Answers

Task 1

Jamail has been having problems with the computer that he uses to run his car repair business. He uses it to send letters, invoices and emails, carry out Internet searches and use spreadsheets and databases to track his finances and customers.

He has recently noticed that it is running slowly, and he often receives error messages saying that he is out of disk space or memory. Some of his files are also corrupted.

Discuss **three** possible causes of these problems and how Jamail could use utility programs to rectify them.

Corrupted files could be caused by malware such as a virus, worm or Trojan. He could use anti-malware software to scan his data and quarantine any malware. This would also prevent further infection.

The secondary storage e.g. hard disk drives could be almost full of data and programs. This would not only cause the error messages but may also cause the computer to slow down if it is using virtual memory. Disk clean-up software will analyse all the stored files and delete those that are not required e.g. temporary files, programs that have been downloaded and installed, cached web pages and deleted files in the recycle bin.

The hard disk drives could have become fragmented where parts of a single file are saved in different areas of the disk where there is space. Disk defragmentation software will rearrange all the file parts so that they are all together or contiguous. This will make no difference if a solid-state drive is used.

Task 2

Computers which have started to slow down may have an improvement in speed if a defragmentation utility is run.

(a) Explain how a disk can become fragmented.

* Files are saved to a hard disk
* If a file is deleted it will leave space on the hard disk
* When a new file is saved, it may use this space – but if it doesn’t all fit then some of the file will be saved elsewhere on the disk
* This creates two or more fragments of the file
* Over time, many files are stored as fragments
* Accessing fragmented files takes longer as the computer must wait for the hard disk to have spun to the correct location and the head to have moved to the correct track

(b) Explain how a defragmentation utility works.

* A defragmentation utility works by moving file fragments so that they are located in the same place (they are contiguous)
* This makes accessing the file faster
* Defragmentation software is normally run automatically by the computer when it isn’t doing anything else (as it slows the computer whilst it is running)

Task 3

Sinead has a hairdressing and beauty business and uses a computer system to carry out her admin work. She uses it to send letters, keep all of her financial details and records of customers and appointments and create and prepare digital images she has taken and edited of her clients before and after treatments for her website.

Suggest application software that would be useful for Sinead and discuss the facilities they would provide for her.

To create, read and edit letters she should use word processing software which would provide facilities such as:

* creating, editing, saving and printing documents
* copying, pasting, moving and deleting text within a document
* formatting text, such as font type, emboldening, underlining or italicising
* creating and editing tables
* inserting elements from other software, such as illustrations or photographs
* correcting spelling and grammar
* formatting pages, for example orientation and number of columns

To manage her financial details, she should use spreadsheet software which would provide facilities such as:

* formulas and functions for calculations
* absolute and relative referencing in formulas
* conditional formatting to display data
* automatic recalculation
* graphs and charts of the data
* sorting data into a particular order

Alternatively, she may use accounting software, which has the following features:

* Create and send invoices
* Add expenses
* Take payments
* Reconcile payments/expenses with bank account data
* Store customer details

For keeping records of her customers and appointments she should use database management software which would provide facilities such as:

* creation of fields and tables to store the data
* linking of data tables through use of key fields
* searching or querying to find specific data
* sorting the data into any order
* reports containing the data
* user forms for data entry
* graphs to display the data

It is possible that she can use software which has been written and is dedicated to a hair salon business, or a business that needs to take appointments

To prepare digital images for her website she should use graphics editing software which would provide facilities such as:

* tools for drawing lines, shapes and fills
* crop, stretch, flip and rotate tools
* copy areas of different shapes
* adjust exposure, brightness and saturation
* clone tool to copy one part of an image to another
* magic wand tool to capture a colour from an image
* healing tool to repair parts of an image, for example remove scratches.

Task 4

NewSoft is a start-up company designing and creating mobile apps. They have asked for   
advice on the design of their software interface. Prepare a presentation for them explaining   
the features of a good user interface and why this would influence potential customers to   
use their app.

Some suggested points to cover:

Examples, screenshots or photos of good user interface design.

A good user interface should provide logical and intuitive navigation users can guess what a menu or option is for or find the item they need in the first place they look.

It should be consistent to make an application easier to learn.

The interface should be simple, clear and concise with no clutter. It should also be responsive and work on different screen sizes and in both landscape and portrait orientations.

These properties will allow users to learn how to use the software quickly and do their jobs as quickly and efficiently as possible by allowing them to easily remember how to accomplish tasks when they next use the software.

Task 5

Meridian PLC is a large bank with branches around the world. As a result of recent cost-cutting initiatives, it has been suggested that where possible they should move from proprietary to open source software. The chairman has asked you to give a list of the advantages and disadvantages of such a move.

**Advantages**

* Open source software will be free to use
* It would be possible to modify/customise the software
* The creators of the software would likely be enthusiasts who could provide help and support and updates
* Employees will be able to install the software at home at no extra cost

**Disadvantages**

* Customising the software would be costly and the company would need to employ someone to do it
* As help and support is provided by volunteers, it may not be reliable. Alternatively, an additional cost will need to be made for support
* There will be a cost of employees learning new software

Task 6

The table below shows a number of scenarios. For each scenario, write a suggested file format that could be used. You may need to research file formats in order to answer the question.

Other file formats may be possible answers to these questions.

|  |  |
| --- | --- |
| **Scenario** | **Suggested file format** |
| A web designer will be using photos on their website. The photos will need to have transparency so that they blend in to the background. | PNG / Portable Network Graphics  (Not GIF as it is not good for photos and the transparency does not blend; not JPG as it has no transparency) |
| A new streaming service is being created. They will need to have the films and video content in a compressed video format. | MP4 (or any other compressed format) |
| A company used to use GIF images for their animations on their website. They wish to change to an alternative format which is a vector format. | SVG / Scalable Vector Graphics  (These allow animation and are vector images) |
| A college wishes to share information about upcoming exams to their students. It is a 10-page document and they would like it to be read by as many different computers or devices as possible. | PDF (Portable Document Format)  (doc/docx will not be readable by people without a special reader or Microsoft Word; Text format would be readable, but would not contain formatting) |
| A company holds a training day to teach some of their customers how to use their software. They wish to make the presentations they used available after the training. They are considering using PPT, PDF or PNG file formats. What are the advantages and disadvantages of each? | **PPT (PowerPoint)** the original presentation – but users would need the software to view these  **PDF** this would be more universally read and could provide space for notes. It can’t be edited and would lose any animation  **PNG** one image could be made of each slide. It would not be easy for people to quickly view these images, however, they are read by computers and web browsers without the use of plugins. |