.

*To find out how we can help you deliver cost-effective and appropriate solutions to your clients and users, contact our Business Development Director Phil Buckley (pbuckley@mpc-data.co.uk).*

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[www.mpc-data.co.uk](http://www.mpc-data.co.uk)

**We recommend Well House Consultants to our customers for Open Source Training and Consultancy.**

## Making a web site visible

*continued from previous page*

site with the alteration. Changed will be:

- the course diary  
<http://www.wellho.net/course/index.html>
- the full description  
<http://www.wellho.net/course/ypfull.html>
- the short description  
<http://www.wellho.net/course/yp.html>

as well as the pages for the [www.wellho.co.uk](http://www.wellho.co.uk) site, and site maps as appropriate. The script will learn from elsewhere that the course is three days long, so that minimal information has to be given, and while it runs it will also delete past course dates from the web site.

The Apache web server allows us to do dynamic templating through `mod_rewrite`; certain of the directories on our server are virtual directories and pages are generated as required. Here's an example of a `.htaccess` file:

```

RewriteEngine On
RewriteRule ^(.*)\.html ../net/slide-
show.html?slide=$1.jpg

```

### XML and SQL

Much of the newer data on the web site is maintained in XML files or in a MySQL database which means that less commonly used pages, and pages that are the result of a query, can be generated on the fly. If you search our library for books written by Simon Cozens, or books that are advanced in level and cover aspects of both Perl and XML, the MySQL book database will provide the power behind the query.

We provide many pictures and a great deal of backup information on our site, and we're always adding to them. People like to be able to click on images to find out more about them, and what better way of providing this information to the server than through files of XML that can be edited if we want to change our comments, and added to with just a few keystrokes?

### Scripting

Since Well House Consultants specialise in PHP and Perl training, you would expect a lot of PHP and Perl on the site, wouldn't you? It's all there, all right, but much of it isn't obvious. The average visitor wants the technology to work and not be told what the technology is. On our site, set an accessibility option, and that will be remembered and used through PHP. Our site will attempt to

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work out where in the world you are, and tailor the pages for you. PHP again.

We publish our prices for public and for private courses, at your site or at ours. That's a Perl script. Another Perl script will make up a personal information page for you if you specify:

- what you want to learn about
- at which level
- at your place or at ours

#### Customer written content

Our "Open talk" forum is available for you to ask your questions, especially after courses, and we encourage you to do so. Is this so that we can be helpful? Yes, of course, but it also adds questions and answers to our web site which the scripts then archive and catalogue.

#### Search Engine Placement

It's no good having an excellent marketing web site if no one ever finds it. That would be rather like producing a beautiful drawing and then putting it up in a telephone kiosk in Ealing. How do you get relevant traffic?

There are books and newsletters on getting good web placement. You can pay services to register you, or you can register yourself. You can try to manipulate your actions to get accepted and highly ranked.

Our experience?

- Work hard to ensure that you have plenty of excellent, up to date content
- Ensure that your titles are good and that you have plenty of links
- Keep your HTML clean

- Try to avoid too many repeats of too much information. Yes, I know it comes with templates, BUT.

- Register with Google, DMOZ, and others but don't spend a fortune on registration agents if you are capable yourself.

- Keep working hard to ensure you have plenty of excellent, up to date content.

Some people play search-engine placement as a game, but if you do and get caught, you could be blacklisted. Don't provide one lot of text for the search engines and another for the live visitors. Don't use white text on white to "help" Google. Don't place pages with obscure links to them that include samples of words from the dictionary. Remember, plenty of relevant, up-to-date content will place your web site best.

**Responsible for a web site?  
You'll need a whole lot of skills.**

**Graham's point was made during a recent Java Applications course when he brought several books from the WHC library, some obviously having nothing to do with Java.**

- You need some HTML skills to write the page.
- You need programming skills to write the dynamic content handler.
- You need data management skills to organise your data.
- You need some human engineering skills to help your visitors through.
- You need systems analysis skills to plan the application.
- You need political skills to keep everyone concerned happy and on-side with what you're doing.
- And it helps if you know a bit about the subject of the web application too.

**Jakob Nielsen**  
**Designing Web Usability**

# Our philosophy is to deliver more. It's something we call our

*Hotels use the phrase to signify “service above and beyond the normal”. We set out in our training to offer a bit more than what a student would expect with that concept in mind. Why? Because we’ve been students ourselves. Because we love what we do. Because when we invite you to our centre, we’re also inviting you to our home.*

**W**ell House Consultants is a successful training business that’s grown from nothing 10 years ago. How do we do it? By providing that extra level of customer service – one more step than you might expect – which we describe as “the mint on the pillow”. Some of the standard features of our courses might surprise you.

## **SMALL CLASS SIZE – GUARANTEED!**

On our public courses, we take a maximum of seven trainees. That means that the tutor has plenty of time to look at each individual’s use of the subject that’s being taught, and to assist and advise during practicals.

And the minimum class size? One. Public courses will run for just a single trainee, and occasionally it does happen. You’ve booked the course and hotel and you need the training for your job; we’ve been in your shoes and know how disruptive a cancelled course can be.

## **PURPOSE-FITTED TRAINING CENTRE**

We are the only users of our training centre, so it’s equipped with equipment suitable for our subjects, our trainees and our style of teaching. Each trainee is provided with a laptop for his or her use throughout the course. We have laptops running Mac OS X, Microsoft Windows and Linux, and if you let us know ahead of time, we can promise you the operating system of your choice. We encourage you to bring your own laptop too, and we’ll welcome it onto our network through wireless or Cat5 connections.



*Bring your own, or use one of ours; we offer a choice of operating systems*



*Cappuccino, latte, espresso, Americano, herbal, leaf...*

## **COURSE TAILORED TO SUIT YOUR NEEDS**

Bring along your own data. If you’re learning a language in order to maintain programs that someone else has already written, bring some of those programs along. Your tutor will then be able to tailor your exercises to suit your data, and he can present some of the non-core topics

to highlight facilities used in the programs you’ll be looking after.

When the course is over, we’ll email you a copy of all the practicals you’ve written, which will include the programs that work on your own data, giving you a flying start on your own application.

## **ENTHUSIASTIC, KNOWLEDGABLE TUTOR**

We’ve chosen the subjects we teach. We not only enjoy those subjects, we use them for our non-teaching work. And we write our own materials too. All of our courses are regularly updated to reflect new software releases and new uses. Each manual is freshly compiled and printed just a few days before the course runs.

## **OPEN ALL HOURS**

If you need to catch up with your work email, you’re welcome to do so from your training laptop once classes are over for the day. Our 3 Mbit connection comes to your seat and there’s no bandwidth restriction. If you’re a lark rather than an owl, come along early in the morning instead; we’ve had customers in the centre from as early as 7:30 a.m. until well into the evening.



*Baguettes offer a large variety for vegetarians as well as those who eat meat*

# “MINT\* ON THE PILLOW”



*You're more than a student to us. You're a friend.*

## FOOD, GLORIOUS FOOD!

We provide lunches daily for trainees on courses at our centre, and the variety is second to none. For example, on a four-day course we may eat out one day at Chinese restaurant, have baguettes, fish and chips, and a cold buffer in our training centre on the other three days. That's not a fixed menu - we'll take a vote on the first day and may substitute according to popular demand. After all, Melksham is the "takeaway capital" of Wiltshire!

Coffee and tea, water and canned drinks are available throughout the day. Our coffee machine is a restaurant-quality system that grinds the beans and heats the milk on demand, and our water is mineralised and chilled. Tea is fresh from leaves every cup, and cold drinks are kept in the fridge. Help yourself to what you fancy - it's all included in the course price.



*We can also drop you off at a local train station after your course*

## EASY ACCESS

Coming by train? We'll pick you up from the station. Flying? Let us know what flight you'll be on, and we'll be waiting for you at Bristol Airport. Driving? We have plenty of free parking at our training centre. If you have a particular requirement, for example you need wheat-free lunches, a large print manual, or cannot use stairs, please let us know as you book. Everyone's different, so solutions differ; but we do have solutions!

## EVENINGS IN MELKSHAM

With niche courses such as ours, the majority of our trainees would have to stay locally no matter where we were located. In Melksham, we've got a range of hotels and good bed and breakfasts within walking distance, and a selection of restaurants too. In summer, our trainees often visit local tourist spots like the village of Lacock, the Kennet and Avon Canal, Bath and Avebury



*"Come as a student, leave as a friend" - it's written all over our mugs*

stone circles in the evenings. In the winter, Lisa and Graham (proprietors of Well House Consultants) will often invite trainees back in the evening to watch a DVD with the family. You'll find that our catchline is "Come as a student, leave as a friend".

## AFTER-COURSE SUPPORT

If you have a question after the course, you're very welcome to ask by email or on our "Opentalk" forum. If you need more than a quick answer, you're very welcome to come back and refer to our library, or to book a follow up extra day to cover specialist topics.

How do we know our formula is right?

1. 80% of customers come on the recommendation of previous trainees.
2. We've grown year on year with little advertising, yet our product is a niche one, with a small market.
3. We listen to customer reviews and constantly adjust to improve.

Whilst we have the formula right, we know there's always room for improvement. We look forward to your comments and suggestions on a future course.

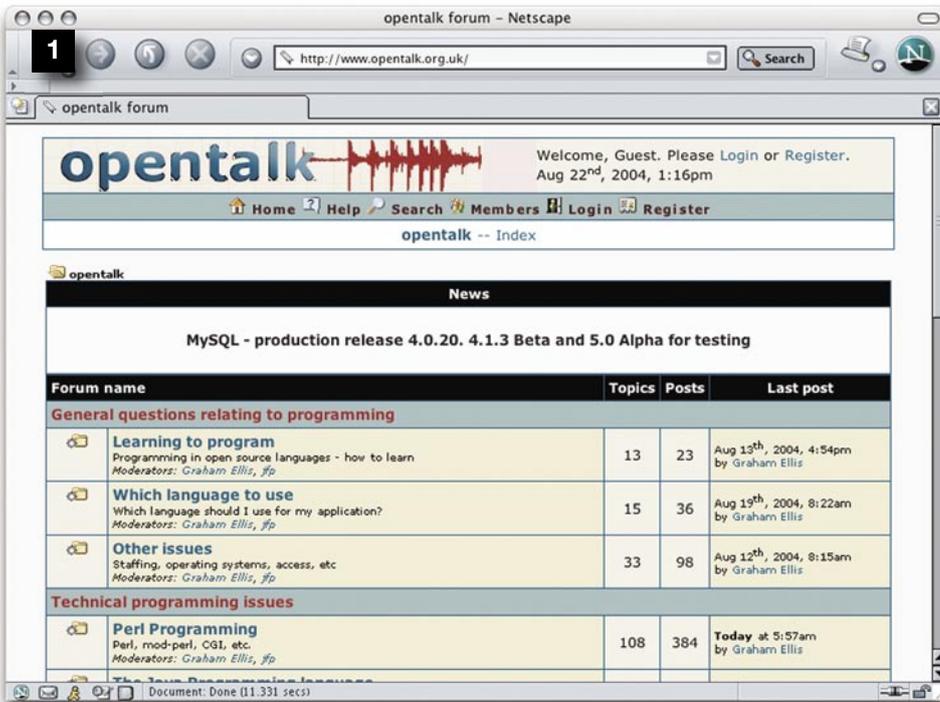


*For on-site courses, we bring laptops, manuals, a server, projector, pertinent books from our library and networking equipment.*

*\* Graham's allergic to chocolate. That's why we're using a green variation of "the mint". ;o)*



# Customer care before and after the courses



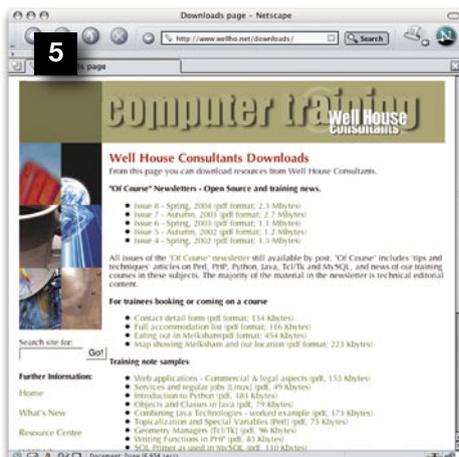
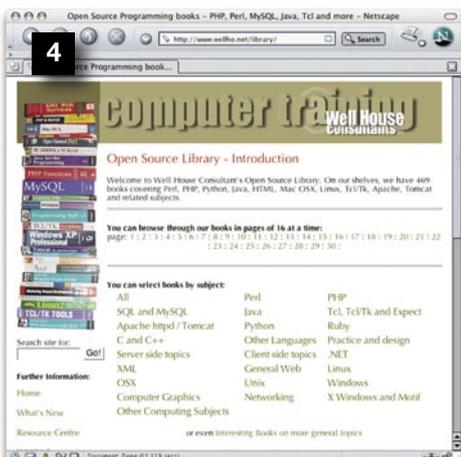
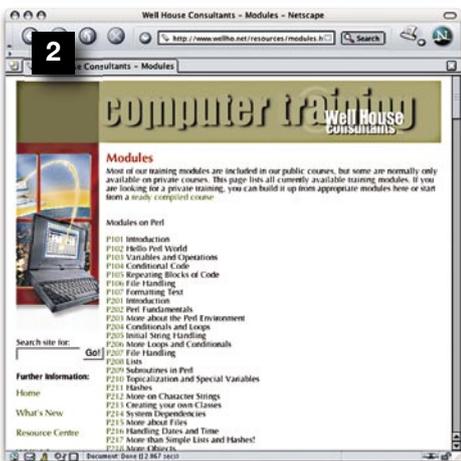
**1** “Opentalk” – online discussion  
If you have a technical question that you want to ask after your course, please post it to “Opentalk”. We check the board at least once every 24 hours and we’ll post answers, give suggestions and offer guidance as appropriate. Answers on Opentalk are building up into a useful “FAQ”, with more than 500 questions and answers provided to date. See <http://www.opentalk.org.uk>.

**2** Course examples  
If you’ve been on a course and want to re-run the examples in the notes, they’re available on our web site. We list more than 700 sample programs, each of which is written to help you learn a language or facility. Just follow links to download the examples from URL <http://www.wellho.net/resources/modules.html>.

**3** “The Horse’s Mouth” – blog  
If you want to keep up with Well House Consultants’ tutor on a day-to-day basis, have a look at our Blog – “The Horse’s Mouth” – where you’ll find everything from program snippets to off-topic comments about flowery and avocado bathroom suites. Add your own comments too, or get us bloglined so that you’ll get the news by email too. The Horse’s Mouth is at <http://www.wellho.net/horse>.

**4** Library books listed online  
If you want to refer to the books in our library after your course, please email us and we’ll arrange a mutually convenient time for you to pop by. We have more than 500 books on our shelves dealing with the subjects we teach and other closely related issues. The library list is at <http://www.wellho.net/library>.

**5** Module samples in pdf format  
We provide training notes to accompany all of our courses, now totalling almost 3,000 pages. Attend a course and you’ll leave with a manual of 60 to 100 pages for each day of training. Samples are available for download from <http://www.wellho.net/downloads>.

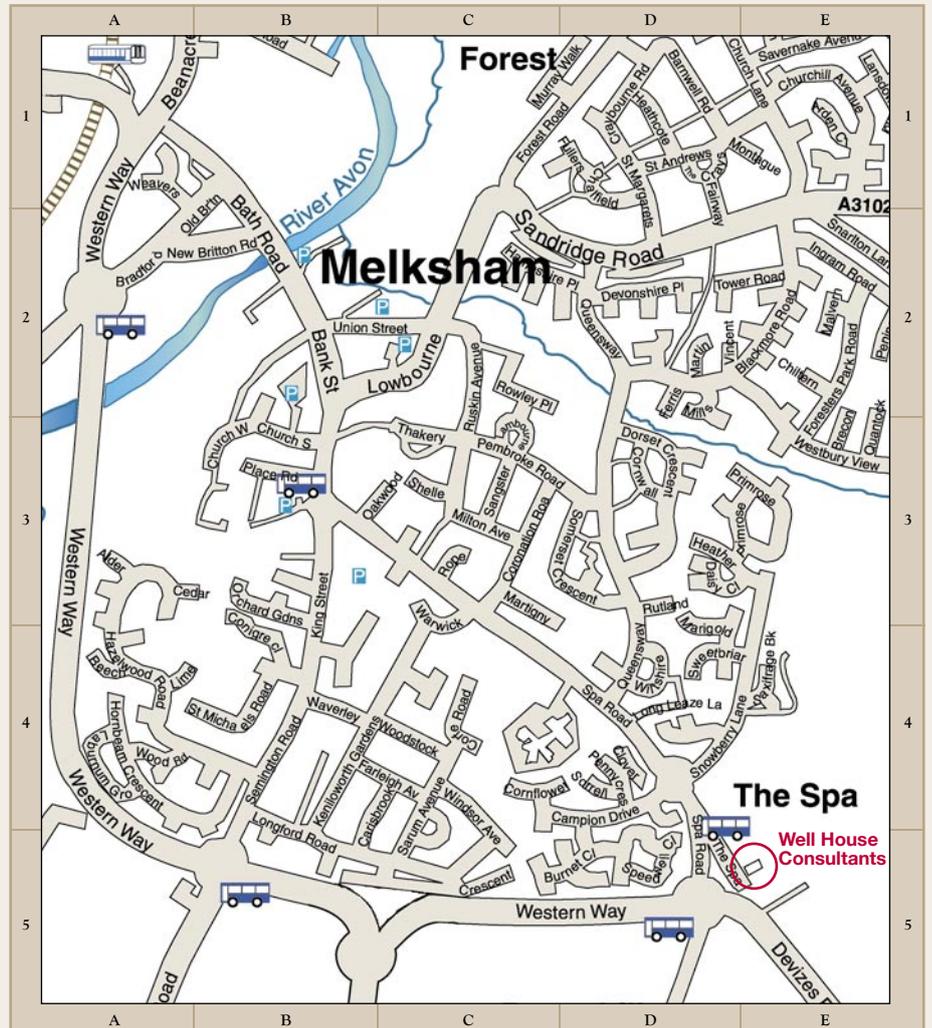
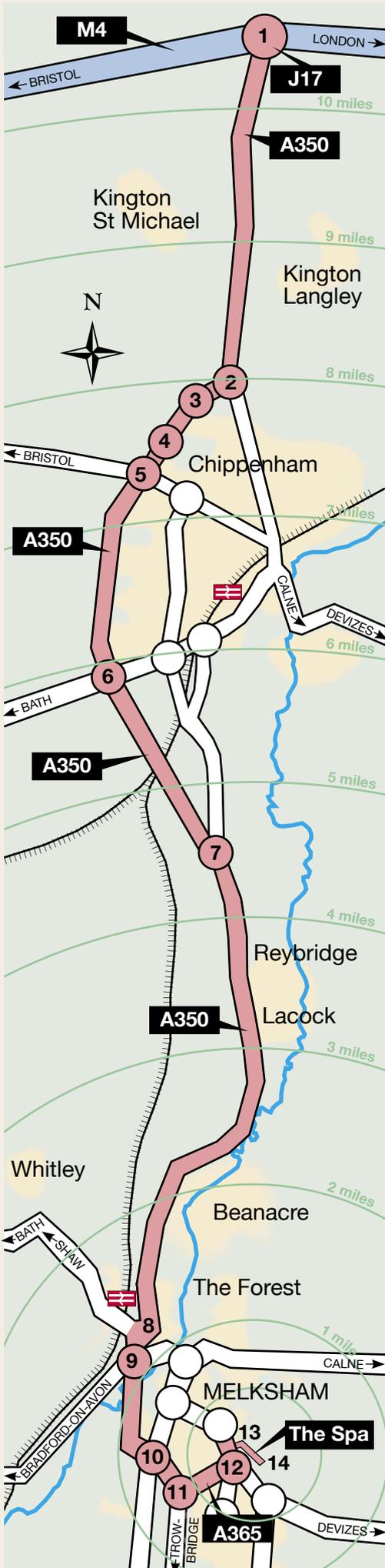


# Getting to our training centre

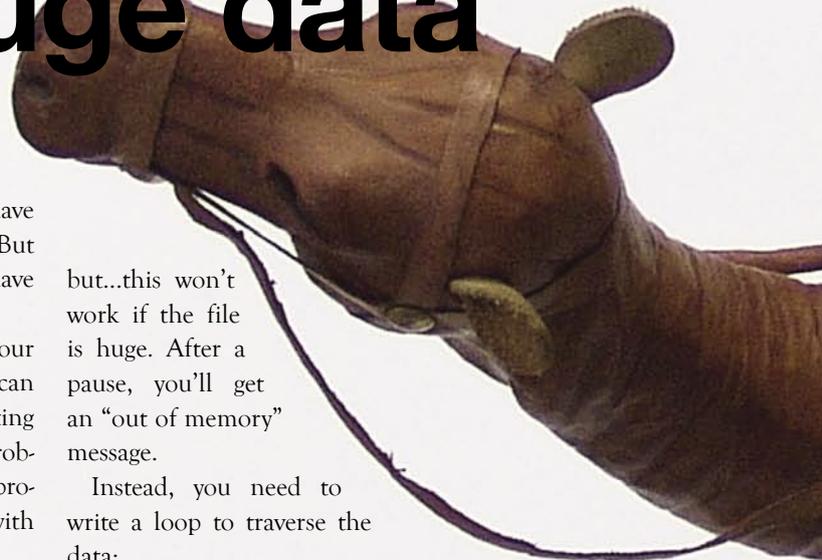
## DIRECTIONS FROM THE M4

1. Start out at M4 Jct 17 (A350/A429/B4122), Wilts  
Follow signs for Chippenham on the A350
2. Malmesbury Road Roundabout  
At roundabout take 2nd exit following the A350
3. A350 Badger  
At roundabout continue forward
4. Brook  
At roundabout continue forward
5. Bumpers Farm (Junction with A420)  
At roundabout take 3rd exit
6. Chequers (Junction with A4)  
At roundabout take 3rd exit (signposted Poole, Warminster)
7. A350 Lackham  
At roundabout take 3rd exit
8. A350 Junction with A365  
At traffic signals forward
9. A350 Junction with A3102/B3107  
At roundabout take 2nd exit
10. Berryfields roundabout  
At roundabout take 2nd exit (signposted Devizes)
11. A350/A365 Junction  
At roundabout take 1st exit (signposted Devizes)
12. B3112  
At roundabout take the 1st exit onto Spa Road - B3112
13. The Spa  
Turn right into cul-de-sac
14. Well House Consultants Ltd  
Turn left in last gated entry at 404, The Spa, Melksham (4-storey Georgian)

Estimated travel time: 20 minutes in non-adverse conditions



# Handling huge data



“I have a 10-Gigabyte file and I want to ...”

It’s surprising just how often such a question is asked. If you have a huge blob of data there should be better ways of storing it. But alas, people are presented with their data in such files and they have to deal with it!

Looking back just a few years, file systems couldn’t exceed four Gbytes in size due to the 32-bit limit. The biggest number that can be held in a four-byte integer is 4,294,967,296, and older operating systems and languages fell over if you tried. These days those problems are mostly fixed; however, there are other issues that the programmer needs to consider over and above those associated with files that are merely large rather than huge.

## Data Traversal

Recommendation for large (but not huge) files in Perl or Python ... read the whole file into a list using:

```
@info = <FH>;
```

or

```
info = fh.readlines()
```

but...this won’t work if the file is huge. After a pause, you’ll get an “out of memory” message.

Instead, you need to write a loop to traverse the data:

```
while ($line = <FH>) {
```

or

```
for line in huge.xreadlines():
```

and then process the data line by line. Don’t try to store every line in memory. You’ll have to process it line by line (or block by block) in your loop, and keep just a summary of the vital information you

need, or write your results out to a file on the fly.

## Keeping the user informed

Processing a huge data file might not be fast, in which case you’ll want to give the user of the program facilities to:

- see how far through the program is
- see how the results are coming along

Status bars are one way of reporting progress, but they’re not particularly portable or informative. For a less glossy, but more useful, report you should write a status line to STDERR, and use a format string (the % operator in Python, or **printf** in Perl) to en-

## DATA TRANSVERSAL

### Python program to split a huge file into chunk files of about 1 Gbyte each

```
#!/usr/bin/python

"""Program to read a huge file (over 1 Gbyte) and split it
into a series of files of 1 Gbyte each."""

huge = open("huge.txt", "ru")
infile = 0

for line in huge.xreadlines():

    # Do we need to start a new file?

    if not infile or amount > 1000000000:
        if infile:
            bit.close()
        else:
            fcount = 0
            amount = 0
            fcount += 1
            bit = open ("out"+str(fcount)+".dda", "w")
            infile = 1

    # Write the line to the current output file

    amount += len(line)
    bit.write(line)

print str(fcount) + " file(s) written"
bit.close()
```

## Notes on the script (left):

a) “ru” option on read ... this is a “universal” read that allows the program to read the data file on a Unix or Windows system, irrespective of which operating system the file was written on.

b) Use of xreadlines and not readlines. If you use Python’s readlines, you’re going to try to create a temporary list and it will fail with this much data. In effect, xreadlines uses a generator function internally that iterates through the data direct from the file as you read it.



sure that your report line is always of the same length. Status lines should be terminated with a `\r` character rather than `\n`, so that each report line overwrites the previous such line.

What do you put in your status line? Look for one or two management statistics that will be useful to the user. For example, if you're searching a file you might choose to report what proportion of the way through the file you are, and how many matches you have so far. That way, your user has the two vital bits of information available – how much longer to go, and whether the result set is going to be of a sensible size.

Only overwrite your status line every so often - not for every record.

Here's a few lines from a Perl script that reads a huge text database of web sites and gives a progress report:

```
unless ($nsites%5000) {
    $percent = $site::bytesread/$datalength * 100;
    printf STDERR
        "\rsites %-8d matches %-6d percent %3d%%",
        $nsites,@got+0,$percent;
}
```

Note that the status is only rewritten every 5,000 sites, and that

all the **printf** formats have a stated field size to avoid characters being left stranded on the line end when a long line is overwritten by a shorter one.

#### Avoid accidentally stopping the program while it's running.

You're been running a program for an hour, and then you accidentally press **[ctrl-C]** in the wrong window. The air is blue with your swearing ...

If you're writing a long-running program, perhaps to process a huge data file, then you're best advised to trap certain signals. Here's an example from a Perl program that replaces the `^C` handler with a call to a sub called "nodie":

```
$$SIG{"INT"} = \&nodie; # ^C from keyboard
```

The nodie sub should be very simple, for example just set a flag:

```
sub nodie {
    $tell = 1;
}
```

and then the main loop of your program should check the flag at a known point in the loop. *If you put substantial code in your handler sub, it can be run at any time in your loop and you can get some unwanted side effects.*

# The dynamics of web pictures

## Scenario

You want to provide your visitors with a little variety in the pictures they get when they visit your web site, but you really don't want to have dynamically generated HTML (or perhaps you can't because your pages are part of a managed system).

## Solution

1. replace your image tag such as:

```

```

with a call to a PHP script:

```

```

which needs to be on the same server as the image and not on the same server as the page that's calling it up.

2. Resize all of your images so that they're a good size for display and suitably compressed. Remember modem speeds: you may have broadband, but your visitors might not.

3. Upload the images to their own directory or folder on the server. If you don't want them to be accessed except through your script, keep them out of the document root.

4. Add the following PHP script at the URL used in your image tag; modify it to suit.

```
<?php
header("content-type: image/jpeg\n-cache-control: no-store\n");

$dir = "../..//imagelib/rome";
$dh = opendir($dir);
$contains = array();

while ($content = readdir($dh)) {
    if (ereg('jpg$', $content)) {
        array_push($contains, $content);
    }
}

$which = rand(0, count($contains)-1);
$fname = "$dir/$contains[$which]";

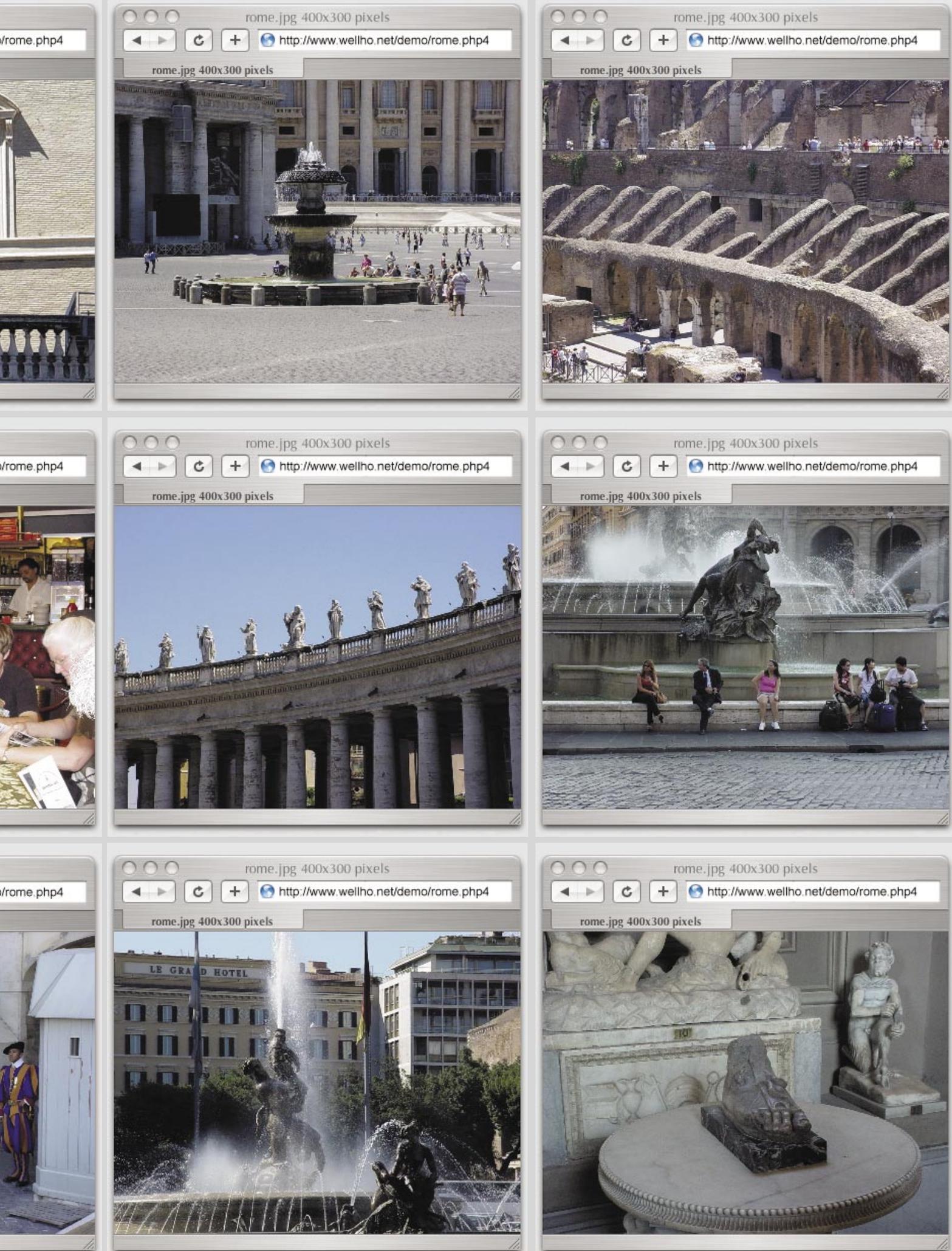
$fh = fopen($fname, "r");
$data = fread($fh, filesize($fname));

print ($data)
?>
```

5. Test and tell your visitors.

Although this script uses PHP to handle graphics, it's not manipulating them, and you don't need to load the GD module. The Cache Control header that we've used in this example is designed to prevent the image being cached so that visitors will get a new random image each time they come to the page, but this happens at the expense of extra image downloads. If you're happy for everyone to get a different image, but also for an image to be unchanging for a day or two once an individual has called it up, you can remove the cache-control header.





Only one URL will yield different pictures every time you refresh. All photos are selected at random.

# Extreme Programming

Extreme programming is a design and programming methodology that's becoming increasingly popular. Its unit coding/unit programming approach fits well with an object-oriented approach, but you're going to be encouraged to redesign and refactor the objects as the project progresses. And you're encouraged to involve the customer on day one, and day two, and every other day too.

Here are some of the keys:

- User stories.

Typically customer requirements of just a few sentences each, taking a couple of weeks each to complete. There may be be-

tween 50 and 100 user stories in a typical XP project.

- Spike Solutions.

Not wasting a lot of time writing code that's not effective in the end; experimenting and trying out code in such a way that there's no huge loss if it has to be junked.

- Refactoring.

Redesigning and altering aspects in the light of experience. Refactor early and often and don't continue down a less-than-ideal development route.

- Unit tests.

Testing each element of the system in turn to see how it works before integration to ensure a series of robust components.

- Frequent Sequential Integration.

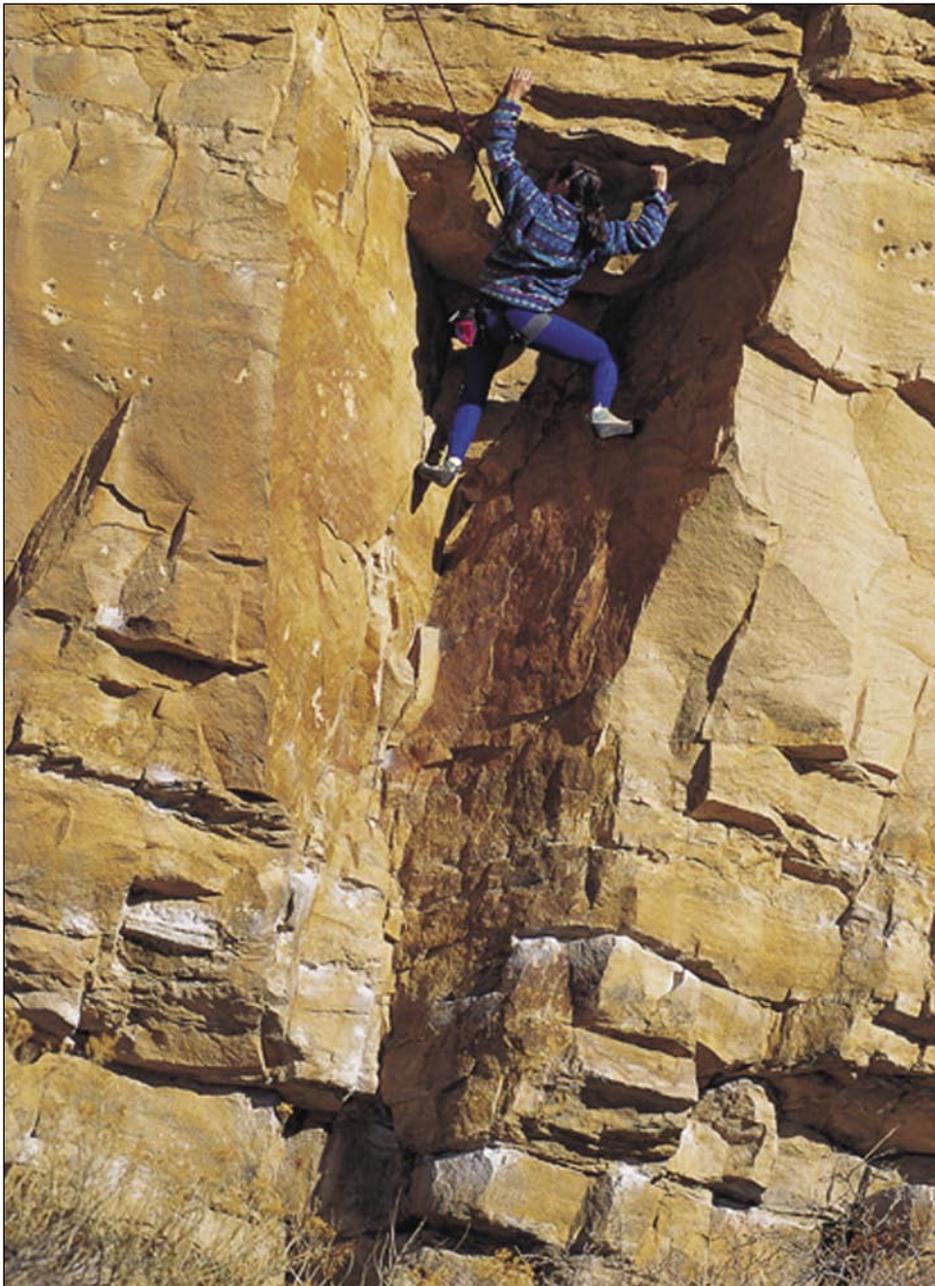
Adding the units together frequently to ensure that they work correctly together, and adding them one at a time.

- Acceptance tests.

Ensuring that each user story is met to the satisfaction of the user through rigorous testing.

- Iteration and release plans.

A series of integrations and releases as the work proceeds, with feedback.



## Planning

User stories are written.  
Release planning creates the schedule.  
Make frequent small releases.  
The Project Velocity is measured.  
The project is divided into iterations.  
Iteration planning starts each iteration.  
Move people around.  
A stand-up meeting starts each day.  
Fix XP when it breaks.

## Design

Simplicity.  
Choose a system metaphor.  
Use CRC cards for design sessions.  
Create spike solutions to reduce risk.  
No functionality is added early.  
Refactor whenever and wherever possible.

## Coding

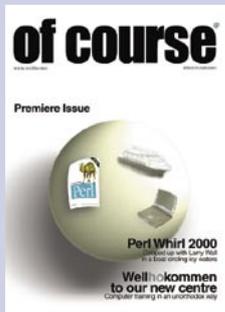
The customer is always available.  
Code must be written to agreed standards.  
Code the unit test first.  
All production code is pair programmed.  
Only one pair integrates code at a time.  
Integrate often.  
Use collective code ownership.  
Leave optimization till last.  
No overtime.

## Testing

All code must have unit tests.  
All code must pass all unit tests before it can be released.  
When a bug is found tests are created.  
Acceptance tests are run often and the score is published.

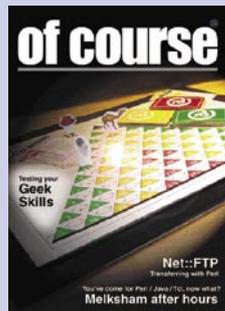
# Back Issues

All back issues are available by post to UK addresses at no charge. Please phone or email us for a copy or two. Copies of recent editions are also available to download from our web site: <http://www.wellho.net/net/ofcourse.html>.



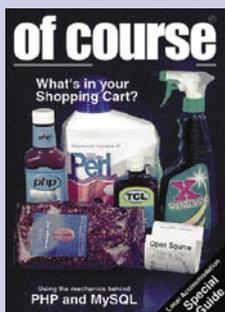
**Issue 1**  
**Winter 2000/01**  
**8 pages**  
Perl Whirl 2000 - An Alaskan Adventure  
Wellhokommen, Bien Venue  
Tcl/Tk and Expect  
Handling Huge Data - Sample script  
Book Review - The "New Camel"

The London and Dublin connection  
Perl for Larger Projects



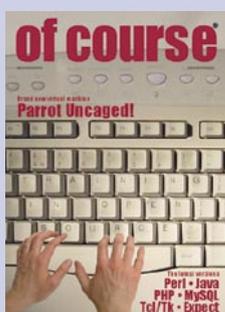
**Issue 2**  
**Spring 2001**  
**16 pages**  
Quiz - Perl, Java and Tcl  
Using FTP from Perl  
In and around Melksham  
Blistering Speed right to the laptop  
What's the latest software version?

Is Open Source right for you?  
Focus on Perl Standards  
Web logs and market research



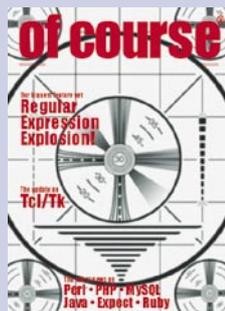
**Issue 3**  
**Autumn 2001**  
**16 pages**  
Behind the mechanics of PHP  
Java threads for a simple chat room  
What is XML?  
Relating to MySQL  
Access to Gaelic language

Wireless networking  
Sessions and State  
What's the latest software version?  
On the Oban road  
Perl 6 - State of the Onion



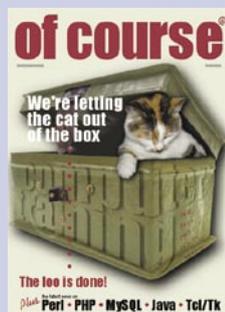
**Issue 4**  
**Winter/Spring 2002**  
**16 pages**  
Keeping data secure

Extracting text from Microsoft Word documents in Perl  
PHP - Improved security in release 4.1  
Daemons - a story of gods and mortals  
Cookies - European law and regulations  
The Parrot virtual machine  
When is a "modem" not a modem?  
The Euro - programming for pounds and euros  
Case Study - MPC Data embed MySQL in tailored software solution  
More Dynamic than an array  
Expect / Tcl application  
Book review - "The Java Cookbook"  
What's the latest software version?  
Choosing the best course for your needs  
Time Line - Well House Consultants



**Issue 5**  
**Autumn 2002**  
**16 pages**  
Regular Expressions - major feature  
Bringing Tcl up to date  
Learning Perl as a first language  
Training schedule

YaBB (Yet another Bulletin Board)  
Tk - updates of your screen  
Favourite Regular expressions  
Portable PHP code  
Using PHP in stand-alone applications  
Running scripting languages fast  
What's the latest software version?  
Open Source Bulletin Board



**Issue 6**  
**Spring 2003**  
**16 pages**  
Letting the cat out of the box  
Perl 6 - an introduction  
Putting public sector data online  
Open Source latest versions for download

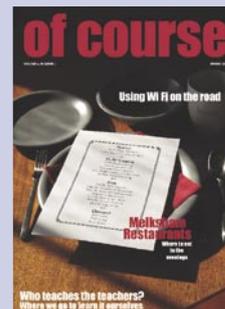
When size matters - text fields in MySQL  
Data Mining and Content Management  
Setting up online e-commerce  
Regular Expression mouse mats for sale  
Training course schedule  
Spring Cleaning  
10 relevant projects from SourceForge  
Coding tips

Apple get it right to the core  
Introducing our loo  
Sample application in Perl  
Data Protection act - buyer beware  
Setting up Mac OS X  
A rogue's gallery of recent students  
FAQ - search enquiries to our web site.



**Issue 7**  
**Autumn 2003**  
**24 pages**  
PHP sticky boxes  
Perl 5, Ponie, Perl 6  
SQLite - embed a database  
Python and Jython  
Opentalk - Tcl, Perl, PHP, Java, MySQL  
WHC Library

Broadband update  
Can a high speed connection be too fast?  
Course materials  
Open Source moves forward  
Data structure design - link or copy?  
Deployment training - new growth area?  
Latest stable versions of open source  
Course schedule and calendar  
Tailoring your web site  
Not only faster, but bigger too.



**Issue 8**  
**Spring 2004**  
**24 pages**  
PHP: What do the letters stand for?  
Choosing which OS to use  
How do I learn OO design?  
I refuse to wear THOSE shirts!

What's a polecat?  
The hidden costs over a lifetime  
Quality matters  
Getting to our training centre  
Who teaches the teacher?  
Python on either side of the pond  
Latest Open Source Software  
Broadband Access for the Traveller  
Logging in to the BT Openzone service  
Dining out in Melksham  
Brag Page  
Using Objects in Perl  
References and variables in Perl  
What do you put into a file?  
What defines quality software?  
Getting to the core price of Fedora  
HTTP Developer's Handbook

# Schedule

## Perl

### Perl Programming

5 days £1210

Covers the major features of the language and their use for newcomers. This course now runs in conjunction with Learning to Program in Perl.

6-10 December 2004

21-25 February 2005

25-29 April 2005

### Using Perl on the Web

2 days £550

This advanced course takes the Perl programmer through to making full use of Perl on the Web. CGI, mod-Perl, standards. Sessions, cookies, content management, etc.

29-30 November 2004

17-18 March 2005

### Perl for Larger Projects

3 days £770

This advanced course takes the Perl programmer through the facilities provided in the language which make it particularly suitable for larger projects. Objects, huge data, SQL databases, XML, efficiency and other topics.

1-3 December 2004

14-16 March 2005

### Perl Extra

1 day £330

Subjects not covered on regular public courses.

telephone or email for details

## PHP and MySQL

### Technology for PHP

1 day £330

Overviews the technologies such as the Web, programming and SQL that you'll need to make good use of PHP. A lead-in day for our PHP Programming course.

22 November 2004

4 April 2005

### PHP Programming

4 days £990

This course covers the fundamentals of programming in PHP and Web-related issues such as linking a series of forms

together into a session, maintaining state if multiple users are on your site at the same time, cookies, security and other matters. We also cover PHP's interfacing to relational databases in some depth, with a particular study of MySQL.

23-26 November 2004

31 January-3 February 2005

5-8 April 2005

### Object Oriented Programming with PHP

1 day £330

This advanced PHP course introduces you to object oriented programming principles, and teaches you how they are implemented in PHP.

15 November 2004

4 February 2005

### MySQL Relational Database

2 days £550

Structure, installation, administration, database design and programming.

1-2 November 2004

10-11 January 2005

11-12 April 2005

## Java

### Java Programming for the Web

5 days £1210

An introduction to the Java programming language, and its Internet and intranet use with server- or client-side applications.

4-8 October 2004

### Deploying Apache and Tomcat

2 days £550

How to source, install, configure and support Apache and Tomcat for the deployment of Java web applications.

3-4 November 2004

31 March - 1 April 2004

### Deploying Java Applications on Linux and Unix

5 days £1210

Learn to install and support applications under Linux/Unix with Apache, Tomcat and MySQL.

telephone or email for details

### Java Extra

1 day £330

telephone or email for details

## Python

### Python Programming

3 days £770

The fundamentals of Python in depth, and an introduction to applications such as GUI design and data munging.

12-14 January 2005

4-6 May 2005

## Tcl

### Tcl Programming

3 days £770

Fundamentals of the Tcl programming language including Expect, libraries and regular expressions.

18-20 October 2004

7-19 January 2005

9-11 May 2005

### Tcl - the Tk Toolkit

2 days £550

Covers widgets, geometry managers and event handlers of the Tk GUI so you can write and maintain graphic applications.

21-22 October 2004

20-21 January 2005

12-13 May 2005

## General

### Regular Expressions

1 day £330

Dedicated to pattern recognition and matching, dependent on recognising sequences of characters.

5 November 2004

3 May 2005

### Deploying LAMP - Linux, Apache, MySQL, Perl / PHP

4 days £990

Installing and supporting applications under open source technologies.

16-18 November 2004

28 February - 3 March 2005

Or, take them individually:

Linux Basics day 1 (£330)

Linux Administration day 2 (£330)

Linux Web Server days 3&4 (£550)

Prices valid for bookings confirmed by 31 March, 2005. See Web site for US dollar and Euro prices.

# Calendar

Public scheduled courses are shown in blue. Open dates indicated as a guide only and are reserved for private, on-site courses. If you have three or more students and would like a course custom-tailored to your needs, please phone us to make sure the dates are still available. The office is closed for Christmas and Easter holidays.

## OCTOBER 2004

				1
JAVA				
4	5	6	7	8
GEEK CRUISE				
11	12	13	14	15
TCL			TCL	
18	19	20	21	22
25	26	27	28	29

## NOVEMBER 2004

MySQL		Apache		RegEx
1	2	3	4	5
8	9	10	11	12
PHP	LAMP			
15	16	17	18	19
PHP	PHP			
22	23	24	25	26

## DECEMBER 2004

PERL		PERL		
29	30	1	2	3
PERL				
8	7	8	9	10
13	14	15	16	17
CLOSED				
20	21	22	23	24
BANK HOLIDAY	BANK HOLIDAY			
27	28	29	30	31

## JANUARY 2005

BANK HOLIDAY				
3	4	5	6	7
MySQL		Python		
10	11	12	13	14
TCL			TCL	
17	18	19	20	21
24	25	26	27	28
PHP				PHP
31				

## FEBRUARY 2005

PHP				PHP
31	1	2	3	4
7	8	9	10	11
14	15	16	17	18
PERL				
21	22	23	24	25

## MARCH 2005

LAMP				
28	1	2	3	4
7	8	9	10	11
PERL			PERL	
14	15	16	17	18
CLOSED				BANK HOLIDAY
21	22	23	24	25
BANK HOLIDAY			Apache	
28	29	30	31	1

# Our birthday approaches

We get a lot of junk post. I think every small business does, and most of it goes straight into the rubbish. But one piece struck me the other week: an invitation to buy a framed certificate that congratulates us for being in our 10th year as a registered trading company listed at Companies House.

The Companies House web site tells me that they had 1.7 million companies registered at the end of the 2003/2004 financial year, with 394,000 registrations and 182,000 removals during that year. That's a turnover in a single year of between 10% and 22% depending how you measure it. Based on those numbers, Well House Consultants is doing very well.

We were established in 1995 as a training service provider, initially providing a knowledgeable lecturer to deliver other people's material both in training centres and in their own offices. In 1996, we started to develop our own courses, with all the services from sales and marketing, printing and the provision of other resources, and invoicing and credit collection all taken care of for us. In 1999, we took over some of the resource provision and started some of our own marketing activity to help sell the public courses we were presenting, and in 2000 we opened our own training centre in Melksham, Wiltshire. We've experienced consistent growth of the order of 20% per annum since opening our own centre at a time when many other organisations in our industry seem to

be withering and consolidating, and we're usually fully scheduled for several months ahead. Public courses are now listed on our web site for 18 months ahead.

What makes us so successful?

We've deliberately remained a small business with a tight-knit team of enthusiastic staff, and that enthusiasm makes for excellent referral business. Three-quarters of our trainees are recommended to us.

We offer subjects which our customers want. We're ready, willing and able to respond to changing needs in our fast-moving technologies.

Our facilities are over and above what you would expect from a training company, and our prices are lower than you

would expect too.

We run a "lean" operation; we're busy enough to be able to turn away business that could lessen our efficiency, and we're constantly on the lookout for ways to give us yet more effective uses of our time.

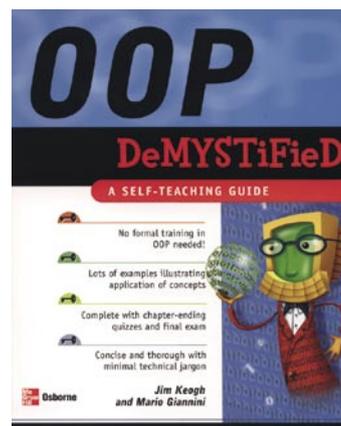
And finally, we believe in networking. We're not just here for 2004 and 2005. We'll be here in 2010 and, we hope, 2015 too. We've made friends along the way, people who know our services and will consider us as their trainer of choice for future requirements, and will recommend us to *their* network too. We have to work like that - the average course is just three days long and the cost of sales would just be too expensive any other way.

## BOOK REVIEW

# OOP DeMYSTiFieD

Learning Object Oriented (OO) techniques and making good use of it is often a big hurdle for "traditional" programmers who have been writing structured code for a number of years - and it's a subject that we teach more and more.

Languages like Java and Python have always been



by Jim Keogh and Mario Giannini  
published by McGrawHill Osborne  
ISBN: 0-07-225363-0

OO-based, Perl has excellent OO facilities and now there's a major new emphasis on Object Orientation in PHP too.

"OOP Demystified" by Jim Keogh and Mario Giannini provides a good introduction to the fundamentals of Object Orientation, then goes

on to cover the issues of designing an OO system, based on the unified modelling language. These are the two essential elements that everyone who's going to be providing OO solutions needs to understand.

There's coverage of C++ and C# too, but the Open Source OO languages don't merit even a mention. It's not alone in this weakness; the same could be said of Sam's "Object Oriented Programming in 21 days" (ISBN 0-672-32109-2).

Is it a book I recommend to my students? I'll be holding up "OOP DeMystified" in front of future Java trainees suggesting it as a book they should consider buying as backup to follow their course because it fills a definite gap there. But for PHP, Python and Perl trainees, I've yet to find a book that covers OO techniques with a slant towards them.

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Our office hours are 08:00 to 18:00 Monday to Friday.

You'll usually reach us at the weekend and in the evenings, too, as phone messages and faxes are emailed to us automatically. If you email us, we'll receive your email within 24 hours, 365 days a year.

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