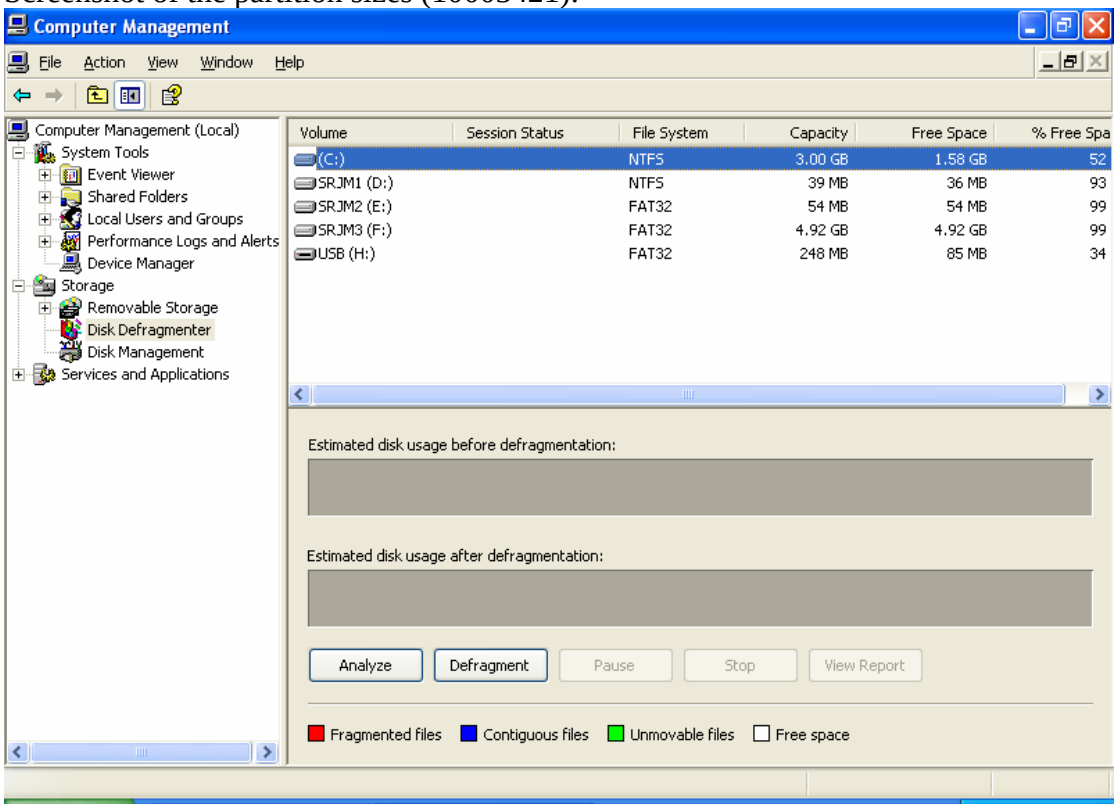
OS Assignment Part 1:

Stage1:

1: You are unlikely to get precisely the right partition sizes you asked for two possible reasons, the most likely being that FAT in particular has a minimum and fixed cluster size which tends to be so large that it affects the total size a partition can be. This effect is reduced by later disk formats with smaller cluster sizes. Secondly, in order to get precise conversions you have to assume that a MB is 1024 KB and so on, therefore if asked for a 50MB partition and the entered units are measured in KB, you need to divide by 1024 to get the exact size of partition.

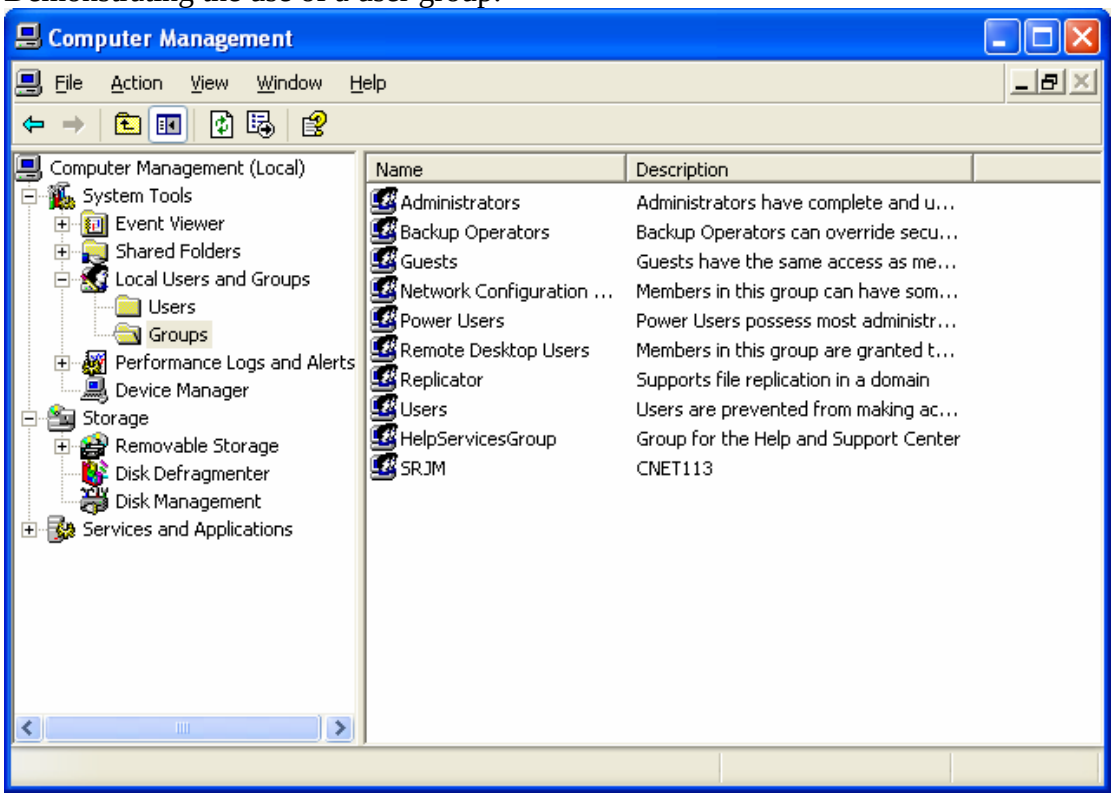
Screenshot of the partition sizes (10003421):

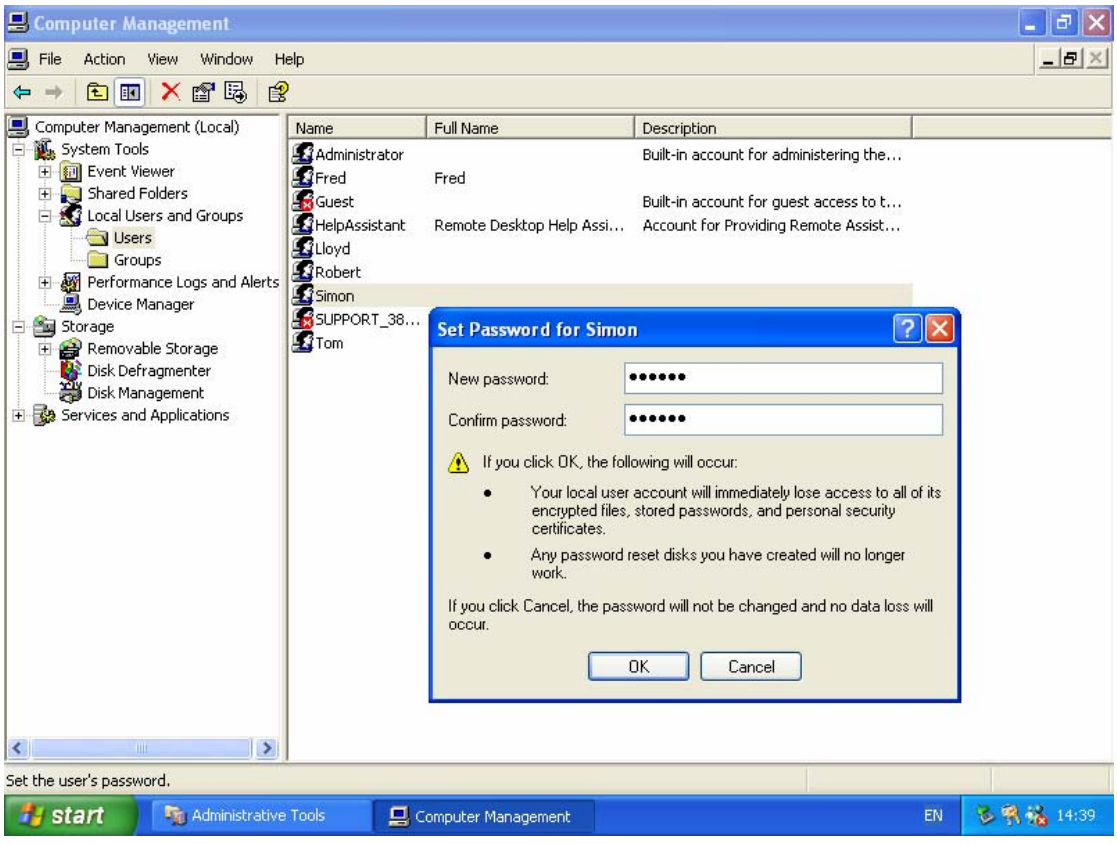


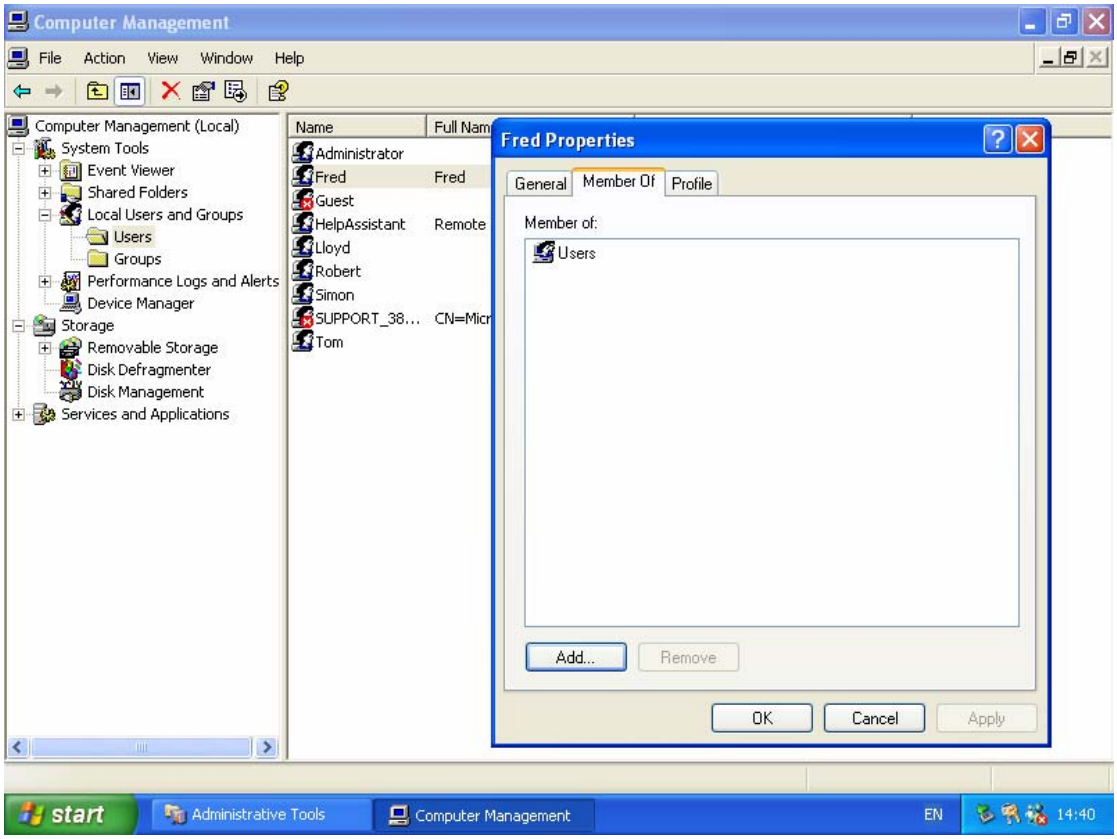
Stage 2:

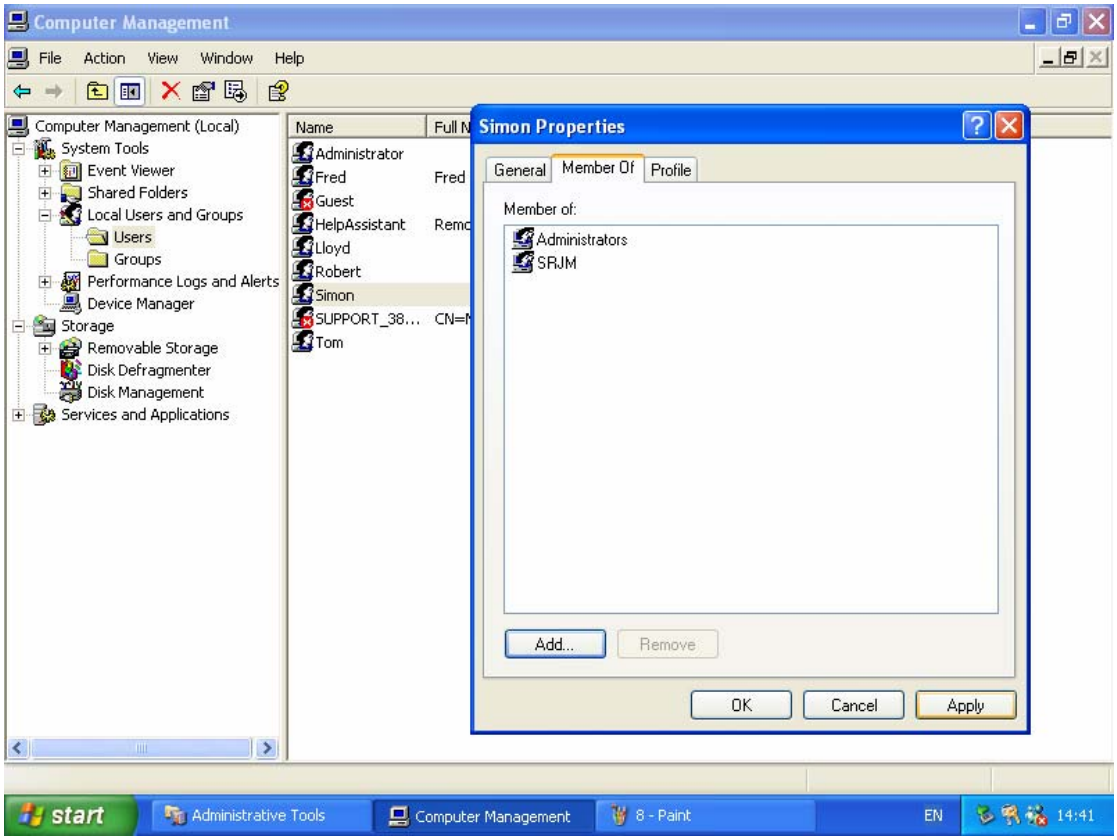
1: Screenshots

Demonstrating the use of a user group:

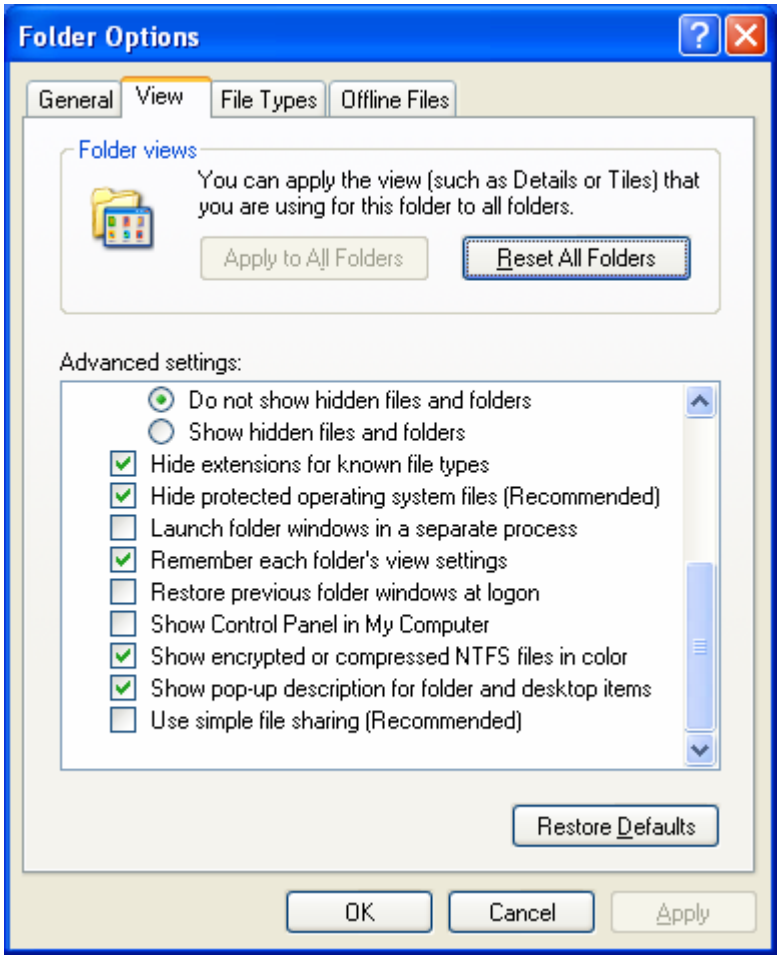




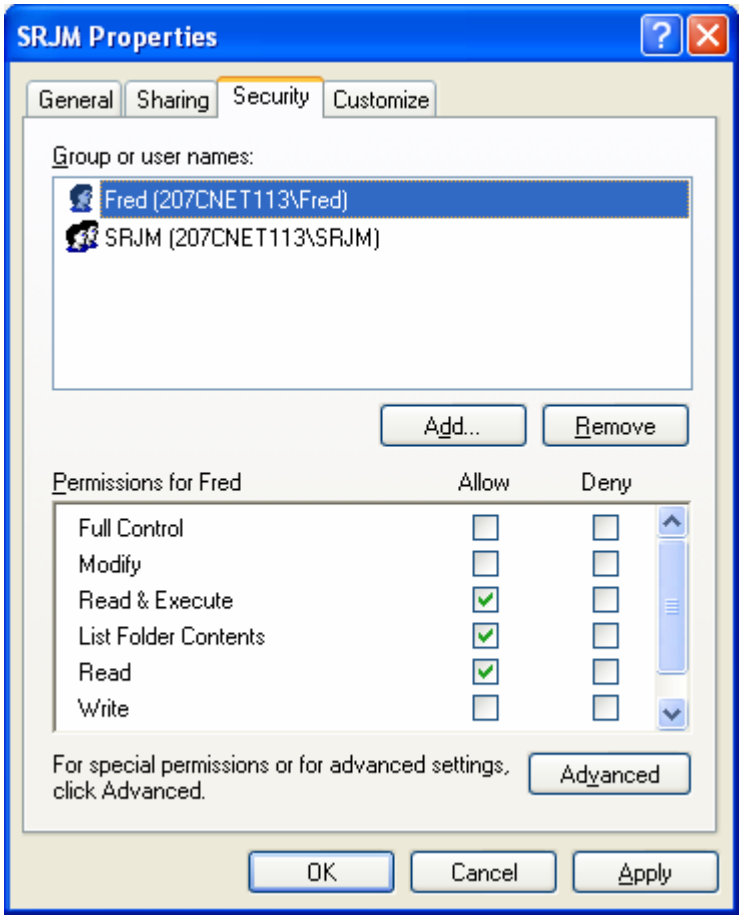

Computer Management
File Action View Window Help
Computer Management (Local)
System Tools
Event Viewer
Shared Folders
Local Users and Groups
Users
Groups
Performance Logs and Alerts
Device Manager
Storage
Removable Storage
Disk Defragmenter
Disk Management
Services and Applications
Name
Full Nam
Administrator
Fred
Fred
Guest
HelpAssistant
Remote
Lloyd
Robert
Simon
SUPPORT_38...
CN=Micr
Tom
Fred Properties
General
Member Of
Profile
Member of:
Users
Add...
Remove
OK
Cancel
Apply
start
Administrative Tools
Computer Management
EN
14:40

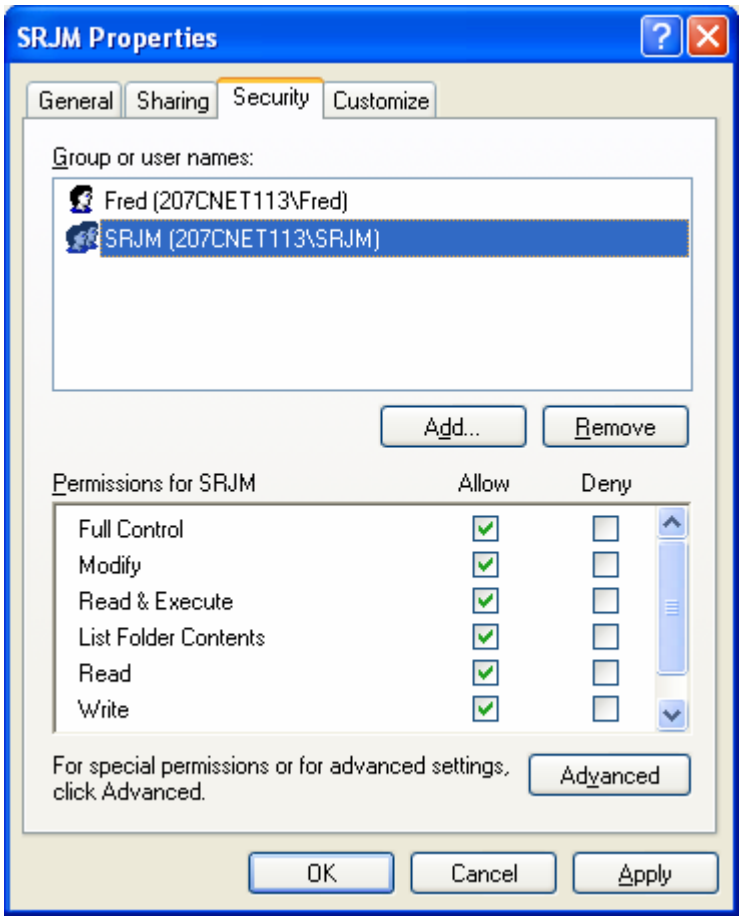

Computer Management
File Action View Window Help
Computer Management (Local)
System Tools
Event Viewer
Shared Folders
Local Users and Groups
Users
Groups
Performance Logs and Alerts
Device Manager
Storage
Removable Storage
Disk Defragmenter
Disk Management
Services and Applications
Name
Administrator
Fred
Fred
Guest
HelpAssistant
Lloyd
Robert
Simon
SUPPORT_38...
Tom
Simon Properties
General
Member Of
Profile
Member of:
Administrators
SRJM
Add...
Remove
OK
Cancel
Apply
start
Administrative Tools
Computer Management
8 - Paint
EN
14:41

Turning off Use Simple File Sharing in order to set advanced security/sharing permissions on folders.



Setting the access permissions to Read Only for the Fred user group and for full access with the SRJM group while also making the folder inaccessible to all other groups and users by removing them.


SRJM Properties
General
Sharing
Security
Customize
Group or user names:
Fred (207CNET113\Fred)
SRJM (207CNET113\SRJM)
Add...
Remove
Permissions for Fred
Allow
Deny
Full Control
Modify
Read & Execute
List Folder Contents
Read
Write
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Apply


SRJM Properties
General
Sharing
Security
Customize
Group or user names:
Fred (207CNET113\Fred)
SRJM (207CNET113\SRJM)
Add...
Remove
Permissions for SRJM
Allow
Deny
Full Control
Modify
Read & Execute
List Folder Contents
Read
Write
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Apply

2: Drive E:\ is currently formatted in FAT32 which has none of the security features enabled by NTFS format which includes the ability to protect sections of the drive from unauthorised users.

3: Drive C:\ is the primary boot partition from which the operating system will be running, therefore formatting is pretty much impossible.

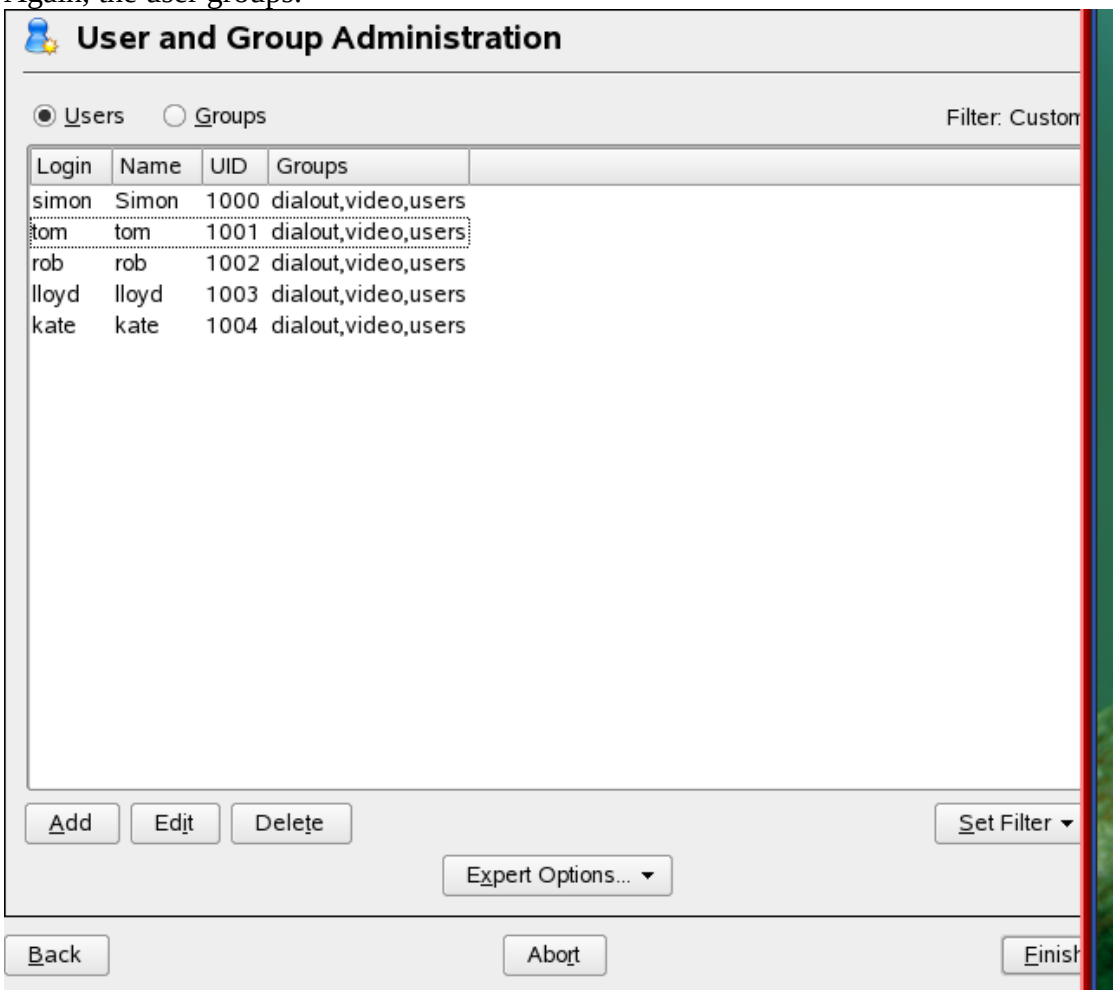
4: Unlike the SuSE installation, setting the installation preferences appears to be dispersed throughout the procedure preventing a user from leaving the machine to its own devices for any length of time while the everything is underway, starting with selecting the formatting options and drive in a form of DOS, all the way through to creating the new users, passwords and network settings right at the end.

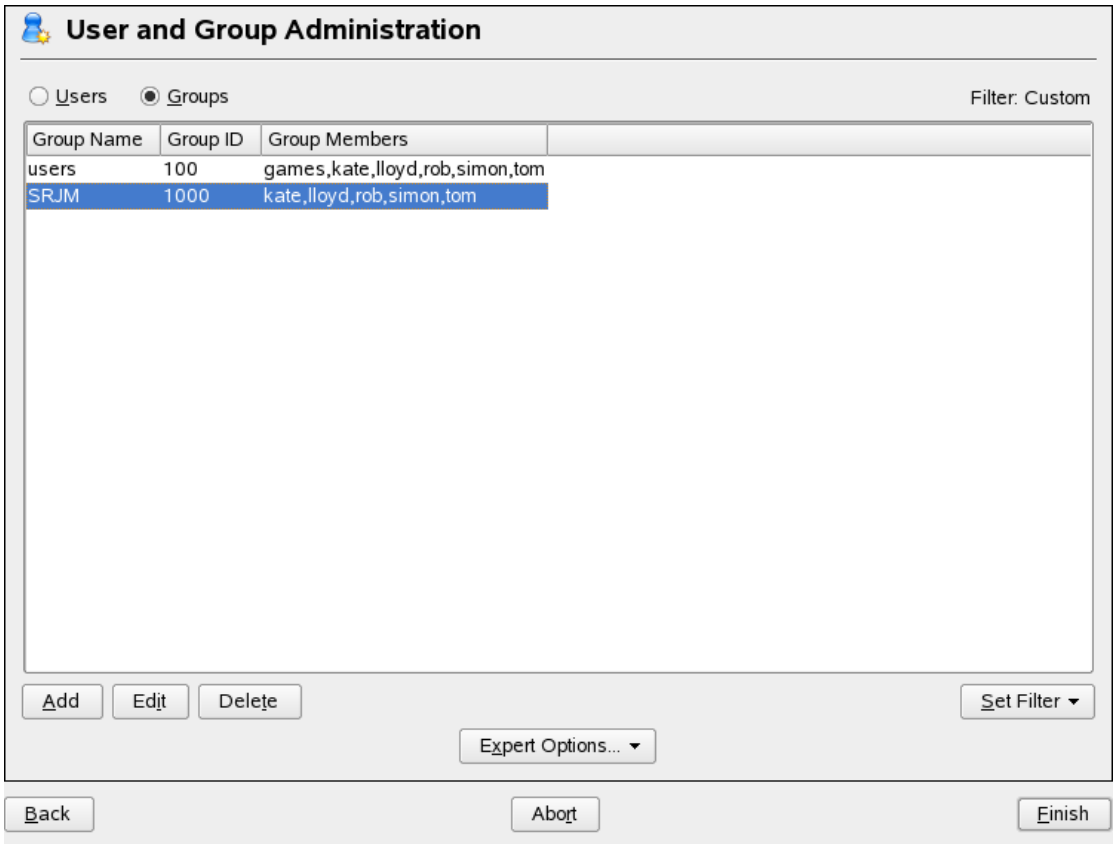
Microsoft can certainly improve their OS installation procedure by having ALL the various language settings immediately changeable to whichever your preference is, rather than having to go through at least 4 different combination boxes to change each aspect of the language settings from English US to English UK.

Otherwise, this setup is fairly straight forward and I certainly can’t complain about never having to change a CD during the procedure.

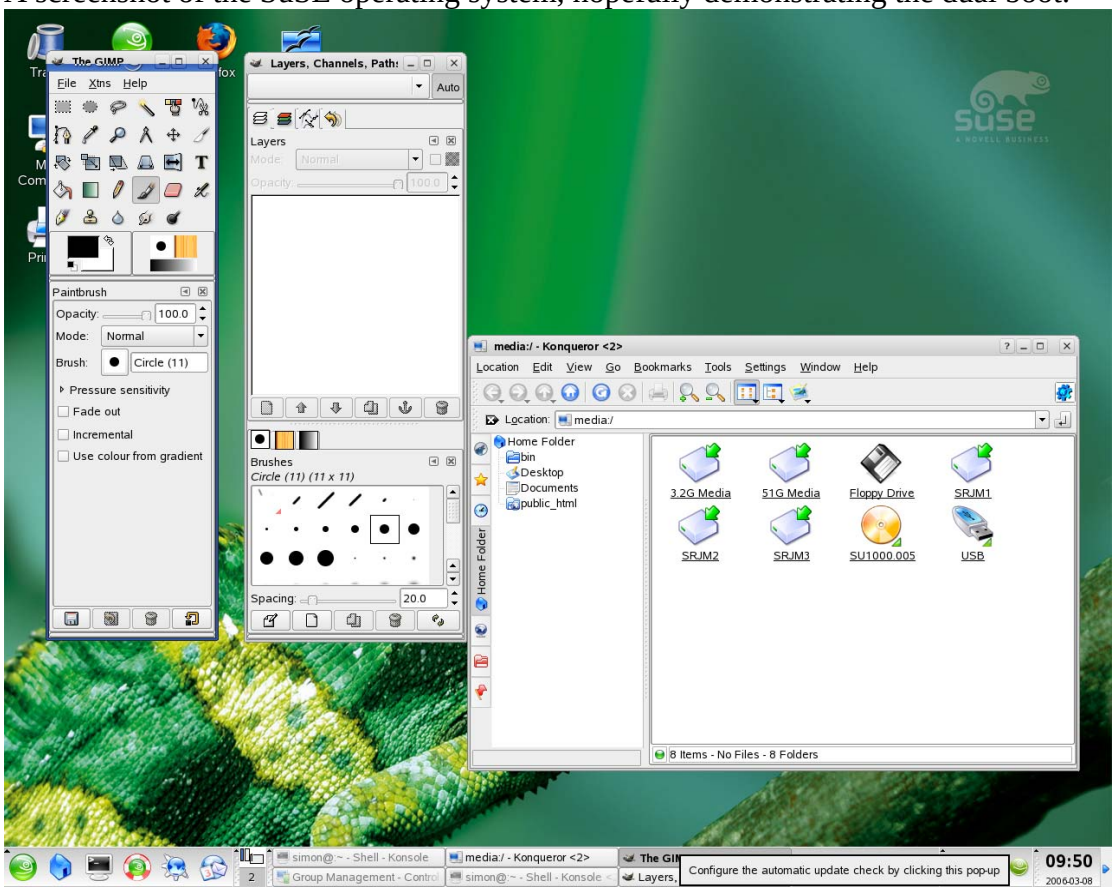
Stage 3:
1: Screenshots

Again, the user groups.

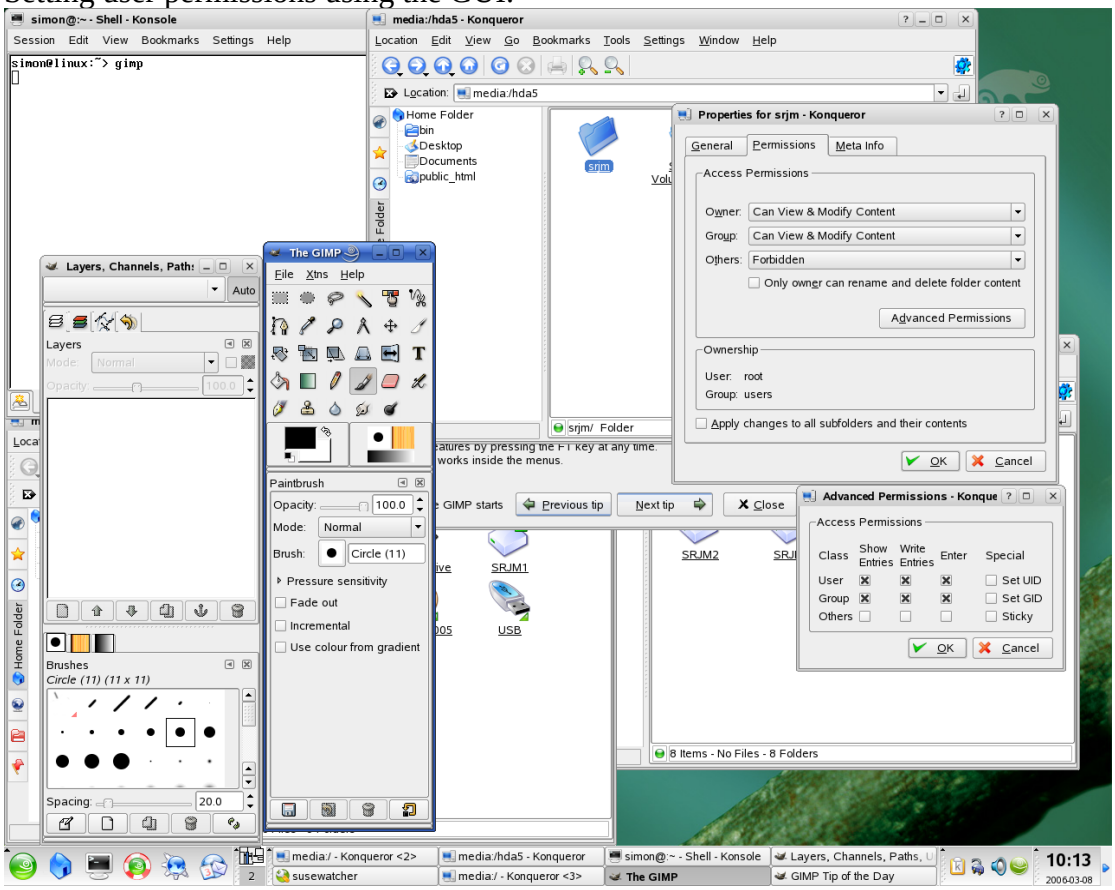




A screenshot of the SuSE operating system, hopefully demonstrating the dual boot.



Setting user permissions using the GUI.



3: The installation certainly was more aesthetically pleasing but I would not say that it was any simpler than the Windows XP setup for having an immediate GUI present. If anything the overwhelming choice of modules was a bit annoying, especially if all you want is a working Operating System.

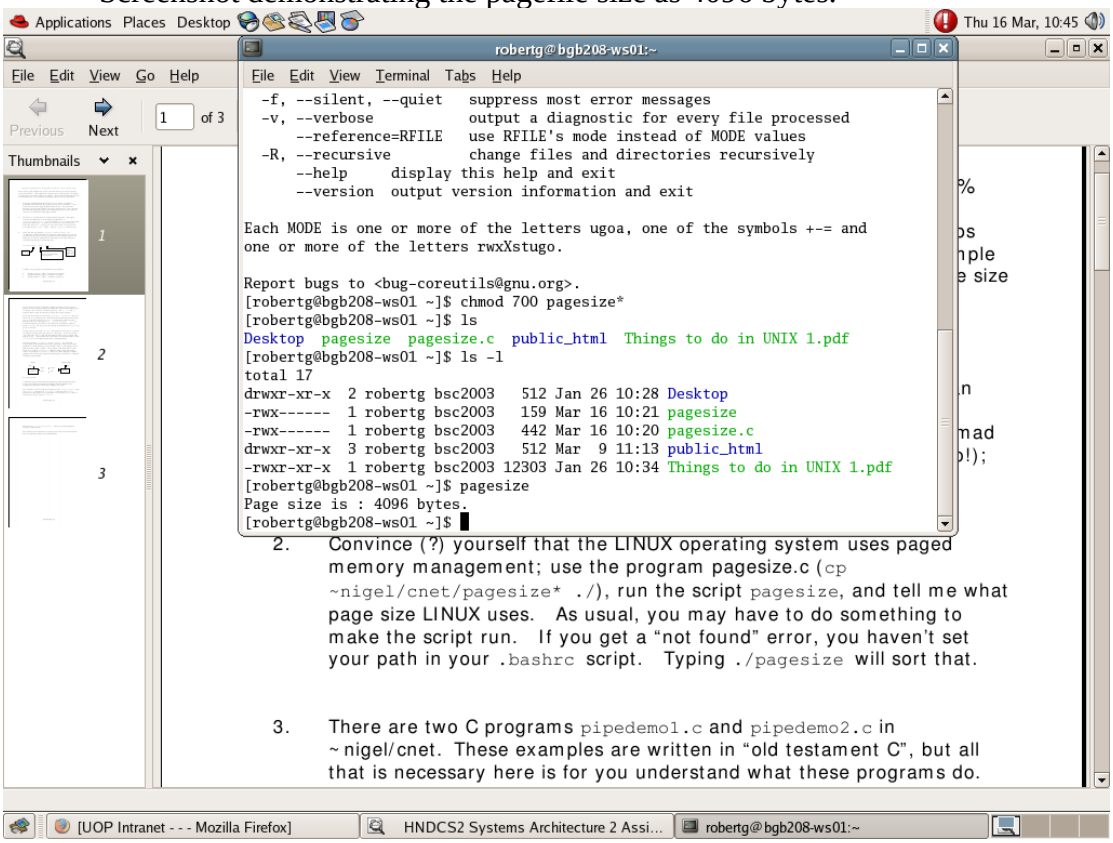
With increasing capacity and availability of new technologies such as Digital Versatile Disk SuSE should consider having a version that installs from a single DVD disk as opposed to several CDs, since effectively every computer for almost 5 years has been supplied with an optical disk drive capable of reading DVDs.

OS Assignment Part 2:

1: The webpage is on /~robertg/

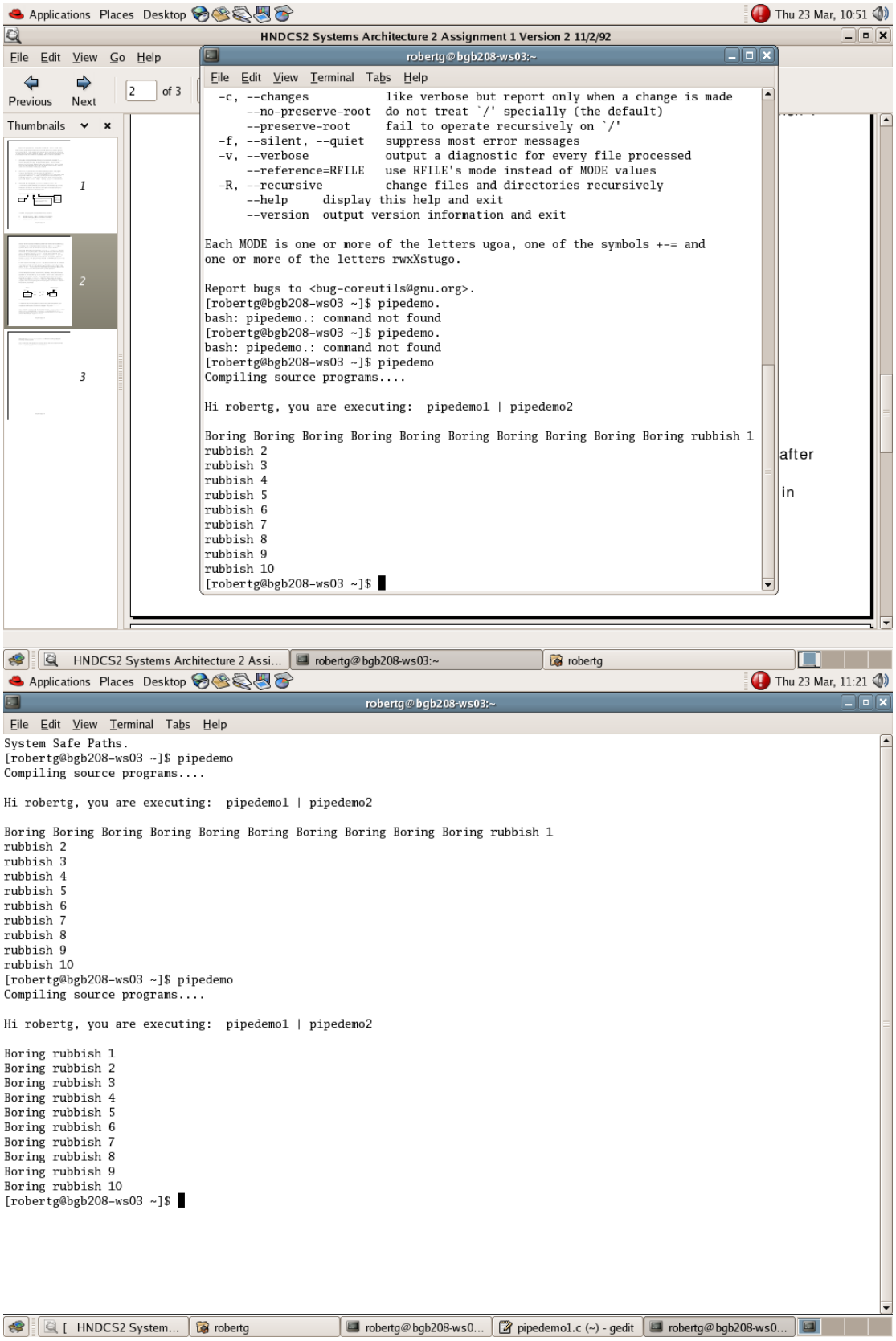
2:

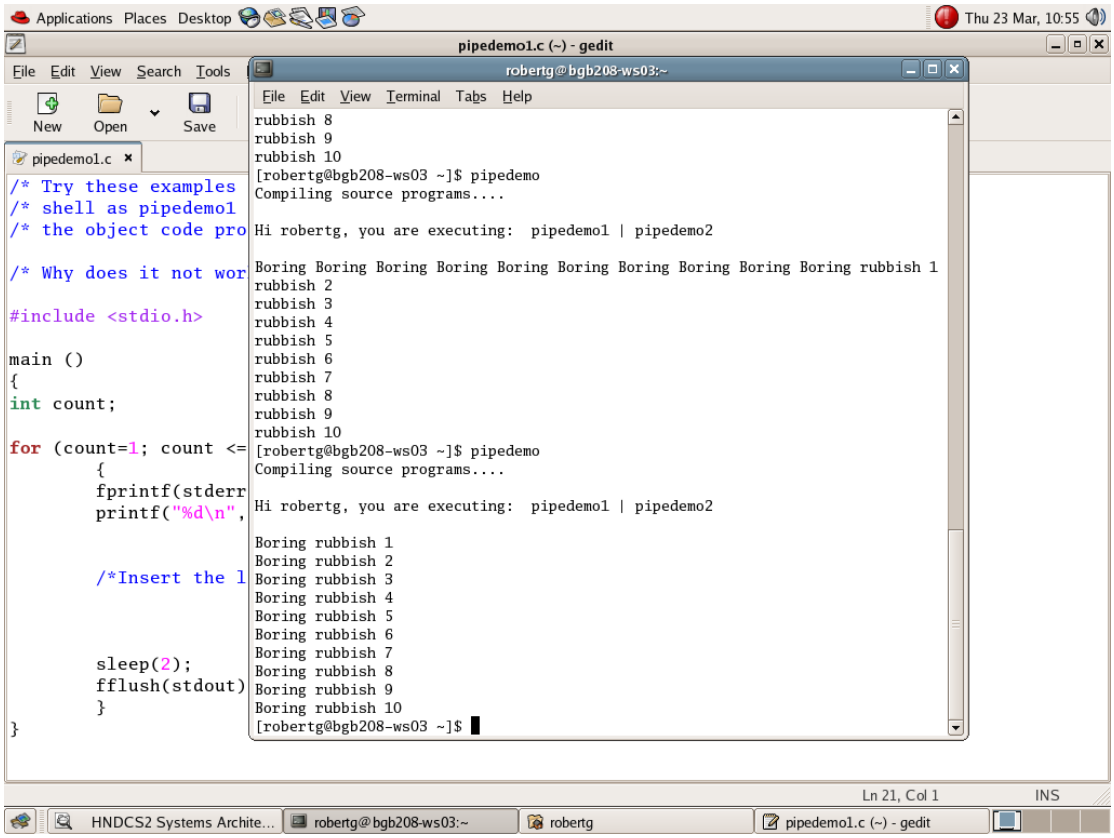
Screenshot demonstrating the pagefile size as 4096 bytes.



3: Why does the fflush statement make things work as I intended?
Fflush stops the program from buffering the information therefore it instantly displays in the output.

After removing sleep(2) it stops working reliably because sleep(2) creates a delay of two seconds after typing "boring"; this means it takes twenty seconds for the process and steadily displays the output. Without the sleep 2 there's no delay with displaying the output.
Without the sleep there is not enough time for demo2 to respond.


Applications Places Desktop
Thu 23 Mar, 10:51
HNDCS2 Systems Architecture 2 Assignment 1 Version 2 11/2/92
File Edit View Go Help
Previous
Next
2 of 3
Thumbnails
robertg@bgb208-ws03:~
File Edit View Terminal Tabs Help
-c, --changes like verbose but report only when a change is made
--no-preserve-root do not treat `/' specially (the default)
--preserve-root fail to operate recursively on `/'
-f, --silent, --quiet suppress most error messages
-v, --verbose output a diagnostic for every file processed
--reference=RFILE use RFILE's mode instead of MODE values
-R, --recursive change files and directories recursively
--help display this help and exit
--version output version information and exit
Each MODE is one or more of the letters ugoa, one of the symbols +-= and
one or more of the letters rwxXstugo.
Report bugs to <bug-coreutils@gnu.org>.
[robertg@bgb208-ws03 ~]$ pipedemo.
bash: pipedemo.: command not found
[robertg@bgb208-ws03 ~]$ pipedemo.
bash: pipedemo.: command not found
[robertg@bgb208-ws03 ~]$ pipedemo
Compiling source programs....
Hi robertg, you are executing: pipedemo1 | pipedemo2
Boring Boring Boring Boring Boring Boring Boring Boring Boring Boring rubbish 1
rubbish 2
rubbish 3
rubbish 4
rubbish 5
rubbish 6
rubbish 7
rubbish 8
rubbish 9
rubbish 10
[robertg@bgb208-ws03 ~]$
after
in
HNDCS2 Systems Architecture 2 Assi...
robertg@bgb208-ws03:~
robertg
Applications Places Desktop
Thu 23 Mar, 11:21
robertg@bgb208-ws03:~
File Edit View Terminal Tabs Help
System Safe Paths.
[robertg@bgb208-ws03 ~]$ pipedemo
Compiling source programs....
Hi robertg, you are executing: pipedemo1 | pipedemo2
Boring Boring Boring Boring Boring Boring Boring Boring Boring Boring rubbish 1
rubbish 2
rubbish 3
rubbish 4
rubbish 5
rubbish 6
rubbish 7
rubbish 8
rubbish 9
rubbish 10
[robertg@bgb208-ws03 ~]$ pipedemo
Compiling source programs....
Hi robertg, you are executing: pipedemo1 | pipedemo2
Boring rubbish 1
Boring rubbish 2
Boring rubbish 3
Boring rubbish 4
Boring rubbish 5
Boring rubbish 6
Boring rubbish 7
Boring rubbish 8
Boring rubbish 9
Boring rubbish 10
[robertg@bgb208-ws03 ~]$
[HNDCS2 System...
robertg
robertg@bgb208-ws0...
pipedemo1.c (~) - gedit
robertg@bgb208-ws0...


Applications Places Desktop
Thu 23 Mar, 10:55
pipedemo1.c (~) - gedit
File Edit View Search Tools
New Open Save
pipedemo1.c
/* Try these examples
/* shell as pipedemo1
/* the object code pro
/* Why does it not wor
#include <stdio.h>
main ()
{
int count;
for (count=1; count <=
{
fprintf(stderr
printf("%d\n",
/*Insert the l
sleep(2);
fflush(stdout)
}
}
robertg@bgb208-ws03:~
File Edit View Terminal Tabs Help
rubbish 8
rubbish 9
rubbish 10
[robertg@bgb208-ws03 ~]$ pipedemo
Compiling source programs....
Hi robertg, you are executing: pipedemo1 | pipedemo2
Boring Boring Boring Boring Boring Boring Boring Boring Boring Boring rubbish 1
rubbish 2
rubbish 3
rubbish 4
rubbish 5
rubbish 6
rubbish 7
rubbish 8
rubbish 9
rubbish 10
[robertg@bgb208-ws03 ~]$ pipedemo
Compiling source programs....
Hi robertg, you are executing: pipedemo1 | pipedemo2
Boring rubbish 1
Boring rubbish 2
Boring rubbish 3
Boring rubbish 4
Boring rubbish 5
Boring rubbish 6
Boring rubbish 7
Boring rubbish 8
Boring rubbish 9
Boring rubbish 10
[robertg@bgb208-ws03 ~]$
Ln 21, Col 1
INS
HNDCS2 Systems Archite...
robertg@bgb208-ws03:~
robertg
pipedemo1.c (~) - gedit

OS Assignment Part 3: CNET Coursework Essay

What services and utilities does a modern Operating System, such as Microsoft Windows, Apple Mac OSX and UNIX provide that are relevant to multimedia, digital arts and the entertainment industry?

The Operating System has always been considered the layer of software that enables the application layer programs to communicate with the lower levels of the computer system all the way down to the hardware. Primarily it is the kernel that sits between applications and the hardware, providing applications with the ability to use services as well as software that defines the appearance and the way in which the computer can be operated.

But with the progression of computing technology as a whole, and the increasing functionality and implementation of the computer and concurrently the complexity of the tasks it is expected to perform, the actual role of the operating system and the services it provides is becoming increasingly blurred. And in no other area is this more prevalent than that of digital arts and design, where the relationship between the computer and its Operating System and the designer is becoming ever more complicated. And it is also the developments and improvements here that are the fastest paced, at the heart of the new media revolution.

As a designer working in digital arena, the Operating System assumes the role of the most basic and fundamental medium, both for developing their work on and for distributing it in a form for which end users can easily use, certainly with no need for the designer's specialised knowledge.

Arguably, the Apple Macintosh is on the absolute forefront, since it's the most common Operating System behind the digital art, design and entertainment industry. Apple's latest, the Macintosh OS X, is the best example of an Operating System implementing the newest technology in order to improve the overall user-experience for a modern, computer based professional, especially those involved in the production of new media and design.

Most of the new features included in OS X are orientated towards improving its usage, and importantly creating a both stable and reliable environment. The Aqua Graphical User Interface immediately provided a distinct difference in look and function from previous versions, bringing a sleeker design to the Apple desktop, and added functionality with the inclusion of a quick launch panel situated at the bottom of the screen.

In addition, Macintosh Operating Systems are particularly feature rich for the modern designer and the Apple Mac has become a prevalent feature of the professional designer's world. OS X in particular has integrated anti aliasing, meaning jagged or pixelated patterns in design work will be instantly amended on both high and low resolution monitors. Similarly, we see the inclusion of the Colorsync colour matching system which is an incredibly useful utility for print based work. This system allows coloured printed work to match its original screen counterpart as closely as possible with little colour loss or de-saturation. This allows a new media designer to create and print work of an incredibly high standard through rich colour as originally intended, since human colour perception is highly detailed with the human eye being able to notice even the slightest of colour variations.

Open GL composites within OS X help to achieve hardware accelerated drawing, which in turn aids the running of the complex Aqua user interface, (Apple's own particular version of this technology being Quartz Extreme). This software enables OS X the capability of rendering window screens much faster by changing them to textures using Open GL content. In essence this allows the window screens to run using 3D hardware acceleration, normally only reserved for gaming. This additional speed is very useful performance-wise in the deadline driven world of digital art and entertainment.

Exposé is another incredibly useful and time-saving feature integrated into OS X. It allows the user to toggle between any number of program windows instantly, by the use of various function keys. Given that a media designer might have a large number of high-end applications running at any one time, the feature creates an easy go-between from incredibly packed program screens opening all hidden and un-hidden windows. Now, Windows Vista will also introduce a similar program called Flip 3D for the Operating System.

But perhaps the most important and relevant feature that the Macintosh OS X operating system gives the digital artist is Core Image technology. Instead of allowing the CPU-based software to handle all of the graphical and image related effects, OS X harnesses the power of the system's Graphical Processing Unit. Not only can Core Image be used to generate the added GUI effects seen in OS X such as the desktop ripple, but it also allows the digital designer to use real-time effect filters in such applications as Adobe Photoshop or Paint Shop Pro. It also enables 'non destructive' image manipulation, whereby previously filters would be applied directly to an image changing it permanently but instead Core Image allows for the filter to be placed directly on top of the image, as an overlay. This gives the user the ability to create previously impossible image manipulations of a complex nature with almost no loss in quality - a godsend for the modern designer who will likely work with any number of layers within a single project. Quality-loss is normally expected in any work including picture manipulation, illustration, and film editing but Core Image helps to keep this loss at a minimum.

However while the Apple Macintosh and its OS X is certainly the primary tool in the digital design industry, because of its restrictive nature, the actual designing of software for Apple Macintosh is highly difficult, so designers wishing to create software look to another platform. This of course is Microsoft's Windows, with a massive market for creating and distributing software of all nature. A particularly large area to study would be that of the PC Game and its production, and what Microsoft has to offer designers producing the computer games.

The Windows Operating System includes an Application Program Interface (API) which consists of a set of routines, protocols, and tools for building software, highly useful for the designer wishing to create and distribute applications.

For example, Direct X is a software developer's kit designed by Microsoft that allows software designers to access the hardware through windows. The general alternative available

to designers is Open GL, however while they are very different, both APIs have a similar performance and this has sparked a debate as to which one is superior.

Direct X was developed in 1995 by Microsoft, the reasoning behind this was to wean developers off of Disk Operating System (DOS, Microsoft's previous operating system) and onto the Windows 95 APIs. Game developers preferred DOS because it allowed them direct access to hardware, such as keyboards, mice and soundcards, whilst Windows 95 operated with a protected memory module that restricted access to all of these. It was critical to the success of Microsoft's new Operating System that game developers were developing games and other pieces of software for Windows 95 rather than DOS.

On the other hand, Open GL was created before Microsoft's Direct X and for a different purpose. Silicon Graphics Incorporated's previous graphics API, Iris GL was ageing and SGI viewed this as a hindrance on its market growth. SGI's answer to this was to standardize the access to hardware and therefore Open GL was developed, giving game designers and programmers a high-level platform for the development of 3D software. OpenGL was included on the Windows NT platform.

As graphics cards became more powerful and games became more advanced OpenGL appeared to become the de-facto standard. Programmers from both the OpenGL and Direct X communities began the great "Open GL vs. Direct X" debate which is still ongoing, however recently it would appear that both APIs are equally matched, but this will surely change with the release of Microsoft's Direct X 10 and of course, the Open GL response to it.

Currently many games are made that utilise both Open GL and Direct X in order to get a larger 'Library' of abilities. The Microsoft Xbox games console uses Direct X as a base for its API (which is comparable to Direct X 8.1), calling it simply 'Xbox', however the console itself is non upgradeable.

Open GL has the advantage of being used on a much wider array of applications and systems than Direct X. It is often found being used in Computer Aided Design, computer generated imagery or art, scientific visualisation and information visualisation applications.

Although Direct X was originally distributed separately from the actual Windows Operating System, (instead often supplied with a game that required a particular version as a minimum to run), with the development of Windows Vista, Direct X and the Operating System have become part of the same package. Direct X itself is to be updated to become Direct X 10 which will include a 'scheduler' and a 'memory visualisation system' that makes the transition from the previous driver model of Direct X 9.0.

In this sense, the new windows Operating System is changing the way the computers handle graphics with Vista putting an enormous emphasis on its new capabilities. Soon to be gone are the days where the graphics card and its maker set the terms, capabilities and limits of a computer's graphics system. Instead of solely relying on the old GDI graphics API, vista will convert to using more Direct X, allowing for the use of 3D features to be incorporated into the Operating System itself, such as actual window transparency and layered windows, in theory the 3D workspace or desktop. For an application designer of course, this new API is bringing exciting new concepts into the actual design of programs, with the promise of real 3D designs being able to run alongside the actual interface of the Operating System.

In more detail, to get the improved graphics Vista uses the GPU on the video card along with vector based graphics instead of using the CPU to display ordinary bitmap-based graphics. Another step was taken to improve the graphics within Vista, a new type of video driver that allows the Operating system to communicate more complex graphics needs to the video card's GPU.

To enable Windows Vista to process the increased 3D graphics requests from the operating system and the new windows display driver model drivers more powerful video cards will be required.

One key element to this new revolution in graphics controlled by the Operating system is Direct X, and although the current direct x 9 will be compatible with Vista its Direct x 10 that will be helping Vista to really control and standardize the top end graphics of a computer. With Direct X 10 there will be no need for developers to poll graphics hardware

for specific capabilities, Vista will now be doing that, putting a stop to the silly rate of new feature introductions in graphics hardware. New 3d features will now be bound to version numbers of direct3d, allowing all the 3d vendors to support the same features, ensuring compatibility across the board. This will lead to Microsoft regulating the introduction of 3D features through direct3d.

Microsoft and Vista will now control the pace, not just at a user level with 3d graphics and Direct X, but on a manufacture level, controlling what manufactures like NVIDIA and ATI can do with there hardware and leading to more standards, creating a level playing field and allowing the user to get the best graphics possible.

Direct X 10 started by fixing what was broken in the previous APIs, like stability problems and small batch performance, and then removing old unnecessary parts of the API. This became the foundation for a graphics API that could change the way games look and really take PC's to a new level of graphics over next-generation consoles like the PS3 and XBOX 360. This new graphics API will have more stringent requirements for graphics cards, with a very particular guaranteed feature sets. The behaviour of DX10 cards will be strictly defined, so developers can get the expected output from their code with no tweaking necessary to account for multiple graphics cards and vendors.

The development of Windows vista and DirectX 10 hasn't been without its problems, for example recently a problem occurred with the 'desktop composting feature' of windows vista (It allowed various effects concerning the windows) whereby the feature would completely shutdown when applications that used Open GL were run. A previous solution used to was to run an Open GL emulator, but luckily this problem has recently been solved. Critics still exist as to whether or not Direct X 10 will have any significant improvement over its predecessor.

However Windows Vista and the increased reliance on Direct X and Direct3d allows for a better user experience, with the level playing field on Graphics hardware and the standardization of 3D features computers will be able to keep up with the technological graphics advancements with more ease. This is the same for people working in Design, for

art, computer games etc Vista now caters for people's graphics requirements and to allow them to keep up with the constant graphical advancements.

So in conclusion, the modern OS is actually becoming more fundamental than ever to a designer, pushing for increased levels of standards and improved features. The services that it provides are definitely increasing in number and complexity, whether these are simply for aiding the processes behind the creation of digital media or are the actual services with which the designer is working within to create something.