

Information Systems Unit 4 SAC 2 2004 Solutions

1. List one project management tool that the Systems Analyst employed by Zoom might use, and explain how that tool might be used.

The most frequently used tools are Gantt and PERT charts. A Gantt chart would show the various steps in the development and implementation of the on-line ordering system.

2. Identify two important technical hardware specifications of the Zoom fileserver and explain why these are important features.

You needed to identify appropriate hardware specifications (capacity and capability) and provide a reason for the selection. Successful answers identified the speed of the processor as important for ensuring fast transfer of data and identified the capacity of the hard disk drive because it must store all the customer data.

3. Identify **two** important software functions of the **fileserver operating system** that will ensure that the customer data is securely stored. Explain why these are important functions.

You need to understand the functions of a computer operating system. Operating systems are continually developing and newer operating systems include features once regarded as extras. However, the basic concept is that an operating system controls the operations of a computer; hence its functions include: controlling the hardware and peripherals, providing a user interface, managing processing tasks, managing files and controlling access. The question specifically required you to identify software functions related to security of customer data. You could only be awarded full marks if your answers addressed security issues that relate to controlling access. Acceptable answers discussed logon IDs and passwords for customers to ensure only authorized users could access the system, firewalls to prevent hackers and other companies stealing the customer details, levels of access to stored files to ensure users had access only to those programs and files needed (for example, customers should have access only to the merchandise list).

4. The Systems Analyst recommends that the company use an open source software package consisting of a PHP front end and MySQL back end. She says that such a system can be downloaded from the Internet and customized to suit the company's needs. List one advantage and one disadvantage of this option.

Advantages of OSS:

- The availability of the source code and the right to modify it
- The right to redistribute modifications and improvements to the code
- The right to use the software in any way.

Disadvantages of OSS:

- There is no guarantee that the software works
- There may be significant problems connected to intellectual property – the software may in fact have a patent on it.
- It is sometimes difficult to know that a project exists, and its current status. Because there is no money in distributing OSS its marketing is limited..

5. Given that Zoom will be operating in a global market, list two factors that the web site designer would need to consider.

Language – an overseas customer may not speak English and so a translation program would be an advantage

Currency – if an option to pay online is available, costs shown in the local currency may be an advantage.

6. Describe the key steps that will need to be taken when implementing this solution.

- Data conversion: - the manual keying-in of data is the last thing to do
- Training: Users of the new system may not know how to use it and training will bring confidence
- Security: the new system needs to be protected from accidental or deliberate damage
- Backup/recovery: if the system goes down you need to have a means of not losing data
- System documentation: To help maintain the system and explain what each function does

- User manuals: These help end users operate the new system

7. The Systems Analyst recommends implementing the new system through a phase-in method. What would be an advantage of using this method, and how might this work in the case of Zoom?

One advantage of the phase-in method is that a back-up (the catalogue and stalls at events) is available in the event that the web site fails. Also bugs can be ironed out with the web site, and it would not be critical if it was down for short periods. Zoom could cease mailing catalogues to overseas customers, and as mentioned in the case study, phase catalogues out altogether. Considerable savings would be made not having to print and mail out catalogues, although this advantage is not specific to the phase-in method.

8. Discuss what types of documentation will be required to effectively use the new system. (5 marks)

- I. Technical system documentation which includes:
- II. High level system diagram showing interfaces with other systems
- III. Overview of the system showing how the component parts relate to each other
- IV. Recovery procedures for processing failures
- V. User documentation which includes:
- VI. User manuals
- VII. On-line help
- VIII. Instructions for the system administrator

9. Discuss two possible security issues that might arise and how you might address these.

Issue	How to address
If customers can access a database of Zoom merchandise via the Internet and presumably pay by credit card then the business is a target for criminals who can scan and steal credit information or 'hack' into the system.	The answer would be to install a firewall and also encrypt data such as credit card numbers.
Unauthorized access to data such as customer lists.	Most multi-user operating systems provide for a login code and a password. Users of the system could be restricted in their access to certain levels e.g. only certain staff access the credit card details of customers. Staff should be required to change their passwords on a regular basis, say monthly. Staff could be restricted in the times they could log on e.g. 9am –5pm.
Loss of data due to contamination by viruses	A regular scan for viruses should take place. Staff should be prevented or discouraged from loading any files onto the system.
Theft of hardware or data	If possible, hardware should be fixed to benches via cables or similar. If a file server is used it would be preferable to have this in a locked room. Screen savers, possibly password protected, should be on each VDU.

10. Zoom's Head of Media is Jae McLachlan, who has a Bachelor of Marketing and Advertising. Her current job involves her managing all public relations, magazine advertising, and the coordination of the catalogue. How will her job change? What new skills will she need?

Jae will be producing a web site rather than printed catalogues. She will need to have skills such as knowing different graphic formats, web site layout (colour formats, navigation etc), whether it is possible to use language translation software and how accurate it might be, and what payment schemes may be available (eg PayPal).

11. Shutting down the system:

- a. Identify one aspect of system performance that this proposal will test.

A range of responses was acceptable for example, reliability of the backup system or how much it takes to overload the system.

- b. Explain two important aspects of the disaster recovery plan that will be tested.

Acceptable responses included:

- whether the backup data disks have data on them because the system must be restored without data loss and if the backup data disks are not tested there may be a fault with the backup procedures or the disks
- whether data is recovered as quickly as expected so that they don't lose customers because the system is down. If data recovery is slow the reasons must be investigated and new procedures or equipment may need to be purchased
- whether the system can be restarted and operate normally because they will lose customers if the applications or web site aren't fully functional and so steps will have to be taken to improve disaster recovery
- whether the backup disks are readily accessible although in a safe location because the procedures may need changing for example if one person has the key to the storage space for the backup disks and that person is absent during the system crash restoration can't occur until they return.

You need to distinguish the disaster recovery plan testing from system performance testing in part a. and at least identify an aspect that needed testing.

- c. Do you agree with the manager's comments? Justify your answer.

All systems should have a disaster recovery plan and this should be tested because history shows that systems do fail. Although a system may be working well a virus or some natural or unnatural disaster could affect it. The impact of system failure can be costly. In the case of Zoom it could mean loss of customers and thus loss of income. A few students agreed with the manager but most were able to state at least two reasons for testing the system.

12. This question addressed one aspect of system evaluation, that of data acquisition. It identified four types of users who could provide useful data for the evaluation: management, sales staff, web technical staff and customers.

A Describe the data each type of person could provide. Describe how this data could be collected.

	Data provided	How data collected
Staff who process the on-line orders	Could provide data about the difficulty/ease of use of the system, the speed of use of the system, the reliability of the system	This data could be collected by interviewing the staff, keeping a log of problems with the system, or observing the system in operation (a questionnaire could be administered but as the number of staff would be small it would probably not be worth the expense).
Customers	Could provide data about the time taken to order and receive their goods and could comment about the quality of the merchandise. They could also comment about accessibility of the site and the download time (there may be images of the merchandise).	This data could be collected by on-line survey.
Web technical staff	Could provide data about the number of hits on the site, the number of crashes of the system, the types and frequency of problems with the system.	This data could be collected by keeping a maintenance log and installing software that gathers statistics on website access.
Management	Could provide data about the number of customer complaints, system maintenance costs, number of sales, and profits.	This data could be collected from the complaints file and financial reports.

The responses demonstrated that many students did not know the relative functions of staff at various levels of a business or the data to which they have access. For example, whilst the staff taking the orders on-line may be able to provide anecdotal evidence about the most popular products, it is management that will have the accurate sales figures. Web technical staff could not provide any data about online sales. Management are not the appropriate staff type to provide data about the actual operation of the system unless they are operating users. Observation was not an appropriate method for any users other than the staff processing the on-line orders. Some students suggested that data could be gathered from customers through unsolicited emails. Such emails are spontaneous and are not examples of a data collection method.