User Needs Analysis – Theory and Worked Example

Frameworks for doing User Needs Analyses - Theory

Ronald Norman, in his text: **Object Oriented Systems Analysis & Design** presented 4 frameworks for understanding and doing Requirements Determination. These included:

1. Requirements Determination Subactivities
2. PIECES framework
3. Kozar's Requirements Model
4. Object Oriented Requirements Modelling Activities

Of these, the first 3 will be dealt with in this document.

The first three of these modules are summarised below, though students are directed to read through Chapters 1 and 2 of the recommended text (by Ronald Norman) for a more comprehensive discussion of user requirements determination, and the associated issues.

Requirements Determination Subactivities

This framework is mainly concerned with information gathering, and breaks down the methodology of attaining and processing information into 4 parts or subactivities.

Requirements Anticipation:
The systems analyst makes an educated guess as to what might be relevant to the system that is required. For example, if an analyst were asked to produce a system to catalogue recorded music in a music shop, the analyst might surmise that the system would need a data entry screen appropriate for the entry of CD and cassette titles and track names, would need a database structure appropriate to the recording of such data, and need to generate reports that print these items with associated details in alphabetically sorted lists based on item title and artist name.

Requirements Elicitation:
During this subactivity, the systems analyst uses various information gathering techniques, such as interviews, questionnaires, group discussions, observations and research to determine and clarify the user's needs. Starting questions for this subactivity are likely to be based on the systems analyst's Requirements Anticipation (discussed above).

Requirements Assurance:
After the initial information gathering, the systems analyst would produce appropriate analysis documentation - possibly including a report on what was discussed and agreed, a draft set of data flow diagrams, a prototype, even some sample reports. Such items could be used to clarify the user needs with the user(s). It may be that the analyst misunderstood one or more of the user requests, or the user has since developed a new perspective on the system.

Requirements Specification:
This is the documentation of requirements by the analyst during or after the last two subactivities. This part of the requirements determination might be completed using a CASE (Computer-Aided Software Engineering) tool.

The PIECES Framework

This framework, first presented by Wetherbe, focuses on the actual work of doing a requirements determination. The name PIECES is an acronym for - **P**erformance, **I**nformation, **E**conomy, **C**ontrol, **E**fficiency, and **S**ervices - the 6 components of the framework.

Performance
Issues and considerations relating to system performance. How will the system need to perform for the user? Expected throughput? Response times? Required interface (Text/GUI)?

Information
Issues and considerations with respect to input data, program outputs and data storage. What information will be input into the system? What are most appropriate / efficient input forms and layouts? How does the output need to be presented? What data needs to be stored? What input and output devices are required?

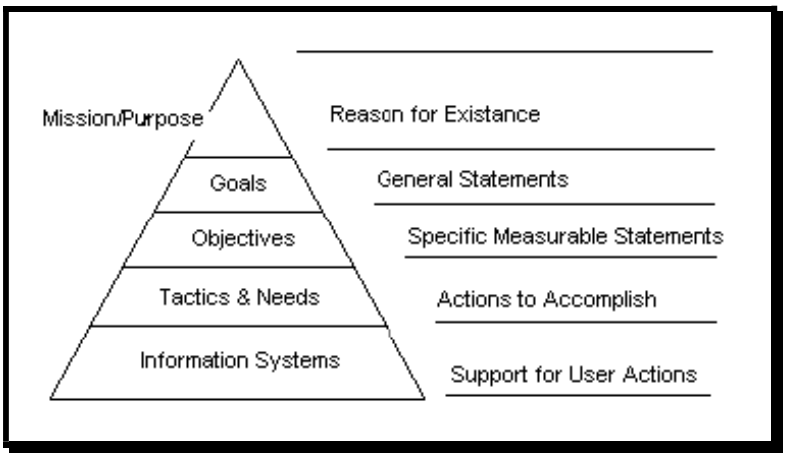
Economy
Issues and considerations relating to initial outlay, operational costs and perceived financial benefits of the system. What is the budget of the system? What are some of the anticipated cost savings? Are there current manual activities where an automated system may generate cost savings?

Control
Issues and considerations for system security and data entry. What accounting controls are required? What input and/or output controls are required? What security is needed for the system?

Efficiency
Issues and considerations relating to method correctness and appropriateness. How can current operations be improved by the system? Will tasks be more efficiently completed with the introduction of the new system? What value will the system be to the working environment?

Services
Issues and considerations relating to the functional requirements of the system. What does the system need to do in order to solve the problem? What processes does the system need to perform? Will the system be easy to use and maintain? What ongoing support, training and maintenance will be required?

Kozar's Requirements Model



Kozar's Requirements Model (partly illustrated above) is another technique that focuses on requirements determination. This technique however, associates the established business objectives and tactics with the information system objectives and tactics. Thus, this model requires that the business or enterprise has previously defined or is willing to define its overall mission (reason for existence), goals, business objectives and associated business tactics.

Not all of the business tactics involve or relate to the information system, though those that do, lead to the specifying of the final two tiers of the model - the information system objectives and tactics. The information system objectives should be in direct support of and correlate directly to one or more of the business tactics. Quite often the objectives represent what the user of the system sees when interacting with the system.

The information system tactics are information system actions done behind the scenes, often by the systems analyst, programmers and such like, to achieve the information system objectives.

Details of the various levels or stages in Kozar's Requirements Model are provided in the recommended text, pages 40 - 42. A partial example of a business that has had the Model applied to it is given on page 43 - a video store.

NOTE: A constraint in using Kozar's Requirements Model is the requirement that the business being analysed has documented or is prepared to document its mission, goals, objectives and business tactics.

Frank's Family PC Consultancy - a fully worked example.

Frank is fairly knowledgeable about setting up IBM compatible PC's and fixing various problems. He's very familiar with family PC software and hardware, and figures he might be able to make a bit of pocket money by offering his help to people with newly purchased computers - helping to set up PC's in their homes, helping them with problems, and helping them to decide what software might be most appropriate to their need - a computer consultancy type business. He decides to call the business: Frank's Family PC Consultancy

Frank is good friends with a couple of people in local computer shops and he has mentioned the idea to them. They have agreed to advertise his services to customers purchasing new computers. He decides that initially he will only charge $35 per hour, but as he becomes more proficient he might look to charge somewhat more.

Frank considers he needs a database to manage his business. Frank hasn't done much in the way of database work and in fact, isn't really sure what information he can extract from a database, other than client details. So he calls on his friend Sarah, a systems analyst and database programming student, to help him plan the database.

Sarah has recently completed a module of work relating to User Needs Analysis. She has been taught three models for looking at user's needs - Requirements Determination Subactivities, the PIECES Framework, and Kozar's Requirements Model.

ACTIVITY ONE

How might Sarah use each one of these User Needs Analysis models to help Frank plan the database that will help him in his new business?

Frank's Family PC Consultancy - Part 2

Sarah has only recently completed her module on User Needs Analysis, and has not gained much practical experience with the 3 models she has studied. She considers that working with Frank on his newly developing business might be an excellent opportunity to trial each of the models, as well as help out her friend.

Sarah looks at the 3 models - Requirements Determination Subactivities, the PIECES Framework, and Kozar's Requirements Model - and decides to do the following:

1. As a first step, she will use Kozar's Requirements Model to define Frank's needs. Using this model, she can help Frank define his business mission, objectives, goals and tactics and then work through to appropriate system objectives and tactics.
2. As a second step, Sarah could develop a set of questions for each component of the PIECES Framework, and use these questions to clarify Frank's database needs. Sarah figures that there will be some duplication between Kozar's Model and PIECES, but feels that this duplication would help ensure that they have not overlooked any important details.
3. Finally, Sarah decides that rather than applying the Requirements Determination Subactivities in the same way as the other 2 models; she would incorporate or integrate this framework with each of the other two. For example, when applying Kozar's Model, Sarah would first anticipate Frank's needs, then check and verify them, and finally document them appropriately in a Requirements Specification.

Sarah discusses these plans with Frank, and Frank feels that this strategy makes sense.

ACTIVITY TWO

Prepare a set of questions that Sarah might ask Frank at each stage of her investigation. That is, what questions or guidance might Sarah provide in helping Frank develop his system using Kozar's Requirements Model. What questions might Sarah ask as part of each component when applying the PIECES Framework to Frank's database?

Frank's Family PC Consultancy - Part 3 - Kozar's Requirements Model

Sarah has now had a *formal* meeting with Frank and worked through Kozar's Requirements Model. In line with her original intent (re the Requirements Determination Subactivities), Sarah initially anticipated a number of Frank's needs and used these to prepare a plan and a list of questions for their first meeting. Sarah anticipated that:

1. Frank's business mission might be to: Be a service that many families, new to computing, see as valuable and are prepared to spend money on.
2. His business goals might include: To establish a market, and establish a good reputation for valuable and worthwhile computer support service.
3. Frank would probably promote his business through various computer businesses, maybe ads in various shop windows, on local pin boards, and possibly newspapers.
4. Frank might need some specialised software to help him diagnose his client's problems, might need to buy some books on possible PC problems and appropriate remedies, and current PC magazines for suggesting software and additional hardware that his clients might need.
5. Frank would need a database for entering, storing, and retrieving client information. This data would probably be entered at the end of a day, and likely need to be viewed if and when a client rings again. A number of statistics might need to be reported at the end of each year - types of customers, customer needs etc.

Below are listed a number of the interview questions that Sarah asked and the answers that Frank provided at their first meeting:

Qn1 *(Sarah)* **If you had one major goal or vision for your business Frank, what do you think it would be?**

Ans1 *(Frank)* To make money…
Get a good name for my PC Support business so people would use my business to help them set up their computers.

Qn2 (Sarah) **If we could break this down, what are the 2 or 3 most important things that you want the business to achieve?**

Ans2 *(Frank)* To make money (again).
I'd like to be seen by new PC users as someone who can help them, and that my PC support service is worthwhile.
That people who use my PC support service think it's great and will call me again.

Qn3 (Sarah) **How could we further break this down? What do you want to accomplish? How will you know if you're doing well?**

Ans3 *(Frank)* I'd like to be making, I don't know, about $200 to $400 per week in a couple of months time.
People will have heard of my PC support service and know what the business offers.
People I help will say I've done a good job, and will call me back
I can fix almost any problem with people's PC's
I will feel confident that I can fix virtually any PC problem and offer sound computing advice.
I will know what software the family needs
I'll start to know what people want me for - setting up, teaching them things, suggesting software, or fixing problems.

Qn4 (Sarah) **What are you going to do to make this business work? How are you going to achieve these things? Are you going to advertise?**

Ans4 *(Frank)* I've already lined up 4 computer places to advertise for me. They will tell their new customers about my service.
I was thinking of maybe running off some leaflets and doing a letter-box drop in the neighbourhood.
How are you going to build up your business? Have you got some strategies? For example, are you going to buy lots of special software, books and magazines?
I have a range of resources organised - they'll probably give me enough information for the moment.
I already have several diagnostic software applications and relevant tools. I'm organising these into a fix-it kit so I can grab it quickly.
As part of the database, I want to keep information on what I fix or what the clients want information on, and sometime I'll check what sort of stuff I'm usually being asked to do and stock up my fix-it kit accordingly.
I also want to keep general client information in the database so I can remember what I did for them last time, what sort of computer they have and all that sort of information.
It would be excellent to be able to have a tablet or portable computer to store all this stuff in and carry around with me.

Qn5 (Sarah) **Okay, lets talk about what you need the database to do?**

Ans5 *(Frank)* Well I need it to store client information. I think I need to store some information on the sort of jobs that I do. I want to be able to look up a client quickly when they ring back and check what machine they have and what I did for them the last time.

What information do you think you'll want to keep on the clients?
Name, address, phone, type of computer, problem info and that sort of stuff.

You want to extract information about the types of service you provide on each job?
Yes, advice on software, setting up a computer, fixing a problem, training on Windows, whatever…
Do you want to printout all of the clients that you see and what the jobs were that you did for them?
Yes
Do you want to store any other data?
I guess I could store information on problems that I fixed, and how I fixed them.

etc…
etc…

Qn6 (Sarah) **How do see yourself putting the data into the database and getting information out when you need it? Would you enter your jobs at the end of the day, for instance? Will you carry or access a copy of the database via your portable computer or tablet?**

Ans6 *(Frank)* I don't really know. It would certainly be great if when I got a phone call I could look up the database and check what the client wanted and whether I'd done work for them before. I could put in the job then and finish off the entry when I got home. That would probably work while I've only got a few customers.

ACTIVITY THREE

Construct a Kozar's Requirements Model for Frank's business, based on the answers Frank has provided to the various questions above.

Frank's Family PC Consultancy - Part 4 - Kozar's Requirements Model

After their initial meeting, Sarah decided to summarise the information Frank had provided - in a Kozar's Requirements Model style report.

Frank's Family PC Consultancy

Mission Statement:	To be recognised as a worthwhile service provider for people who require assistance with home personal computers issues.
Business Goals:	1. Develop a profitable business in family PC support. 2. Develop a reputation for providing a valuable & professional service.
Business Objectives:	1. Achieve an income of $200-400 per week in 3 months. 2. At least 1 customer per week recommended through word of mouth. 3. At least 1 customer per week comes as repeat business. 4. Frank feels confident in dealing with most customer questions.
Business Tactics:	1. Advertise the business via hardware retailers and letterbox drops. 2. Develop a toolkit with appropriate literature and software. 3. Keep a log of client interaction. 4. Keep a log of PC concerns and solutions. 5. Revise business strategies and tools pending a review of demand.
Info System Objectives:	1. To maintain a client personal details database. 2. To maintain a database of client PC component acquisition. 3. To maintain a log of client jobs - concerns, info requests etc. 4. To maintain a log of various PC concerns and solutions. 5. To provide quick access to client details and job history. 6. To provide various reports of client details and job history. 7. To provide a summary report of client requests and needs. 7. To provide a quick reference report on PC concerns & solutions.
Info System Tactics:	1. Enter client requests after answering the phone. 2. Update client job log after each job is completed. 3. Update PC concerns log after each job. 4. Print quick reference report for PC concerns/solns & carry in toolkit. 5. Use summary report of client needs to base future business planning.

ACTIVITY FOUR

In light of the information received from Frank in the first interview, review the questions you suggested previously for each component of the PIECES Framework. What information might Sarah now anticipate for each component of the PIECES Framework?

Frank's Family PC Consultancy - Part 5 - the PIECES Framework

Sarah has now had a second meeting and shown Frank the Kozar's Requirements Model that she developed. Frank agreed that it adequately represented what he had said. Sarah then went on to ask a series of questions relating to the PIECES Framework. Again Sarah anticipated a number of items before the interview:

1. In relation to system **performance**, Frank will want to use a Windows database since he is running Windows 7. The program will not need to work at lightening speed as his customer base will be relatively small.
2. In relation to **information**, Frank will want to enter customer personal details, as well as details of each job. He will probably prefer to do this on one input screen, and for at least one report to print all this data - maybe a page per customer. Frank will also want to keep information on PC concerns and the solutions. These could also be added on one screen, and since it is linked with the storage of customer jobs, this new screen will probably need to popup on top of the first. Frank will need the output of this concern data in a form that he can easily locate in a printout - sorted by problem type or something like that. Frank will also need a summary style report of the types of jobs clients requested. This may require a *Job_Type* field in the database.
3. In relation to **economy**, Sarah considers that Frank will use the desktop computer at home to run the database – maybe an Intel i3–based PC. It is not clear what the cost savings will be for Frank. The database may help him to appear more professional and this may generate ongoing business.
4. In relation to **control**, Frank may want to add some security so other users won't corrupt his database or data. He will also need an efficient backup system, and some virus protection.
5. In relation to **efficiency**, the system will assist Frank in remembering details relating to the jobs he has completed, the client details and the solutions that he has used and which have worked previously. It may also help with the compilation of data that will help him understand the trends in his business.
6. In relation to **services**, Sarah considers that she will have to train Frank to use the database, and probably provide updates at a later time. The database will need to provide backup and security facilities (as previously discussed), as well as the allow Frank to complete the types of input and output tasks he requires. It is unlikely that Frank will need to archive off parts of the database at any time - he will not know when old customers will come back to him for further PC support.

Below are listed a number of the interview questions that Sarah asked and the answers that Frank provided at their second meeting: (Note: each numbered question represents the start of a new section of the framework)

Qn1 *(Sarah)* **Firstly, we need to talk about the performance of your computer and program. Do you want the program to be a Windows program?**

Ans1 *(Frank)* Yes, I guess - We're running Windows 7 at home.

How much RAM do you have?

8 GBytes.

Plenty of spare disk space?

Yes 200 Gigabytes, I think.

Do you think that the response time of the program is important?

Maybe! When a customer calls me, I want to be able to bring up their details in a hurry so that I can appear to remember them and all their details.

Can you set it up so the database will be running at all times, and you only have to quickly *find* the client you need?

Yes, I guess so.

Qn2 *(Sarah)* **We now need to discuss the information you need to store and print out. Let us start with clients. What information would you like to store on clients?**

Ans2 *(Frank)* Name, address, phone number, fax number, email, type of PC they own, what peripherals they have, who the family members are, and their respective computing skill, and some space at the bottom for comments.

Okay. What about information on the jobs you do? Do you want the jobs to come up on screen under the individual client's details?

It would be good to have all the client details on one screen - it would make it easy to get a handle on what I have done previously, when the customer rings. Could I have a list of the PC support jobs and their details at the bottom of the screen?

Yes.

That'd be good.

What information do you want to store about these PC support jobs?

Well… what I did, whether it was an information request, whether I set up their computer, fixed a problem and all that.

Do you want a list of job types that you can select from and update as you need to?

Yes, that'd be good. I could have hardware enquiries, software enquiries, setting up PC's, setting up printers, loading software, fixing problems, configuring their Windows.

What type of information do you want to store for the various computer problems and the solutions you found?

I'll probably need some kind of pick list of problem types again. I'll need to type in the details of the problem and then the solution that I found.

Do you want to be able to enter as much or as little information about the problems and solutions as you like?

Yes.

Okay, now looking at output, what output will you need from the database?
I want a print-out of all the customers and their details. I want a second report of the customers, their details, and the PC support jobs I did for them. This second report should be compact so I can take it out when I go on jobs. I want a very compact report of the problems customers presented me with and the solutions I used. And I also want a summary report for the types of jobs that I have done, so that I can make future plans for the business.

Qn3 *(Sarah)* **Do you really need a database? What is it going to do for you? Could you do the same things just as efficiently with a paper system?**

Ans3 *(Frank)* Are you trying to talk me out of this database?
Yes. For the moment, I need to play the devil's advocate I want to check whether it's really worth all our effort. The idea of having a database is pretty neat, but maybe having a book might be cheaper, more portable, and do the job just as well as a computer system. Give me a good reason why you need this system to run on a computer.
I don't know. I just thought it would be better.
Go through each of the tasks you want the program to do and check whether you could do them just as well, or better, on paper.
I guess I could store client details in a book or folder or card system that has alphabetic tags. It would be hard in a book though, to re-organise people if they were written in out of order, and if I got a lot of people with surnames starting with S say, then it would be hard to find any one of them in a hurry. A card system would be better for this, like a doctor's surgery, but a card system is not very portable or discrete. The same is probably true for the jobs database. A computer database is better for making changes and for adding information about additional jobs for existing customers.
Getting a summary of the types of jobs that I have been asked to do is quicker with a computer. And I guess if I put in some payment information, the computer would be quicker and more accurate in determining totals and drawing trend graphs. Could we add these to the database?
Yes, no problem. What about the cost benefit? If you had to pay someone several hundred dollars for the database, would it still be worth while?
I would need to think about that. Over the long run it would. I would expect the repeat business, which would be partially inspired by the database and the professional service, would eventually pay for the development of the database.

Qn4 *(Sarah)* **Okay, now what about security for the database and your data? Are you going to need passwords and a backup system?**

Ans4 *(Frank)* I could do with a security system to stop people getting in and trashing it. I think a simple password system would be enough. And as for backing up, I can do that myself from Windows Explorer.

Qn5 *(Sarah)* **I think we covered much of this next area. But do you think that the entry of the data and the types of reports we are producing are going to make your business tasks more efficient?**

Ans5 *(Frank)* How do you mean?

Well, we looked at cost benefit and decided that the system would be beneficial compared to its cost, but we only mildly touched on the efficiency. Will the system save you time? Can we set up the database to make the data entry and reporting as efficient as possible?

If the database could be quick. You know, it doesn't take too long to load and update and all that sort of stuff. The less the number of entry forms and menus, the quicker I guess it will be.

Would you want, for example, the client details entry screen to be the opening screen and have all the other data entry screens and reports accessible from it?

Yes that sounds pretty efficient to me. I guess also, the reports would need to be laid out so they were easy to follow and easy to find information on.

I'll run up a prototype of the program and some sample printouts for you, to see what you think.

That'd be great.

Qn6 *(Sarah)* **And finally, what does the system have to do in order to give you the information you need? What has to be provided with the system to ensure that you and it can do what is expected?**

Ans6 *(Frank)* The program has to work. I think, like we said, it needs to be quick and needs to produce reports in a useful format.

On line help? Manual?

No, I don't think I really need those. They will only mean more work for you and I catch onto computer stuff pretty quickly. I will need you to show me how the program works when I first start with it, though.

Upgrades, bug fixes and any maintenance we can talk about when the time comes?

Yes. Maintenance? Could I do that myself?

Probably.

ACTIVITY FIVE

From the information provided above, identify any inconsistencies in the information given by Frank in the two interviews.

ACTIVITY SIX

Create a prototype for the database that Frank has described. Also create (using a word processor or database report generator) samples of the various database reports that Frank requires - enter some sample data into each.

ACTIVITY SEVEN

In your opinion what are the relative merits of each of the models - Kozar's Requirements Model, the PIECES Framework and the Requirements Determination Subactivities

User Needs Analysis – Activity

Cathy's Computer Shop

Cathy set up a part-time computer hardware business some years ago. She started by reselling second hand computers through the local paper at competitive rates, and gradually developed ties with wholesalers of new computer components. She found that she could purchase these new parts at very reasonable prices, assemble the computers herself and sell them for a small, but acceptable profit. Over the last 12 months, she has found her business growing rapidly and so took on two business associates and three technical assistants. Cathy considers herself to be a computer hardware buff but felt that she needed to join forces with a couple of knowledgeable business people to get her business working well.

Max, who is one of the associates, has solid skills in marketing and sales. He previously worked for a large computer retailer, but has always wanted to work for himself. He considers joining forces with Cathy to be an appropriate step in that direction. In Cathy's Computer Shop, Max has the role of marketing the sales of computer systems and individual components. He uses a variety of methods to achieve this, including advertising in local papers, making direct contact with newly developing businesses, private schools, colleges, and universities. Cathy's Computer Shop does not have Quality Assurance yet, so securing government contracts is very difficult. Currently home buyers reading local papers are still their largest source of business.

Jacinta also joined Cathy's Computer Shop recently, bringing with her, skills in business management, quality assurance, and accounting. She was an old college friend of Cathy's and believes she can secure quality assurance for Cathy's Computer Shop within 12 months, and can help ensure that the business runs smoothly and remains financially secure. Cathy has a lot of faith in Jacinta's ability to make their business work.

Jung, Mark and Ashram are all Diploma of Information technology graduates from a local TAFE college. Jung, Mark and Ashram are all PC and network support graduates and they have shown great promise over the past 18 months. They are all able to assemble PC's and assist various clients in establishing small business networks of various configurations. As these 3 technical assistants have become more confident in their respective roles in Cathy's enterprise, Cathy has found herself more and more moving into a managerial and supervisory role and focussing on sales.

Jacinta recently suggested to Cathy and Max that they needed to computerise the business. Cathy indicated that she had been considering this for some time, but had not had the time, nor the skills to do this. Jacinta then suggested that they bring in someone who might help them set up a computerised system.

Further discussion suggested that a number of jobs could be assisted by a computerised system. Jacinta suggested that she could use a good office applications package as well as a basic small business accounting program. Max felt that he would need a word processor, an easy to use desktop publishing program, and some kind of simple database for keeping sales and client information. Cathy felt that the business needed a database for the sales orders and associated invoices. Jung, Mark and Ashram suggested they might be able to use a database to keep records of repairs and systems they developed, but added that such a database might not be critical at this time.

On reflection, Cathy decided that it would be easy to provide computers for Max, Jacinta and herself and to fit them out with appropriate off-the-shelf software. They might even look into networking these computers sometime in the future, and provide workstations for each of the technicians. Max had suggested that he would like to develop his own client database, given that it would only be relatively simple. This left only the orders and invoicing database for development.

Cathy decided to approach Sarah. Cathy figured that Sarah would be able to handle the task, and maybe even offer some suggestions. Cathy would pay her on an hourly rate (about $40 per hour) and hope to have a database in place within a couple of weeks. Cathy figured that most of staff would need training on the program, and would need to access a computer on the front counter to record sales. If all went well with the development of this database, Cathy might ask Sarah to look into extending it to encompass the needs of the technicians.

Given that Cathy's Computer Shop made about $40,000 profit last financial year, after wages and overheads, this profit could be spent on the new computers and the required software.

Below is an example of an invoice currently used in Cathy's Computer Shop.

Cathy's Computer Shop

Date: __/__/___

Address: 51 Hard Dr.

Customer Name: _____

Brisbane,

Customer Company: _____

QLD 4000

Customer Address: _____

Phone: 444 1234

Customer Phone: _____

Fax: 444 4321

Product Code	Product Name	Price	Qnty	Sub Total
SysI-5	Pentium System	1500	4	6000
Mod027	Modem	250	2	500
SBl002	Sound Blaster	150	4	600
			Total:	$7100

Activities:

1. In relation to the Requirements Determination Subactivities, what might Sarah anticipate about Cathy's needs?
2. If Cathy were to prepare a Kozar's Requirements Model for Cathy's Computer Shop,
   (i) what might Sarah anticipate?
   (ii) what questions might Sarah prepare?
3. Create a completed Kozar's Requirements Model for Cathy's Computer Shop (ie: create what you consider might be a reasonable model…)
4. If Cathy were to prepare a PIECES Framework for Cathy's Computer Shop,
   (i) what might Sarah anticipate?
   (ii) what questions might Sarah prepare?
5. Create a completed PIECES Framework for Cathy's Computer Shop (ie: create what you consider might be a reasonable framework…)
6. Create a prototype of the database Cathy might use for Customer Orders.

User Needs Analysis – Questions

Question 1 What would a Systems Analyst do in the Requirements Anticipation phase of the Requirements Determination Subactivities model?

Question 2 When would a Systems Analyst complete the Requirements Specification Subactivity in Requirements Determination?

Question 3 What tools might a Systems Analyst use during this Requirements Specification Subactivity

Question 4 What does PIECES stand for in the PIECES Framework?

Question 5 In which component of the PIECES framework would the Systems Analyst find out about database tables, input forms and output reports?

Question 6 Explain the difference between Economy and Efficiency in the PIECES framework.

Question 7 Write a sample mission statement for a large retail fast food outlet.

Question 8 Describe the steps a Systems Analyst would go through in preparing a Kozar's Requirements Model.

Question 9 What might be a constraint in using Kozar's Requirements Model to determine the user's needs for a particular business or organisation?

Question 10 Describe User Needs Analysis.