a systems analysis and design reader

by: marc regis

Table of Contents

I dedicate would like to dedicate this book to my family who's always there for my financial needs, my friends for their moral support, my professor Mr. Pajo who inspired me to finish this book, and especially to God who is the reason why all of this is possible.

Preface

This book is a compilation of everything I did and worked for in the year 2008 for our Systems Analysis subject. This is composed of the case studies on the book by Jessica Livingston, "Founders at Work", book reviews from systems analysis and design books I gathered, my use case analysis given to us by our professor, and our final paper for this term.

This book will speak of what I've learned through out the term.

This wasn't the first time I took this course, I already took it before I transferred to College of Saint Benilde. This maybe my second time but this is the only time I understood this subject. Thanks to our professor, Mr. Pajo, I got to appreciate this course much more. Also, with us only being five in class, we were able to focus more with what our professor is discussing.

This is the outcome of what Mr. Paul Pajo taught us, our very own first book.

book review

Systems Analysis and Design 3rd edition

By: Alan Dennis, Barbara Haley Wixom, and Roberta Roth

John Wiley & Sons, Inc.

Chapter 1

The Systems Development Lifecycle consists of four stages: Planning, Analysis, Design, and Implementation

There are six major development methodologies: the waterfall method, the parallel development method, the phased development method, system prototyping, design prototyping, and agile development.

There are five major team roles: business analyst, systems analyst, infrastructure analyst, change management analyst and project manager.

This chapter talks about the basic concepts of systems analysis and design. The systems lifecycle explains the steps needed to fully make or improve a system. The methodologies are the different

approaches you can make in analyzing and designing a system. The roles are those who people who are connected to be able to get enough information to develop the system.

Systems Analysis and Design 1st ED

Chapter 2

This chapter is talks about how Information Systems are being developed and how to maintain them.

They first discussed the system development process wherein everything that the stakeholder uses to develop and continuously improve their information system and software is explained. The chapter also discusses the systems life cycle and its difference with systems development methodology. The systems life cycle has 2 stages which measures the lifetime of an information system while the systems development methodology is a formalized approach to the systems development process.

They also discussed the principles of system development:

- Get the system users involved.

- Use a problem-solving approach.

- Establish phases and activities.

- Document throughout development.

- Establish standards.

- Manage the process and projects

- Justify information systems as capital investments.

- Don't be afraid to cancel or revise scope.

- Divide and conquer.

- Design systems for growth and change.

When developing a system, you shouldn't be afraid to cancel or revise your scope because if you think your first prototype isn't what the company needs then you may have to change it or change your scope. It is better to do so than continue your old project even though it wouldn't improve the business' processes.

The P-I-E-C-E-S framework is also introduced in this chapter where you will know what things you need to consider or what requirements are to be followed when making your system.

There are eight phases to follow in making the project. These are scope definition phase,

requirements analysis phase, logical design phase, decision analysis phase, physical design & integration phase, construction & testing phase, installation and delivery phase, and lastly, system operation and maintenance.

Basically, this chapter talks about how to make the system, what things to consider before making one, and what options are there to be able to build one.

Systems Analysis and Design 5th edition

Kendall and Kendall

Chapter 2

Organizational environment is the workplace where interrelated and interdependent subsystems are. There are different organizational environments, community, economic, and political.

Nature of systems can be classified into open or closed. Open systems have information free-flowing and the output from one system is the input of the other. The closed system has restricted access to information. It is limited by numerous rules and information is on a need to know basis.

Context-level data flow diagram is an important tool for showing data used and information produced by a system. It provides an overview of the setting or environment the system exists within: which entities supply and receive data/information.

Entity-relationship diagram help the analyst understand the organizational system and the data

stored by the organization. Symbols are used to represent entities and relationships.

Levels of management are operations, strategic, and middle managers. Operations management makes decisions using predetermined rules that have predictable outcomes. They oversee the operating details of the organization. Strategic management looks outward from the organization to the future. They make decisions that will guide the operations and middle managers. Middle management makes short-term planning and control decisions about resources and organizational objectives. They experience very little certainty in decision making.

All organizations have cultures and subcultures. They can be seen from verbal and non-verbal symbolisms.

Book Review – Systems Analysis and Design 3rd edition

Moving into Design

Chapter 8

System Design Phase is the transitioning from requirements to design. This is where you design all the elements of the system. Create system requirements that describe technical details for building the system. You should consider the system specifications which are:

- Final deliverable from design phase

- Conveys exactly what system the design team will implement during the implementation phase

First Task is to determine the system acquisition strategy

- Custom development

- Purchase software package

- Outsource

Use Alternatives Matrix to structure the system acquisition decision. Combine several feasibility analyses into one matrix. Always include technical, budget, and organizational feasibilities. You should be able to assign weights to indicate the relative importance of the criteria.Also, assign scores to indicate how well the alternative meets the criteria.

Book Review: Systems Analysis and Design 1st ED

Chapter 4

This chapter talks about what systems analysis is and its purpose. From the context of systems analysis to context diagrams are discussed within this chapter.

Systems analysis aims to improve the business process of a company. This is used to make the features and design of the system that the company needs. This is a technique used that decomposes a system and its component pieces to study how well those components work and interact together to accomplish their purpose.

This chapter also shows the different diagrams that systems analyst uses to define the processes done within the company and put it in the system.

case study

Case Study: Sabeer Bhatia, Cofounder, Hotmail

Sabeer Bhatia started to come up with the idea of making web-based emails available through the web browser. This idea was initiated because of his own need for convenient exchange of information with his partner Jack Smith.

Sabeer and Jack met when they were working together at Apple Computer. When their manager left to work for a startup company in the Valley called FirePower Systems and Apple Computer after 2 years wasn't doing very much, Sabeer considered 2 options: whether to go to business school or look at other things. The internet caught his interest and came up with a business plan which is simple-to-install database called the JavaSoft. He shared his idea with Jack, Jack liked it and this is when they became partners. To be able to build the product, they need funding so they looked around for VCs who would be interested in investing with them. A lot of VCs turned them down doubting the capabilities of two young men so it was a struggle for them.

While they were making the business plan for JavaSoft, they encountered difficulties in exchanging information because of the Firewall which prevents them from accessing their personal emails. They resorted to exchanging floppy disks and papers to exchange information and this is when they thought of the killer business plan to make emails available to the web browser.

They got funding from Draper Fisher Jurvetson (DJF) and started with only $300,000. After the first 3 months, Hotmail had 10,000 subscribers and grew rapidly from then on and getting up to 5,000 sign ups every day. From then on, they knew they hit something big.

With building Hotmail, of course they had major problems like fundings, scalability problems and reliability issues but these setbacks did not stop them from moving forward.

Bhatia said that he was just at the right place at the right time but of course, focusing on what you want to pursue is very important.

Case Study: Max Levchin, Cofounder, PayPal

PayPal is a known as a web-based payment system. It was founded by Max Levchin and Peter Thiel as the fund manager. Before they started this company, they tried different ideas like cryptography software and a service for transmitting money via PDAs.

Levchin's talent for programming made this company successful and with the help of his persevering and motivating partner, Peter. For him, people make the company possible and forever working. Without the right people, the company will not be successful. He is thankful to have gathered the right team and people to work for him.

When he started out with his business, he thought of handling security programs as his line. He made cryptography softwares and made some money out of it. He then built the money transfer for PDAs where in he made a lot when people were buying off his website.

He then soon found out that he lost some money because people getting his program were frauds.

That's when he thought of making a system that will lessen the possibilities of fraud and not lose money. I admire how he took the challenge of making such system that no one has ever come up with yet. He made it possible to actually stop fraud with his keen talent and knowledge.

When he was able to make the system, he was smart enough to not make a copy of it so no one can replicate his invention. eBay eventually bought them and that's when PayPal became a profitable system.

What made this company successful is how they thought of the system. Other companies could have made a system with numerous steps wherein instead of gaining customers, they lose more because they had too much steps that people lose interest buying the product.

Another thing that made this company successful is having the right people and looking at problems in a different why. They asked questions on how to look at the system in a different way as others and that helped them a lot in solving them.

Case Study: Steve Wozniak, cofounder, Apple

Steve Wozniak, a co-founder of Apple Computer, is a computer engineer. He created Apple I and II in the mid 1970's. He withdrew from University of California, Berkeley and decided to continue his invention which was the Apple I.

In Wozniak's early years of college, built stuff copied from other existing inventions with the use of his own creativity. He tries to do everything with just few parts. One of his successful inventions during that time was the "blue box".

Wozniak, along with Steve Jobs, started Apple Computers and obviously is a successful start-up. This was possible because of Steve Wozniak's talent in building stuff. He proved that you don't need that much money to make something; you just need to have what it takes to make one. He built it with half chips of what other computers are made of. His optimism pushed his limits and is one of the keys to his success. He was never contented with how he builds things. He always aims for improvement.

Case Study: Dan Bricklin, Cofounder, Software Arts

Dan Bricklin and Bob Frankston founded the company Software Arts who developed the electronic spreadsheet. The system was called VisiCalc which was developed in 1979.

VisiCalc is the first electronic spreadsheet during their time. It's amazing how they designed the panes to be organized in letter and numbers.

At first, they weren't positive that people would really appreciate their system until it came to the market were they found out it made a big difference to the Information Technology world.

This case is a good example on how people should handle small businesses. Not everything has to be brought to lawsuits and papers. If you think you can work it face-to-face, then why not rather than making lawsuits which will affect your budget big time. That's what made this company become almost bankrupt. They made deals with VisiCorp who distributed their software.

The best decision they made is when they were able to sell VisiCalc to Lotus days before they were

going to be bankrupt. At least they still made money with their system; just not as big as they were supposed to get if it hadn't been for the lawsuits. It's true that you shouldn't be greedy because it will be a great risk for you and your company.

Case Study: Mitchell Kapor, cofounder, Lotus

The founders of Lotus Development Corporation are Mitchell Kapor and Jonathan Sachs. They created the Lotus 1-2-3 which is a spreadsheet software. They both originally worked for VisiCalc and later on decided to start their own.

During their days in VisiCalc, Sachs built a spreadsheet but had difficulties producing rapports. Kapor wanted to do something different and found out about Sachs spreadsheet so he invited Sachs and offered to help him build his spreadsheet. That's how Kapor and Sachs made the Lotus 1-2-3 which was a big success because it had better features than VisiCalc.

The weakness of VisiCalc was that they overlooked their competition and didn't look outside the box which was the advantage of Lotus. Kapor and Sachs made bigger spreadsheets and that could handle more data. The other thing that made it successful was that, they took the user's preferences. They considered suggestions from users like the one from an MIT student. Although during

that time, people were still trying to get a hang of using Apple II, they were able to make it and made it look easy for people to use.

Case Study: Evan Williams, Cofounder, Pyra Labs (Blogger.com)

Pyra Labs intended to build to a web-based project management tool which organizes the things you need online. Instead of doing so, he was able to use this idea and ended up with Blogger.com.

Evan Williams started the company with his friend and built Pyra on the side while under a contract job, although they didn't end up as partners when Blogger.com blossomed.

When they decided to continue Blogger instead of Pyra, I though to myself, what could have happened if they continued Pyra and not Blogger? I still believe that it is a good idea because a lot of people are still having problems organizing their electronic files or sites. Up to now, I'm not sure if someone did continue or do this system.

It struck me the most when everyone left Evan and he still decided to stay and continue what he started. Knowing that most of your friends turned their back on you and having spent lots of money given by other people really is difficult to handle. It

will take such will and optimism to overcome these situations which he did and got him where he is now.

I believe in the saying that big things come from small or simple things. Blogger is just a simple site with some interesting features which made a big impact on people. Also, in simple things, you can make it more complex and add so many more ideas to it. This will inspire me to not limit my ideas to having complex procedures or features but continue what I am planning even though it's simple because it can still grow big.

Case Study: Tim Brady, First Non-Founding Employee, Yahoo

Yahoo is known as a search engine that was started in 1994. It was co-founded by Jerry Yang and David Filo. It was first used as to help them out with their thesis and soon became a start-up idea.

Tim Brady came in when Jerry and David decided to go public with Yahoo and start a company with it and so they called Tim to make a business plan for them. Tim Brady handled the product section of the business.

Yahoo was the biggest search engine during 1996-2004 from the time it was first on to the public. It's amazing how it started to be just for a thesis use and people from Standford found the idea useful for them and so they helped the founders to add more sites to their list. Soon it became big and was known as the number one search engine until Google came in.

I admire their confidence and faith in their work because they didn't just give up Yahoo to Microsoft or other companies who wanted to buy them. They

stood their ground and continue what they didn't expect to be big. This is what entrepreneurs need to be able to make their company successful.

The one thing that made them who they are now is when they didn't take advantage of what they have. They knew they were ahead of everyone and didn't predict that some companies might be able to catch up to them and do something better. And that's what happened. Google is now bigger than them and not knowing that they would be run over in a few years by someone they were using before to make their site better would be the to crush them.

I also agree with Tim Brady that it doesn't mean that when you start with your friends, your company will most probable collapse because of interpersonal issues. You just have to clear things up and make sure that you keep your business aside from your friendship.

Case Study: Mike Lazaridis, Cofounder, Research In Motion

Research In Motion (RIM) was founded by Mike Lizardis and Doug Fregin in 1984. They're business used to be a consulting and networking company then later on found the importance of wireless networks and decided to concentrate on that instead.

During the 80's, wireless networks and emails weren't that popular. People weren't aware that this might be a potential technology that will be used in the future. RIM was one of the companies who saw how useful wireless technology is and decided to create it.

After they publicly launched what they invented called the BlackBerry, wireless technology became a "need" to everyone.

As what I noticed with all these case studies, all of them took a risk in continuing what they see as a potential start-up. What RIM did here is not only a risk but a possible lifetime regret if it doesn't click because they spent almost a decade before they let this one out.

What I don't get in this case study is when he said that his childhood dream is to make something for NASA or something that has to do with spaceships and when he is being offered the chance to do so, he declines to the offer.

Overall, RIM's success gave Canada a big badge to show off with for being one of the first to innovate wireless technology. To think that people during their time turn them down because they haven't seen how great wireless technology will help their business, it's just admiring to see people persevere to push through what they believe in. This I believe is what made RIM and BlackBerry successful

Case Study: Arthur van Hoff, Cofounder, Marimba

The interview with Mr. Arthur van Hoff did not have the detailed story of how he came up with the idea of having a software distribution company and how he actually started. The interview was mostly about his advices on stating up a business like a guide on what should be done.

Hoff and his partners Jonathan Payne, Sami Shaio and Kim Polese literally decided to do a startup, looked for an office space and bought office supplies and equipments without no idea of what they were going to make. After a year of brainstorming, they finally came up with the concept of having subscription-based software where people will subscribe and get updates automatically rather than just buying the software.

They shared that one of the major problems they have encountered was how to introduce their product and convince people that they want it. Their company Marimba was popularized because of one of their partners, Kim Ploese, who was a female CEO of a technology company. When people hear about

Marimba, they automatically focus on her instead of the company itself and leaving the public unfamiliar with the product itself.

Van Hoff shared a lot of what he learned over the years of experience in business. He said that almost always, the first plan is not the plan that pushes through. The first plan is like a means for you to test and know what is wrong and what is really needed. Is like it is just a phase for you to arrive with a better idea. Also, management skills are only acquired through experience. As he said, anyone can start up a business but not anyone can have the skill to grow it until it grows larger. As a company grows, it has to hire people. And to have people want to work for you, a company should build a good working environment where employees would feel contented and valued and respected. He learned that to have people want to work for you, you should give them some benefits to be happy about. This is important in the view of the workers.

I've learned that starting a company from scratch and sustaining its growth is hard work. To be able to be successful with it, opportunity and

responsibility come hand in hand. When opportunity presents itself, grab it and be responsible in handling it.

Case Study: Paul Buchheit, Creator, Gmail

Paul Buchheit created Gmail and played a big part in improving Google's services. Although he isn't one of the founders of Google, he is treated as one of the persons to credit for the success of Google. He not only developed Gmail but also the prototype of AdSense and also proposed their motto, "Don't be evil".

Gmail is one of the leading email providers nowadays. One of the main features they offer is "unlimited" email storage. They allow you to store as much emails as you want unlike others who offer 2-4mb per account. They were also the first one to apply autocomplete in their web email features. These are just some of the great things why Gmail is now one of the best email providers.

Paul's perception in life is very inspiring. He faces his everyday life willing to take risks and wanting to see the outcomes of each one of them. He transferred to Google not to be able to make a startup but he just wants to see what will happen to the company and the fact that he believed that Alta

Vista would overthrow Google. He likes trying out new stuff and ideas not knowing the outcome but perseveres to continue it and even if he fails, he continues to create new ideas.

What I found the most interesting in this study is how they tackled the problem and how to improve their email software. They answered the question on why people delete emails. They came up with answers unthinkable and not offered by other email providers which put them where they are now.

I believe in what he says that the most important resource is the people. Computers cannot generate ideas like what they did. People think outside the box and try to make it possible. I also agree with what he said about luck is needed but it isn't sufficient. People don't get lucky in creating ideas unthinkable by others. They came with those ideas because they are smart and creative and luck has nothing to do with that.

Among all the case studies I've read and made, Paul Buchheit's is the most inspiring for me. He views everything with optimism.

Case Study: Steve Perlman, Cofounder, WebTV

WebTV allows people to surf the Web through our televisions. It's a very unique and amazing idea. You don't need a computer to surf, just your TV. Perlman founded this company along with two other founders, Bruce Leak and Phil Goldman. Perlman was able to develop the prototype in three days and then they went off from there and started the company.

WebTV offered interactivity with your TV which attracted many people. It grossed about $1.3 billion from the time they started until in 2005. Sony and Philips were the first to sell WebTV set-top boxes to the public. Microsoft acquired WebTV and changed its name to MSNTV in 1997 for over $500 million thinking it would be a big threat to them.

WebTV had a good start by acquiring investors right away. They made a big progress in their development. They had a problem in who was going to distribute the product to the market. The next problem they had was they were losing funds and they didn't want their employees to find out because people might panic. They had problems finding

investors because people had no idea how it will result in the market. Other investors didn't want to invest in them because they're interested in getting the idea once WebTV falls. They were lucky to find Brentwood Venture Capital to invest in them. They basically handled the problem well and didn't panic right away. They had confidence that what they were doing isn't going down that easily.

One of the best strategies they made that helped them make this company big is when they hired the consultant who knew the CEO of Sony and got them to see what they have done. On their part, what happened to them that day they presented the prototype was lucky because they haven't tested the system and it worked well. It's also true that you need a big amount of luck in having a startup.

After that big deal with Sony, everything went pretty well for them. They were able to launch the product with flying colors.

I believe that what Perlman said, that being cofounders is like married to someone. You have to

have the same interests and should be able to work you problems through.

Case Study: Joshua Scharter, Founder, del.icio.us

The idea for Del.icio.us came from Joshua Scharter's own need for tagging and bookmarking. He made a website where they edit stuff and when people sends them links, he would write it all down in a piece of paper which is very cumbersome especially because he has about 20,000 links. It was very hard for him to find files anymore so he tried to sort it out and wrote a bit of descriptions for each link. This is when he thought that tagging could really be a lot of help to him.

He started working on del.icio.us during his spare time while he still has a job at Morgan Stanley in 2001 and released it in December 2003. He was just building a product for his own convenience and never thought of it as a venture. After a year, he had 30,000 users and up to 2005, when he left his group at Morgan Stanley, he decided to continue on working on the product full time and hired people. Like any other startups, he had problems, but in his case, he had minimal encountered internal problems in terms of the building of the product.

I am always inspired with people with an eye towards innovation. For Joshua Scharter, his success came from knowing what people needs and combined it with a touch of innovativeness which made his product more attractive to consumers.

I believe it when people say that the best way to learn is through gaining experiences and through the people you meet. Mr. Scharter also mentioned that with his experiences, he learned and gained a lot of knowledge. Also, surrounding yourself with people who has more or different experiences than yours is a smart way to learn. You can take advantage of the fact that they've probably went through the problems you are only about to face so all you'll have to do is listen to their advices

Case Study: Mark Fletcher, Founder, ONElist, Bloglines

Mark Fletcher is one of those entrepreneurs who doesn't stop at one startup and be contended with doing just one thing. He founded ONElist which was bought by Yahoo and is now known as eGroups, and Bloglines is where you can make your own blog and read other people's blogs.

ONElist wasn't intended to be a public use. He intended it to make his work easier and for personal use. When he started ONElist, he didn't expect it to grow that fast and have so many users. It became big and people made use of it very well. When he realized that he couldn't handle the growth of users, he sold it to Yahoo to earn more money and so he won't be burdened with the fast growth problem.

After sometime of taking a break from work, he realized he is born for this (computers) and this is where he has fun. He started Bloglines and it also became big although not as big as ONElist. Bloglines was later on bought by Ask Jeeves in February, 2005.

When he was making ONElist, he had a fulltime job at Catapult which I think is pretty hard. Also, if the company you are working for finds out about your sideline, they can declare it as theirs which is terribly bad for you. It's fascinating how he was able to make ONElist with just dedicating his spare time for it. In my opinion, I agree with him that if he had not done ONElist, he wouldn't get this far and even start with Bloglines.

As a technical person, I believe they can also be a CEO of a startup because for me, you will feel that what people will offer you for your product is worth it or not. He sold ONElist at the right time and made a big return.

I am also fascinated with his idea of funding himself for Bloglines. It's true that if you can fund yourself for a startup, you will have a bigger chance of getting more from it; and he did. For having a small investment, he got a lot from it. If I were in his shoes, I would have done the same thing. I believe that the timing is also important in this business; on when to sell your company or stand with it on your

own. He knew when his peak is and when to sell it before it goes down.

I envy his talents and perseverance to make a startup and come up with a good one. When he mentioned that he gets bored easily can be a positive and negative attitude for him in starting a company, I thought to myself, I also have that attitude. And I know it really can be positive in a way that when you get bored with something, you'll want to make it more interesting and you won't stop until it is. It can be also negative because when you're doing something and its taking you so much time to do it, you get bored and decide to stop it. His family also played a big part for if not for them, I don't think he'll continue ONElist.

use case

Barangay Clearance

Get Clearance Form

Citizen

Request Clearance
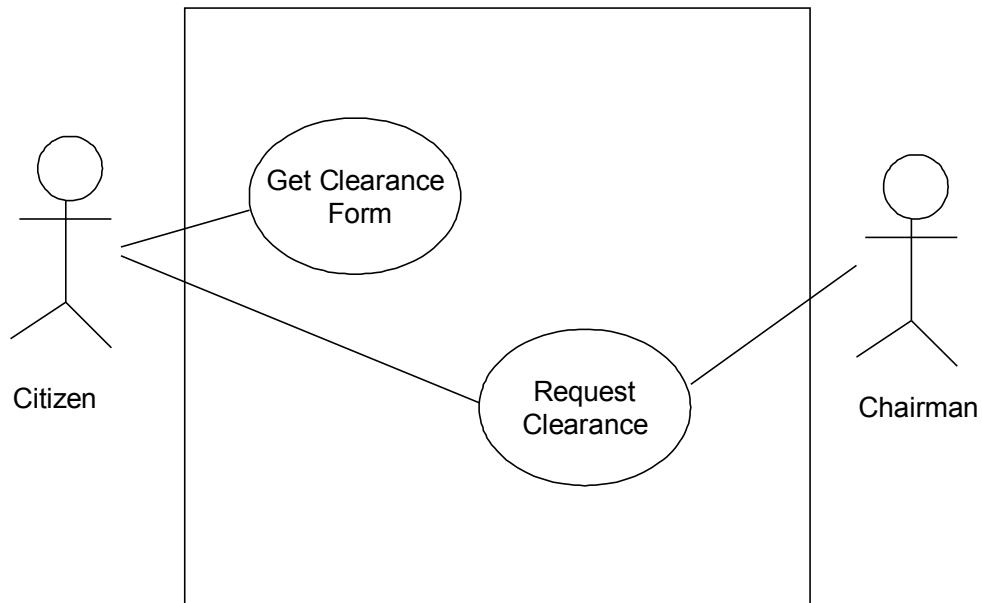
Chairman

Identification Summary

Title: Get Barangay Clearance

Summary: this use case allows you to get a barangay clearance.

Actor: Citizen, Cairman

Flow of Events

Preconditions:

1. the chairman should be there

2. it should be during office hours

Main Success Scenario:

1. Go to the barangay secretary

2. Give your name and address

3. your information will be processed

4. pay for processing fee

5. get clearance

Alternative Sequence:

A1. Typographical Error

A1sequence start at point 3

4. The secretary asks for your name again and retype all information.
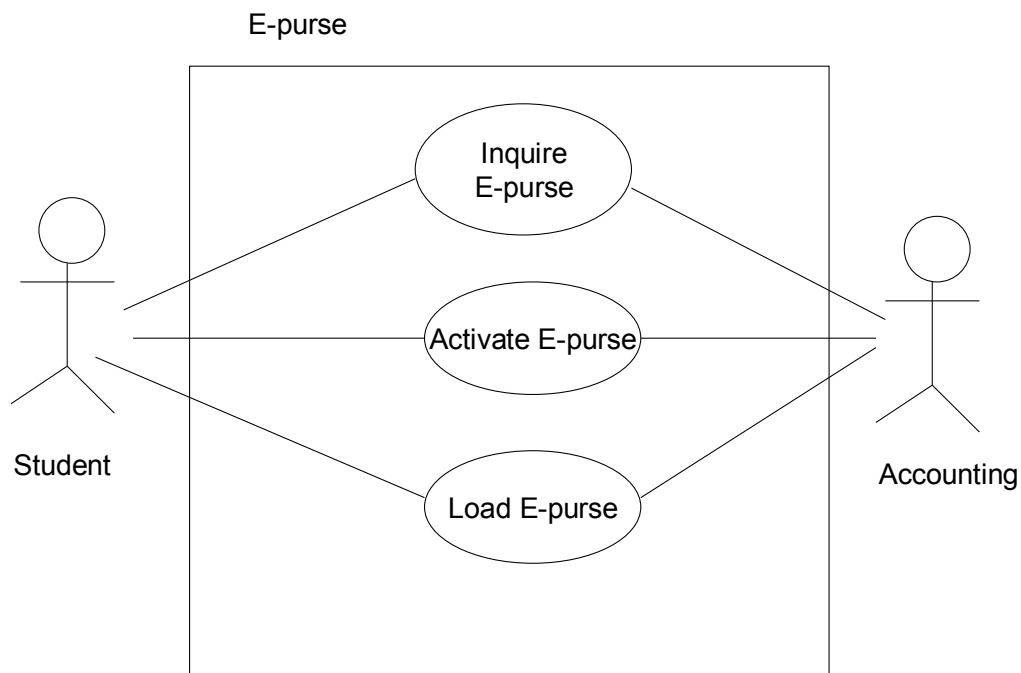
Back to point 3 of main scenario

Error Sequence:

E1. Long term Residency

`   1. You should be a residence of that barangay for 6 months

use case fails

Post condition

1. You are still citizen of that barangay.

E-purse

Student

Accounting

Identification Summary

Title: activate E-Purse

Summary: This use case allows students to activate their E-Purse

Actors: Student, Accounting

Flows of Events

Pre Condition:

1. Student must currently be enrolled

2. Student's I.D. must not be damage

3. Minimum amount is ₱ 50.00

Main Scenario:

1. Go to the Accounting Office

2. Give your I.D. and the amount you want in your E-Purse

3. Proceed to Window 1, to give your payment.

4. Then go to Window 4, give your six digits password.

5. Wait for a while and get your receipt and your I.D. card

Alternative Sequences

A1. I.D. card was lost

1. The student should inform the accountant that their I.D was lost and the accountant automatically transfers your money to your new account.
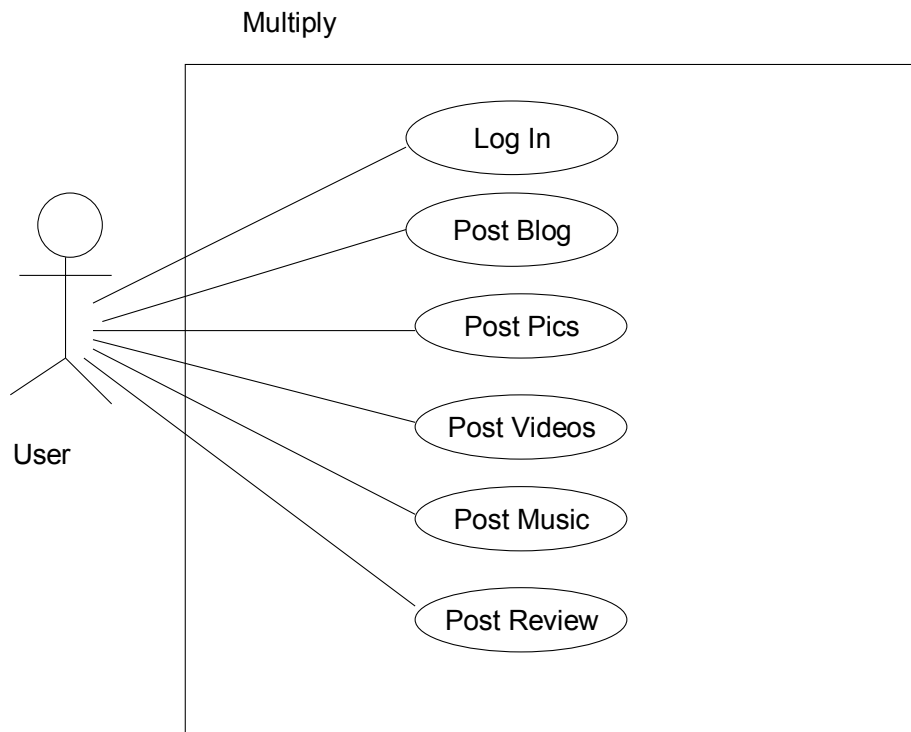
Error Sequence

E1. Invalid card

1. The accountant will inform the student that their I.D card has been damage and need to be replaced.

2. If they are not yet enrolled.

Post Condition

1. Student gets receipt.

2. Student will have balance in E-purse
   account.

Multiply

Title: Post blogs on multiply

Summary: The use case allows users to post blogs on multiply.

Actor: User

Flow of Events

Preconditions:

-User must have internet connection

-User must be logged in

Main Success Scenario:

1. User clicks the link on the post to blog

2. User inputs title

3. User inputs blog

4. User inputs tag

5. User clicks post

6. Multiply ask if you want to view blog

Alternative Sequences

A1: Edit post

7. User edits the title or the blog.
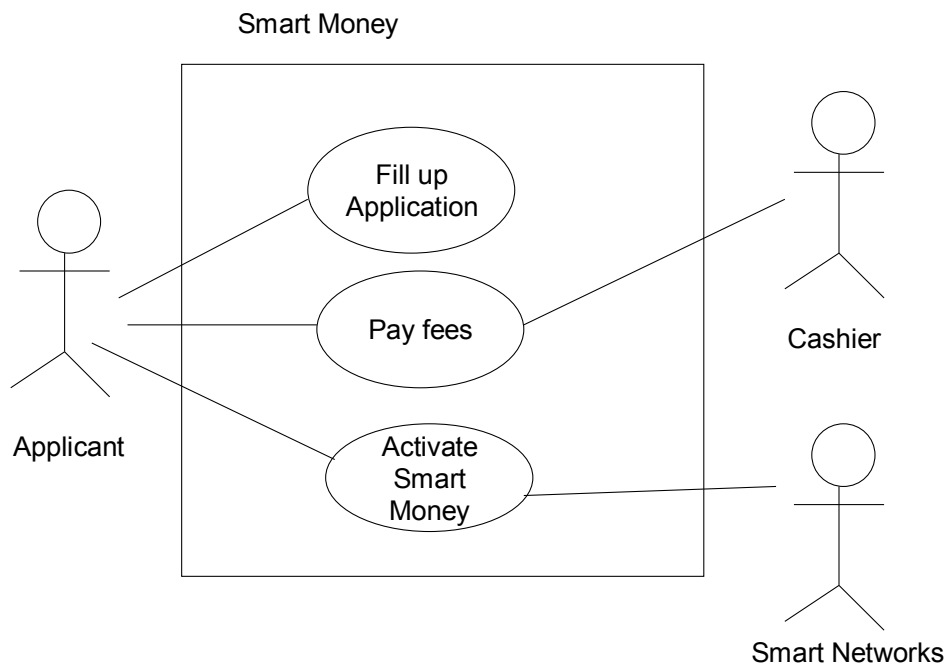
Scenario goes back to 4

Error Sequences

E1: Website Maintenance

6. User repeats the process

Scenario goes back to 4

Postconditions:

-User has new blog posted on his multiply

Smart Money

Fill up Application

Pay fees

Activate Smart Money

Applicant

Cashier

Smart Networks

Identification Summary

Title: how to activate your Smart Money Menu

Summary: This use case will allow the smart users on how they will activate their smart menu

Actor: applicant, cashier, smart networks

Flow of Events

Preconditions:

1. applicant must be smart users

2. applicant must have a valid ID

3. applicant should be an adult

Main Success Scenario:

1.   Applicant goes to any smart wireless branch

2.   Applicant gets a number

3.   Applicant gets an application form

4.   Applicant fills up application form

5.   Give the application form to the cashier.

6.   Applicant will text the word "MONEY" to 343

7.   The applicant will receive e text from the Smart Networks that their   menu has been updated and need to enter a 6 digits password.

8.   The applicant will enter the 6 digits password

9.   Smart Network will ask to re-enter the password

10. Applicant will re-enter the password

11. Smart Networks will verify the password

12. The applicant will receive a confirmation that their Smart Money   Menu has been updated and W-pin has been sent

13.   The applicant will give the Virtual Smart Money Account (VSMA) to   the cashier.

14.   Cashier will input the VSMA to the application form

15.   The applicant will present a valid ID for verification

17.   The applicant pays the cashier of the transaction fee

18.   The cashier will give the receipt of the transaction fee.

19.   The cashier will tell the applicant that the Smart Money card will   take 2-3 weeks before they can get it and they will inform the client.

20.   the applicant will wait for the confirmation

Alternative Sequence:

A1. Insufficient Balance

      A1. Sequence starts at point 8 of main scenario (MS)

                  9. The applicant will ask to reload

                  back to point 8

A2. Wrong typed of password

A2. Sequence starts at point 12 of MS

13. The network will inform the applicant that the password he re-enters is wrong or didn't match

back to point 12

Error Sequence:

E1. Center not yet open

1. The Smart Wireless Center is not yet open or won't open in that day.

Use case fails

E2. Under age

7. The applicant is not at the right age.

Use case fails

E3. Not a Smart user

8. The applicant is not a smart user.

Use case fails

Post Condition:

- receipt

- applicant is registered to smart money

appendices

Sources:

- Founders at Work, by: Jessica Livingston

- www.se.cuhk.edu.hk/~seg3430/2007/notes/ch01.ppt

- www.se.cuhk.edu.hk/~seg3430/2007/notes/ch08.ppt

- www.portal.acm.org/citation.cfm?id=579143

- www3.interscience.wiley.com:8100/legacy/college/dennis/0471073229/ppt/ch01.ppt

final paper

I. CHAPTER 1 – ORGANIZING FOR IMPROVEMENT

A.

1. Company Background

Pockets Wine and Liquor is one of the major distributors of wine and liquor in Davao City proper. Established in June 15, 2007, Pockets Wine and Liquor has been distributing to 8 bars and restaurants in the area. It is single owned by Mrs. Annie Q. Regis, a business woman.

Pockets Wine and Liquor used to be named Pockets Merchandising and was a merchandising business which sold imported products but later on focused on distributing wines and alcohol drinks. It grew quickly and acquired many clients in its first few months, that's when Mrs. Regis decided to focus on wine and liquor distribution.

2. Mission

To be the most preferred distributor of wine and liquor in the City of Davao.

3. Vision

To be credible and known in the industry and be able to expand to other parts of the archipelago.

4. List of Products:

PREMIUM SCOTCH WHISKY

Chivas Regal Regular

Johnnie Red Regular

Chivas Regal 1 liter

Johnnie Blue Regular

Johnnie black regular

Johnnie Gold Regular

Johnnie black 1 liter

Johnnie Green Regular

RUM

Bacardi 151	Cruzan Bananas/Coconut
Paradise Mango Rum	Bacardi Oro white

Bacardi gold Superior

Tanqueray

REGULAR SCOTCH WHISKY

Cutty Sark

J & B Rare Regular

READY TO DRINK

Vodka Ice

Smirnoff Ice

Cruiser Ice

Vodka Cruiser B.Berry

COGNAC

Hennessy V.S.O.P Regular

Hennessy X.O Regular

Martell V.S.O.P Regular

VODKA

Absolut Blue Regular

Absolut Blue 1 L

Absolut Citron Regular

Absolut Kurrant Regular

Absolut Mandarin Regular

Absolut Apeach Regular

Absolut Vannilla Regular

BRANDY

Carlos 1 Regular

Carlos 1 Liter

Fundador Regular

TEQUILA

El Hombre White

El Hombre Gold

Jose Cuervo Regular

Jose Cuervo 1 Liter

Patron Silver

OTHERS

Gilbeys

Bacardi Limon

Jim Beam

Jack Daniel's Regular

Corona Beer

Heineken

Vodka Mudshake Choco

Vodka Cruiser R.Berry

Remy Martin X.O Regular

Remy Martin V.S.O.P Regular

Skyy Vodka

Skyy Berry

Skyy Melon

Skyy Orange

Skyy Vanilla

Toska Vodka

Stolichnaya

Fundador Exclusivo Regular

Fundador Gold Reserve

Fundador 1 Liter

Amarula tequila regular

1800 Reposado Tequila Gold

Tequila Rose

Pep Lopez

SPARKILNG WINE

Soda Fina Soda

Asti Martini

Soda Fina Toxic

Asti Cinzano

CHAMPAGNE

Dom Perignon

Moet & Chando

Veuvo Cliquiot Porsandine

LIQUER

Absente

Sounthern Comport

Aliza Gold Passion

Walsh Triple Sec

Aliza Wild Passion

Walsh Grenadine

Aliza Red Passion

Walsh Cream De Menth White

Aliza Blue Passion

Walsh Cream De Menth Green

Amaretto Liquer

Walsh Cream De Cacao

Baileys Crème Regular

Walsh Cream De Bananas

Baileys Crème 1 Liter

Walsh Blue Curacao

Baileys Meant

Martini Rosso

Baileys Caramel

Martini Extra Dry

Campari

Malibu

Cointreau

Kalhua

Galliano Liquore

Jagermeister

B. Statement of the Problem

The major problem that Pockets Wine and Liquor is facing is on restocking and delivering of the orders. Whenever they order from the supplier, they lose some items while it is being transported through a carrier-vessel which is deducted from them and sometimes gets lost in the stock room. And because they use pen and paper, they sometimes lose the order slips and stock inventory list.

The stock room is small and they do not have enough space for excess orders or returns from clients. It will cost them more if they get a bigger stock room and will take more employees to handle the stocks.

In delivering the orders, they want to deliver the products whenever the clients order which cost them more on gas because of having more trips in a day due to different order schedules. Sometimes, people order at the same time and they couldn't

deliver to some of them right away or the same day. This is also the reason why Pockets Wine and Liquor isn't able to monopolize the area. They also sometimes lack stocks which delays the delivery of the orders.

Some times they get redundant orders where they deliver the same order twice which is a waste of gas.

C. Objectives of the System

Knowing that the existing system has a low technology on the stocks inventory check up, an unorganized scheduling of deliveries, resulting to have more gas and money consumptions, we are proposing:

1. Computerized Inventory system
2. More organized schedules of ordering and delivery system

A computerized Inventory system backed up by manual recording to enhance the:

- Accuracy of data recorded, stocks inventory, to attain minimal errors.
- Improvement of the security of the stocks, to avoid thievery. That when something is missing, it can be easily detected in the system.
- Speeds up the process of recording inventory, but to be backed up by manual inventory weekly to have a double check on the stocks.

A more organized scheduling of orders and delivery systems provides the benefits to:

- Cost-cutting due to limit of trips being done in ordering and delivery. Every week, there will be 2-day check up for making orders while checking the stocks in the inventory, and there will be 2-day delivery covering all the clients that require additional stocks. In this way, gas consumption will be lessened and less money will be wasted.

D. Significance of the Study

The significance of the study is to be able to analyze the needed system to reduce cost and make up for some uncontrollable losses. The study will be focusing more on being more efficient in distributing the orders to the clients and make it systematized and to better handle the stocks at hand. Also, it will be easier to order stocks from the supplier as to be more accurate to refrain lack of supply.

The users will be the store manager and the delivery person. They won't need background in using computers because all they will do is input the orders by the clients and be able to send the orders required from the supplier. The system will handle the math and storing of item stocks.

The group should be able to understand systems analysis and be able to propose the system suites the business and be more profitable.

E. Scope and Limitations

This paper will be discussing the proposal of an Inventory Management System for Pockets Wine and Liquor which will be managing the inventory list of the products, replenishing of stocks, and order lists and delivery process only. Item tracking, pricing of the products, return and defective goods, and quality management are not included in the study.

II. CHAPTER 2- SYSTEMS ANALYSIS

A. Use Case Diagram of the Existing System
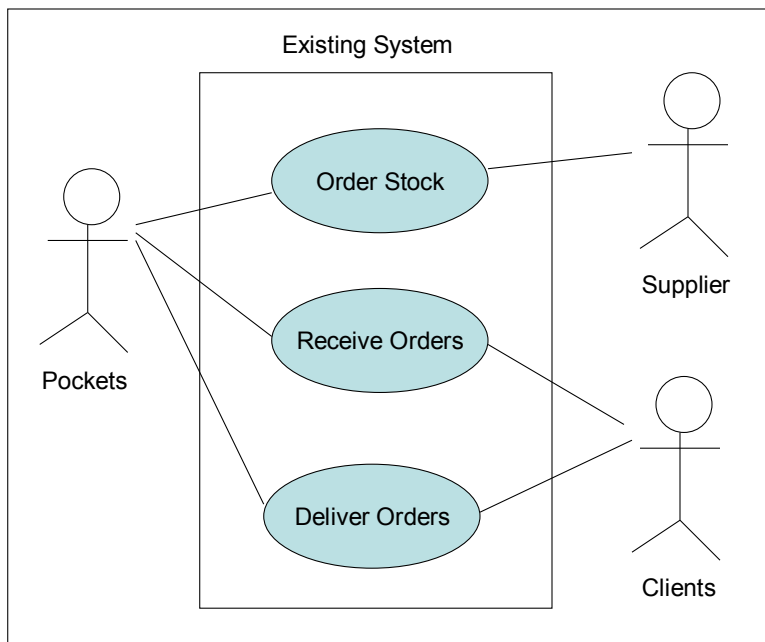
Use Case Narrative:

Identification Summary:

Title: Order stocks from the Suppliers.

Summary: this use case allows Pockets to order stocks from their supplier to replenish their inventory.

Actor: Pockets, Supplier

Flow of Events:

 Pre conditions:

- Supplier's Office should be open.

- Office should have landline

- Supplier must have delivery vehicles

Main Success Scenarios:

1. Pockets call the Suppliers to orders stocks.
2. Pockets orders all the required stocks.
3. Supplier confirms the stock available.
4. Supplier prepares the stocks to be delivered.
5. Supplier Schedules the delivery.
6. Pockets and Supplier settles the delivery schedule.
7. Supplier delivers stocks.
8. Pockets add new stocks to the inventory.

Alternative Sequences:

A1 starts at point 3

    Supplier has insufficient stocks to comply with the Pockets orders.

    4. Supplier tells pocket about the inventory problems.
    5. Pockets makes adjustment to the stocks needed

    A1 goes to point 4.

A2 starts at point 6

    Supplier can't deliver due to uncontrolled circumstances

    6. Supplier call Pocket that delivery will be postponed.
    7. Pockets adjust to the situation given.

8. Pockets and Supplier reschedules the delivery.

A2 goes to point 7.

Error Sequences:

E1 starts at point 0

Supplier Company shuts down their business

1. Pockets need to find another supplier to supply their inventory; use case fails to the existing system.

Post Condition:

- Supplier has fewer stocks
- Pockets gains more stocks

Identification Summary:

Title: Receive orders from clients.

Summary: this use case allows Pockets to have the orders of the clients to be prepared before the delivery.

Actor: Pockets, Clients

Flow Of Events:

Pre conditions:

- Pockets should have landline
- Pockets' Office should be open.

Main Success Scenarios:

1. Pockets wait for clients to call.
2. Clients call Pockets to orders wines and other beverages.
3. Pockets check their Inventory and confirm the orders.
4. Pockets Prepares the Stocks to be delivered.
5. Pockets and client Settles the Schedule of the delivery.

Alternative Sequences:

A1 starts at point 2

Pockets have insufficient stocks to accommodate Clients.

3. Pockets tells Client about the inventory problems.

4. Client makes adjustment to the stocks needed.

A1 goes to point 3.

Error Sequences:

E1 starts at point 0.

No clients called.

1. If there's no client, there will be no business; use case fails.

Post Conditions:

- Pockets has more order calls

- Pockets adds more to delivery schedules.

Identification Summary:

Title: Deliver orders to clients

Summary: this use case allows Pockets to deliver orders to the clients.

Actor: Pockets, Clients

Flow Of Events:

Pre conditions:

- Pockets should have delivery vehicle

- Delivery vehicles should be operational.

Main success scenarios:

1. Pockets check the delivery schedules.

2. Pockets double checks the items to be delivered.

3. Pockets inform customers for delivery of their orders.

4. Client confirms to Pockets.

5. Pockets deliver orders.

6. Client receives orders.

Alternative Sequences:

A1 starts at point 2.

        Items in the delivery vehicle have incorrect numbers.

        4. Pockets recount the items

        5. Pockets make additions or deductions from the orders.

        A2 goes on to point 3.

Error Sequences:

E1 starts at point 4.

        Pockets can't deliver due to uncontrolled circumstances

        5. Pockets call Clients that delivery will be postponed.

        6. Clients adjust to the situation given.

        7. Pockets and Client reschedule the delivery.

        8. Deliver order system fails.

E2 starts at point 5.

        Pockets' delivery truck had an accident.

        6. Pockets inform customer of incident.

        7. Pockets reschedule delivery.

        8. Use case fails.

Post conditions:

- Delivery vehicles have less gas and oils.

- Pockets has less inventory.

B. Process Walkthrough

-Order Stock

1. Pockets call the Suppliers to orders stocks.

2. Pockets order all the required stocks.

3. Supplier confirms the stock available.

4. Supplier prepares the stocks to be delivered.

5. Supplier Schedules the delivery.

6. Pockets and Supplier settles the delivery schedule.

7. Supplier delivers stocks.

8. Pockets add new stocks to the inventory.

-Receive Order

1. Pockets wait for clients to call.

2. Clients call Pockets to orders wines and other beverages.

3. Pockets check their Inventory and confirm the orders.

4. Pockets Prepares the Stocks to be delivered.

5. Pockets and client Settles the Schedule of the delivery

-Deliver Order

1. Pockets check the delivery schedules.

2. Pockets inform customers for delivery of their orders.

3. Client confirms to Pockets.

4. Pockets deliver orders.

5. Client receives orders.

C. Activity Diagrams of the Existing System


Refer to Appendices.

- Order Supply (refer to A-1, A-2 with swim-lanes)

- Receive Orders (refer to A-3, A-4 with swim-lanes)

- Deliver Orders (refer to A-5, A-6 with swim-lanes)

D. Process Time vs. Cycle Time

Activities	Process Time	Cycle Time
Order Supplies	15 min.	3 days
Receive Orders	15min.	1 day
Deliver Orders	1 day	3 days
Total	1 day and 30 mins.	7 days

E. Geographic Flowchart

1. Pockets calls the supplier and order stocks.

2. Supplier receives order and drops the call.

Order Stocks from Supplier

start   end

1   2

Main Office
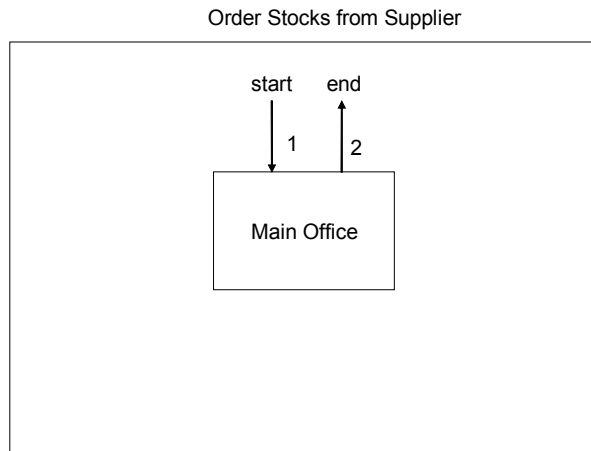
1. Pockets receive calls from clients to order.

2. Pockets check inventory and confirms the ordered made.

3. Pockets prepares the orders.

4. Pockets make the delivery schedule.

5. Clients and Pockets agrees to the schedule and drops the call.

Receive Orders from Clients
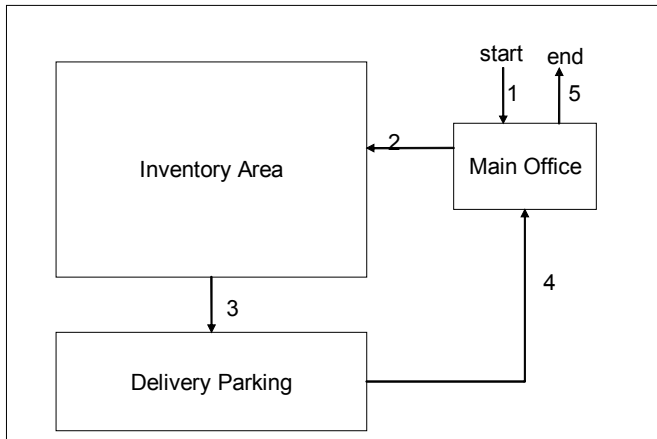
1. Pockets Check the delivery Schedule.
2. Pockets double check the Items to be delivered.
3. Delivery Truck sets out to deliver.

Deliver Orders to Clients
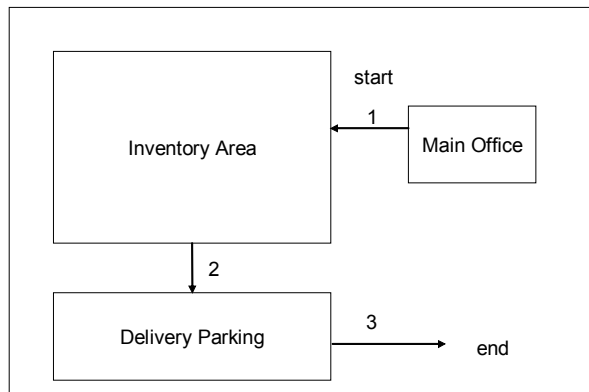
III. CHAPTER 3 – SYSTEM DESIGN

A. Table of Recommendations

Problem	Recommendation	Affected by Change
Some order slips and stock inventory lists are lost in filing cabinet.	All information about the stocks and orders made will be in a database with backup so the information won't get lost.	-Receive Orders(A-3,A-4) -Deliver Orders(A-5,A-6)
Excessive gas expenses.	The requesting and delivering of orders will be systematized and will lessen the trips to be made everyday.	-Deliver Orders(A-5,A-6)
People order at the same time so Pockets sometimes forget the orders or even miscount them when being delivered.	The system will allow the clients to order through the system and will display the requests and will automatically compute the amount of stocks left so they will save time and be more efficient in serving the clients.	-Receive Orders(A-3,A-4)
Not enough space in the stock room for excess supplies.	Stocks will be managed with the system and just have right amount of stock so they won't have too much excess stocks.	-Order Supply(A-1,A-2)

B. Benchmarking

Ralph's Wine and Liquor

Ralph's Wine and Liquor is a direct competitor of our company, Pocket's Wine and Liquor, in Davao City proper. They are distributing to a number of bars and restaurants. Some of their customers are also our customers. We have parts of our systems the same as theirs regarding delivering and ordering.

Data Analysis

Process	Ralph's	Pocket's
Ordering Supplies	15 mins.	15 mins.
Receiving Orders	15 mins.	15 mins.
Delivering Orders	24 hours.	24 hours

- Cost-cutting due to limit of trips being done in ordering and delivery. Every week, there will be 2-day check up for making orders while checking the stocks in the inventory, and there will be 2-day delivery covering all the clients that require additional stocks. In this way, gas consumption will be lessened and less money will be wasted.

- Time-management will be improved. The anticipated delivery of the clients will be scheduled in advance and so, the deliveries will be organized according to areas, so it will lessen the hours of travel and the effort of the deliverer will be lessen.

C. Streamlining

Duplication Elimination

- eliminates duplication of orders. For example, if a customer has already placed his order, the system will record it and show pending orders which have not yet been delivered and the customers will be able to see it so they will know that their order is already in.

Error Proofing

- it reduced errors of miscalculation of stocks.

Bureaucracy Elimination

- the process of receiving orders is changed to get orders. Instead of waiting for the orders, Pockets gets the orders from all the customers then deliver them in one rotation instead of receiving orders where the delivery truck has to go back and forth for new orders.

Standardization

- all orders are gotten from all customers then delivered to them in one rotation which makes it systematized way of ordering and delivering.

D. Use Case Diagram of the Proposed System
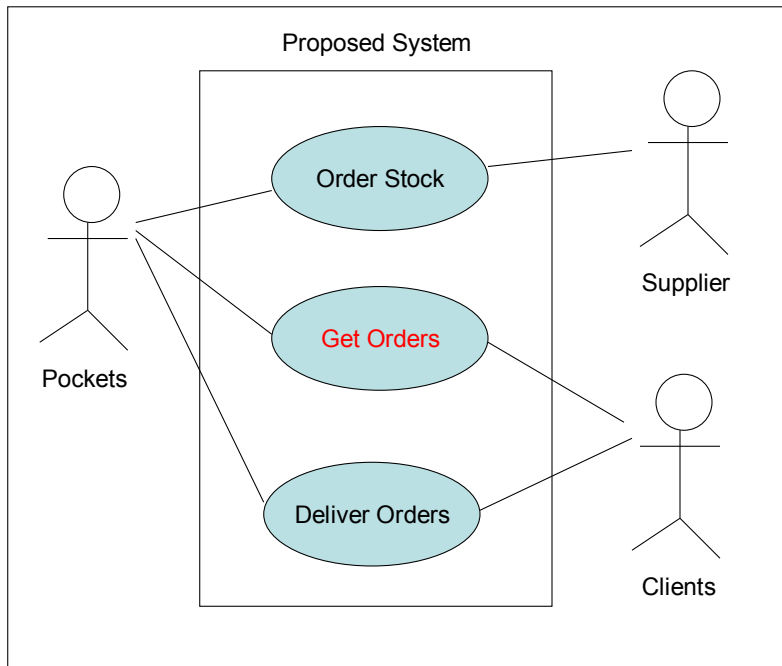
Use Case Narrative:

(Order Stock Use Case Narrative same with existing use case.)

(Deliver Orders Use Case Narrative same with existing use case.)

Identification Summary:

Title: Pockets gets in advance the orders of clients

Summary: this use case allows Pockets to get the orders of the clients in advanced to prepared before the delivery.

Actor: Pockets, Clients

Flow Of Events:

Pre conditions:

- Pockets should have landline

- Pockets' Office should be open.

Main Success Scenarios:

6. Pockets calls clients and asks for the upcoming deliveries needed in advanced.

7. Pockets and clients settle the orders needed.

8. Pockets and clients confirm the delivery schedules suggested by Pockets.

9. Pockets organizes the different schedules obtained from different clients.

10. Pockets prepares stocks to be delivered.

Alternative Sequences:

A1 starts at point 0.

    A client wants to change the undelivered ordered stocks.

    1. Client calls again and change the previous ordered stocks.

    A1 goes to point 2.

A2 starts at point 2

    Pockets have insufficient stocks to accommodate Clients.

    5. Pockets tells Client about the inventory problems.

    6. Client makes adjustment to the stocks needed.

    A2 goes to point 3.

A3 starts at point 4.

    Client wants his order to be delivered A.S.A.P.

    7. Another client wants his order to be delivered the next day.

    8. Pockets change some delivery schedules and confirms to the client.

Error Sequences:

E1 starts at point 0.

    Clients don't need any deliveries.

    2. If there's no client, there will be no business; use case fails.

Post Conditions:

- Pockets has more order calls

- Pockets adds more to delivery schedules.

Appendices:

Interview
Name: Mrs. Annie Q. Regis
Company Name: Pockets Wine and Liquor

Interviewer: When did you start the business?
Mrs. Regis: November 15, 2008
Interviewer: Did you have changes in your business process when you started and now?
Mrs. Regis: in terms of delivery, yes, minimum amount is required, for the bars to avail of free delivery.
Interviewer: What problems are you facing in running the business?
Mrs. Regis: Lower sales during enrollment periods-low season.
Interviewer: Do you have competitors in the area?
Mrs. Regis: Yes, so far there are 2 right now, Ralph's wines and spirits and Angelo's.
Interviewer: How do you replenish your stock?
Mrs. Regis: I order twice a week from Manila suppliers.
Interviewer: How do your clients order from you and how do you order from your supplier?
Mrs. Regis: Clients placed order by fax or by phone, same as with my suppliers
Interviewer: How do you deliver your orders and how many are you delivering to?
Mrs. Regis: free delivery and right now more or less 8 bars and restaurant
Interviewer: What are the problems in reordering and delivering your products?
Mrs. Regis: Before, I lost items in transit via Sulpicio Lines, I changed my carrier-vessel. In delivering my products, I get some traffic on orders because sometimes my clients order at the same time. There we start to have difficulties in delivering their orders on time. Sometimes, we also get redundant orders which is a waste of gas because we deliver twice to our clients unaware that the order has already been delivered.
Interviewer: What improvements do you think you can make to solve these problems?
Mrs. Regis: I changed my carrier-vessel. Regarding the delivery of orders, I bought more delivery vans.

Order Stock

Pockets

Call Supplier

Supplier still in business? — No →

Yes

Order needed stock

Confirm stock figures

A

A

Stocks ordered Sufficient? — No → Adjust orders

Yes

Set delivery date

Delivery will push through? — No

Yes

Settle delivery

A-2

A-3

Receive Orders   Pockets

Waiting for clients' call

Client called before day ends?
No → (end)
Yes

Get order list From client

Stocks are sufficient?
No → Adjust Stocks
Yes

Confirm order

A

A

Prepare stocks ordered

Schedule Delivery

(end)

Deliver Orders

Pockets

Check delivery list

Double check orders

Delivery count correct?

No

Yes

Inform clients of delivery

A

A

Orders push through?

No

Yes

Deliver orders

Delivery truck got Into accident?

Yes

Supplier gets orders