

FEASIBILITY STUDY

Purchase Order Requisition System

This feasibility study is a tool to ensure that we are working together in a precise, and efficient manner in order to result in exceptional customer satisfaction.

Revised November 20, 2015

SVSU FEASIBILITY STUDY

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SVSU FEASIBILITY STUDY

PROBLEM DEFINITION

The purpose of this feasibility study is to determine the best approach for development of an electronic purchase requisition submission form for the SVSU Provost Office. The current electronic purchase requisition process does not support the requirements for the different types of requisitions used for academic affairs. Due to the constraints of the current process, purchase requisitions for academic affairs continue to be submitted using the paper form.

Commented [BW1]: Cite back to your Appendix A. This will let the reader know that if they want further explanation of the term, they can find it within the document.

Commented [BW2]: Consider including the names or details of the types of different requisitions that aren't supported. This will let the reader know why changing the system is so important. You should always strive to provide the reader with the complete information from the beginning.

i.e. the number of signatures needed on each type.

EXECUTIVE SUMMARY

The proposed system will provide an electronic solution that will replace the paper purchase requisition form. The system will allow for creation of purchase requisition in a web based application. The proposed solution offers a paperless requisition system through a web-based application, replacing the previous paper process. The purchase requisitions will be stored and routed through the system based on a routing list defined by the requisition type-type of requisition it is.

Once the requisitions have been approved by all the required signers, the requisition will be transferred into the Datatel system and a copy of the purchase requisition will be converted to a pdf and transferred to ImageNow along with any attachments.

Based on the information with in this feasibility study, we feel developing a web based application in-house, using the .Net framework, would be is the most efficient form for development. Thise study contains information on how to accomplish the development of the system will be accomplished along with a time lines of the project and data structures. The system will allow users to create, store, search, approve, and transfer purchase requisitions more efficiently than the current paper form. The project will be completed in-house and installed no later than by April 2016 by the Wwinter 2016 Ceapstone (CIS 422 and 424) class of Dr. Scott James.

Commented [BW3]: Wordiness is boring and often times makes documents awkward to read; resulting in lost attention from your audience.

Wordiness is great in the first few stages of the writing process as it lets you get all of your ideas on paper. As you go, however, be on the lookout for sentences that are closely related that can be combined as well as groups of words that can be condensed into one.

In this case, I changed "electronic solution" into "paperless" while combing that with the sentence including "web-based" to get the full idea across.

Commented [BW4]: Make sure that your confidence in your solution is evident in your word choice. Using terms like "we feel" and "would be" shows hesitation.

Even if the solution is not as developed as you might want it to be for implementation, your confidence will help convince the audience that you are right for the project.

Commented [BW5]: Yes, these two courses are known as the "Capstone" courses within the CIS department, but those outside the department may not be aware of that. If the readers wished to check the course listings for a detailed description of the course, they would not find anything with the "Capstone" label.

You can still include the term, but list the actual course numbers as well for accuracy.

METHOD OF STUDY

This study is based upon the analysis and summarization of the major factors related to an online purchase requisition routing system. The study began when Rebecca Clifford, Administrative Assistant to the Provost and Vice President of for Academic Aaffairs, contacted Dr. James with the need offer an electronic purchase requisition system, with the basic requirements provided to us courtesy of Dr. James. We received the basic requirements from Dr. James to start the study. Ms. Clifford Rebecca visited the class, giving usproviding a better understanding of the current system and its-constraints short comings. She also as well as answeringed any questions posed the class had. Dr. James then met with ITS to define any additional requirements/and/or constraints.

From the information we gathered we were able to create: Use Case Diagrams (Appendix D), Context Diagrams (Appendix E) and HIPO Diagrams (Appendix F).

A Database Schema (Appendix H) and Data Dictionary (Appendix I) are-have also been created to identify the required data tothat will be stored and the relationships between the data. Finally, Storyboards (Appendicesx K-L) are created provided to show the form and feel of the systems for the users.

Alternatives were explored and a Cost Benefit Analysis (Appendix DC) was performed to verify the path recommended is the correct path to follow.

Additionally, the system will be thoroughly tested before demonstrating the system to the Provost Office.

Commented [BW6]: What are the major factors? Provide a short list so that the readers know what to expect from this section.

Commented [BW7]: While I personally enjoy the ampersand very much, it is not an accepted form of punctuation in formal writing unless it is included within Ms. Clifford's actual title (I searched and did not see it).

Commented [BW8]: Refer to her by last name. If you are unsure as to whether she is a Ms. or Mrs., Ms. can be used as a marital-neutral term.

Commented [BW9]: The forward slash, /, itself already means "and or." When you use the words "and" and "or" surrounding the slash, you are effectively saying "andand oror."

Commented [BW10]: Consider mentioning some of the requirements/constraints and how those impacted your planning or omit the sentence.

Commented [BW11]: You're listing more than one Appendix, so use the plural form.

Commented [BW12]: Be careful with the over-use of words within a paragraph. Mix it up from time to time. A thesaurus can be your best friend.

Commented [BW13]: Because you mention "Alternatives" here, the "Alternatives Considered" and "Differences in Alternatives" sections should be placed before the "Analysis of Objectives."

Also, having the Analysis of Objectives come second makes it clear that you have examined every alternative and then looked back at your objectives to ensure you have made the correct choice in solution.

ALTERNATIVES CONSIDERED

Alternative 1 - ASP.NET Web-Bbased Application

A web-based application utilizing ASP.NET would be a very worthwhile alternative. When developing in ASP.NET there are many pros to be had: no footprint on a client machines, the ability to access application through a modern browser, easy to adapt web interface for tablet and mobile devices, maintenance and updates for web application can be pushed to all users once modified on server, etc. However, every change to a web standard/new web browsers would cause the application to be modified in order to work properly. an issue that could cause problems is new browsers being used and/or a change in the web standards, which the application would then need modifications to, work properly.

Alternative 2 - VB.NET Desktop Application

For thea desktop application alternative, VB.NET would be the most suitable environment for software development. There are many upsides to developing in VB.NET: use of IntelliSense, the visual editor, double-clicking on controls to be linked to relevant code, known stable environment, familiar developing environment, [etc.] On the other hand, the downfall would be the installation of the desktop application on every computer campus wide Despite the many pros to this option, a desktop application would require the application to be installed on all computers, campus wide.

Commented [BW14]: Is this the same thing as the zero footprint listed in Appendix A? If yes, use that term instead. If no, consider adding "footprint" to the list.

Commented [BW15]: If there are more benefits, list them. Using "etc." makes people wonder what else there is (the more thorough you are, the more credible you are). If none of the others are worth mentioning, remove the phrase and place "and" before the last item in your list.

Commented [BW16]: See comment above.

Alternative 3 - Purchase Commercial Software

Research and select a commercial software product that is closer to the type of product that the Provost Office is requesting to be developed. Refer to Appendix K for a commercial software review.

Alternative 4 - Do Nothing

Continue utilizing the paper and Datatel method that is currently in place at Saginaw Valley State University.

DIFFERENCES IN ALTERNATIVES

Expandability

When considering expandability, utilizing web application is definitely the smarter better choice. With ASP.NET, expanding to different types of platforms such as tablets and mobile devices would be easy. This would be done by adjusting the layout of the web interface dependent on the type of platform being utilized. However, VB.NET and commercial software may also allow for expandability.

Stability

When considering stability, utilizing a desktop application or a commercial software option would be more sustainable. With a VB.NET desktop application, the system would be based on the .NET framework, which is a very stable environment as long as it is installed correctly on any client machine. In addition, any commercial software would be very stable due to buying researched software that has good reviews and little--to--no known bugs. However, problems can arise that could occur with a web-based application when is new browsers and/or-web standards are being released.

Team Skills

Another aspect to consider before choosing thea method with which to develop this application would be team skills. Though many students have seen multiple development environments, VB.NET is probably the most utilized. However, due to the requirements from the client, utilizing a VB.NET desktop application will not

Commented [BW17]: It's usually not a good thing to question someone's intelligence. If they do not decide to implement the web-based solution, you're calling them stupid, essentially. Even if that may be true, it's better to avoid it.

be pursued. Using the Visual Studio environment to develop a web-based application with ASP.NET is the best solution to utilize ourt teamsteam's skills.

Support

When considering support, utilizing a web-based application or commercial software unquestionably would be unquestionably more justifiable. With ASP.NET, when modifications (, either updates or maintenance), are needed to be pushed to the application, a developer would only need to make the modifications on the server; Then they arethen pushed out to all users. In addition, commercial software normally comes with support; however depending on the company support could take hours/te-days to respond as well as incur more of a cost. Either option would be more economical better than having to update the software on every client machine campus wide.

Commented [BW18]: "Better" is a lazy word. Yes, we all use it, but it doesn't really tell the reader anything of any importance. Whenever tempted to use the word, just replace it with a reason that makes something "better"

Recommendation

After careful consideration, developing a web-based application is the preferred solution. Though there are many approaches to web-based development, our recommendation would be to use model view control (MVC) ASP.NET

Programming Model. MVC ASP.NET is available in the Visual Studio environment that will allow for easy--to--use templates as well as drag-and-drop features when building the user interface. In addition, MVC "is a lightweight, highly testable framework, integrated with all existing ASP.NET features, such as Master Pages, Security, and Authentication (W3Schools)".

ANALYSIS OF OBJECTIVES

Objective of System

- 1. To provide a system to create electronic purchase requisition.
- 2. To provide a secure database to store purchase order requisition information.
- 3. To provide the ability to be used by multiple users simultaneously.
- To provide the ability to create—a purchase requisitions across multiple accounts.
- To provide a system that allows for the correct amount of signatures based on requisition type.
- 6. To provide a system that allows for multiple attachments.
- To provide a system that allows for proper notes and comments related to requisitions.

Objective of Study

- To determine how the Provost Office and Academic Affairs submit and work with purchase requisitions.
- 2. To determine how data will flow through the systems.
- To gather requirements for the system from the Provost's Office, specifying the needs of the system.
- 4. To gather requirements for integration with the Datatel system.
- To identify and research several alternatives and identify the best recommendation.
- 6. To identify a timeline and life-cycle for the project.
- 7. To identify the data structure required for the project.

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Commented [BW19]: Stay consistent.

- 8. To identify what data will need to be backed-up.
- To identify and define the terms that are used daily within the life cycle of a purchase requisitions.
- 10. To determine how the system forms should be laid out for ease of use and functionality.

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When considering support, utilizing a web-based application or commercial software unquestionably would be more justifiable. With ASP.NET, when medification, either updates or maintenance, are needed to be pushed to the application, a developer would only need to make the medifications on the server. Then they are pushed out to all users. In addition, commercial software normally comes with support; however depending on the company support could take hours to days to respond as well as incur more of a cost. Either option would be better than having to update the software on every client machine campus wide.

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DEVELOPMENT PLAN

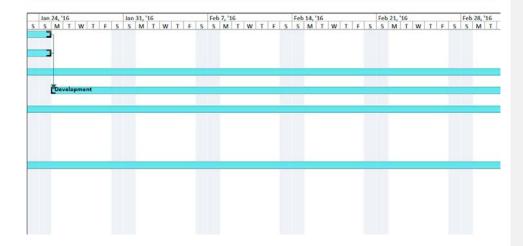
The following is a high_-level schedule of some-significant milestones for this initiative:

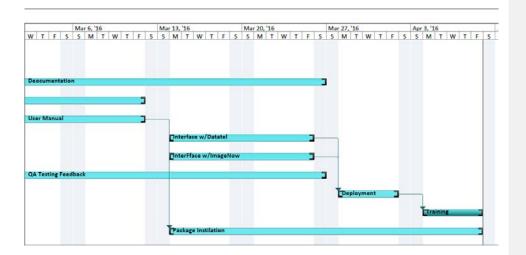
- 1. Create a basic system
- 2. Analyze each stage to be carried out during development
- 3. Determine program requirements
- 4. Assign project tasks
- 5. Set up test environment
- 6. Develop required system interfaces
- 7. Develop hardware requirements
- 8. Design database schemas
- 9. Develop user manual
- 10. Determine process for writing, debugging, and testing code
- 11. Instaillation of new hardware
- 12. Testing software on new hardware
- 13. Provide training for new software
- 14. Deploy completed system

Upon approval of this project a detailed schedule will be created by the assigned project team to include all tasks and deliverables.

IMPLEMENTATION SCHEDULE

D	0	Task Mode	Task Name	Duration	Start	Finish	Predecessors	16 Jan 17, '16 T W T F S S M T W T F		
1		A.	Database Design	10 days	Tue 1/12/16	Sun 1/24/16		Database Design		
2		A.	Develop GUI Components	10 days	Tue 1/12/16	Sun 1/24/16		Develop GUI Components		
3		A.	Deocumentation	52 days	Sun 1/17/16	Sat 3/26/16		Deocumentation		
4		A	Development	35 days	Mon 1/25/16	Fri 3/11/16	1,2			
5		*	User Manual	41 days	Sun 1/17/16	Fri 3/11/16		User Manual		
6		#	Interface w/Datatel	10 days	Mon 3/14/16	Fri 3/25/16				
7		*	InterFface w/ImageNow	10 days	Mon 3/14/16	Fri 3/25/16				
8		A	QA Testing Feedback	52 days	Sun 1/17/16	Sat 3/26/16		QA Testing Feedback		
9		*	Deployment	5 days	Mon 3/28/16	Fri 4/1/16	6,7			
10		A	Training	5 days	Mon 4/4/16	Fri 4/8/16	9			
11		A.	Package Instilation	20 days	Mon 3/14/16	Fri 4/8/16	5			





APPENDIX A: TERM DEFINITIONS

<u>Purchase Requisition</u>: A document that defines the need for goods and/or services

<u>Provost Office</u>: The part of the university which handles different academic affairs including purchase requisitions.

Initiator: Anyone who creates a purchase requisition.

Dean: The head of a college or university.

<u>Signer</u>: Everyone in the chain of routing who has the power to authorize or reject a purchase requisition.

Chain of Routing: Line of signers who are related to the purchase requisition in question based on what type of purchase it is, and which department is requesting it.

<u>Department Chair</u>: Individual who is the head of a specific academic department such as Computer Science or English.

<u>Student</u>: Any part_-time or full_-time individual who has applied and been accepted to SVSU.

Faculty: A full_-time or Adjunct Professor, or standard worker at SVSU.

<u>Campus Resident</u>: Any individual who is a part of the student <u>body</u>s, or faculty at SVSU.

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<u>Budget Secretary</u>: The acting secretary for an individual signer such as the Dean or a Department Head.

<u>Academic Affairs</u>: The chief academic officer of the college and is responsible for educational policy and academic programs.

ITS: The Information Technology department currently in place at SVSU.

<u>Datatel</u>: The current proprietor of the system that is in place in conjunction with the electronic purchase requisition form.

<u>Purchase Requisition</u>: As commercial document issued by a buyer to a seller, indicating types, quantities, and agreed prices for products or services the seller will provide to the buyer.

<u>Grant</u>: a sum of money given by an organization, especially a government, for a particular academic purpose.

Account Number: Unique identifier for each department.

Object Code: A 4-digit code that describes the type of item being requested within the purchase requisition.

<u>Vendor</u>: An organization or supplier, who may have been previously used, who is selling the items in question that are being requested.

<u>Standing Signature Authority</u>: The authority a signer has to approve a purchase requisition, and which can be placed on budgeting secretaries after a predetermined amount of time.

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<u>Sponsored and Academic Programs</u>: The department in the SVSU infrastructure which handles grant related information and has signer authority over grant related purchase requisitions.

<u>LDAP Authentication</u>: A method used for testing against authorization for users to log into our system.

Zero foot-print: A viewer which utilizes complex imaging with dynamic clientserver architecture to display documents in a rich application experience to end users with minimal latency.

Supervisor: Alternative name for a Department Chair.

Manager: Alternative name for Dean.

<u>ImageNow</u>: An external website used as a repository to store pdf versions of the electronic requisitions, and related attachments.

<u>Data Scrape</u>: The process of extracting information from websites, particularly fields on Datatel.

MVC: Model view control.

Commented [BW20]: Place in alphabetical order so it is easier for your audience to find what they are looking for.

Also, the first time each term is used, cite it to the appendix. i.e. Datatel (see Appendix A) $\,$

APPENDIX B: SYSTEM REQUIREMENTS

requisition.

1. Login Requirements 1.1 The system shall support multiple users accessing the systems simultaneously. Test: Have multiple users access the system at the same time. 1.2 The system shall allow for multiple users to view the same requisition at the same time presubmission. Test: Have multiple users view the same requisition at the same time before the requisition has been submitted. 1.3 The system shall not let users (other than the admin and specified users), edit after the requisition has been submitted. Test: Verify that users are unable to edit after submission. 1.4 The system shall use LDAP Authentication. Test: Verify that the system is using LDAP Authentication. 2. Security 2.1 The system shall support zero-foot print rollout and updates. Test: Perform an update and verify other systems update flawlessly and seamlessly. 2.2 The system shall allow only SVSU personnel (students and, faculty, etc.) to access the system. Test: Try to access the system with non-SVSU credentials. 3. Functionality 3.1 The system shall allow for searching. Test: Have a user search for information. 3.2 The system shall allow for attachments of different types. 3.2.1 The system shall allow for attachments of Microsoft suite (word, excel, etc.) Test: Attach a word document to requisition order. Test: Attach an excel spreadsheet to the requisition. 3.2.2 The system shall allow for attachments of images (jpeg, tiff, png, etc.) Test: Attach a jpeg, tiff and png image to requisition order. 3.2.3 The system shall allow for attachments of PDF's. Test: Attach a PDF file to the requisition. 3.3 The system shall allow for the attachments to be saved with the requisition. Test: Have a user save attachments to the requisition and verify that it did save. Test: Open a previously save<u>ds</u> requisition and verify attachments can be viewed. 3.4 The system shall allow for deletion of attachments. Test: Have a user delete attachments from a requisition and verify it actually deleted. 3.5 The system shall store all account numbers assigned to each department. Test: Verify the system contains all account numbers for each department. 3.6 The system shall perform routing of purchase requisitions. Test: Make a requisition and monitor its routing. 3.7 The system shall accept signatures from authorized users to advance routing of a purchase

Commented [BW21]: You have this formatted differently in Appendix A. Find out which way it needs to be and modify.

Commented [BW22]: Choose which format you're going to use for this. The rest of the document has it lowercase.

Consistency is key.

Test: Have an authorized user try to sign a requisition.

3.8 The system shall allow for editing of purchase requisitions.

3.8.1 The system shall allow editing of purchase requisitions prior to submission.

Test: Try to edit a requisition that has not been submitted.

3.8.2 The system shall allow for editing of purchase requisitions previously rejected.

Test: Try to edit a requisition that has been previously rejected.

3.9 The system shall allow for re-submission of previously rejected purchase requisitions after alterations

Test: Try to re-submit a previously rejected purchase requisition after being altered.

3.10 The system shall allow an authorized user to reject a requisition.

3.10.1 The system shall require reason for rejection before rejection can be submitted.

Test: Does the system require reason for rejection.

Test: Try to proceed with rejection without reason.

3.10.2 The system shall send an email notification to the purchase requisition initiator upon rejection.

Test: Verify an email notification is sent to the initiator upon their requisition being rejected.

3.11 The system shall notify the next in line signer of pending requisitions.

3.11.1 The system shall notify signers if there are pending requisitions once a day until all pending requisitions have been approved or rejected.

Test: Verify the signer get notified daily only if requisitions are pending.

Test: Verify the signer get notified if there are no requisitions pending.

3.11.2 The system shall not notify a signer of pending requisitions until all previously required signatures are present.

Test: Monitor signers and verify only the person next in line gets notified once all previous required signatures are present.

3.12 The system shall allow for initiation of a purchase requisition by any campus resident.

Test: Have a campus resident create a purchase requisition.

3.13 The system shall allow for alternates to sign in place of account managers.

3.13.1 The system shall allow for persons with standing signature authority to sign in place of account managers if available.

Test: Verify persons with standing signature authority can sign in place of their account manager.

3.13.2 The system shall route requisitions to both the account manager and their alternate at the same time.

Test: Verify that requisitions get sent to both the account manager and the alternate at the same time.

3.13.3 The system shall notify the alternate signer if the account manager signs the requisition.

Test: Sign as the account manager and view person with standing signature authority's system for a notification.

3.13.4 The system shall notify the account manager if the alternate signs the requisition.

Test: Sign as the person with standing signature authority and view account manager's system for a notification.

3.14 The system shall allow for requisitions to be split between multiple accounts.

Test: Try to create a requisition and split between multiple accounts.

3.15 The system shall allow users to input the split amount for each account only if there are 2 or more accounts to a requisition.

Test: Create a requisition with one account and verify no split amount is able to be inputted.

Test: Create a requisition with two accounts and verify that the split amount is enabled for input.

3.16 The system shall create the requisition's routing based on account number, order total, opcodes and requisition type.

Test: Track the routing and verify all types route correctly.

3.17 The system shall allow adding of notes.

3.17.1 The system shall allow for notes for the whole requisition to be input and saved.

Test: Try to input notes into the requisition header.

Test: Verify notes are saved to the requisition.

3.17.2 The system shall allow for notes for the line items in the requisition to be input and saved.

Test: Try to input notes at a line item into a requisition.

Test: Verify notes are saved to the line item.

3.18 The system shall allow for tracking of a purchase requisition.

Test: Try to track a requisition along its routing and verify all previous activity up to first submission is presented.

3.19 The system shall generate unique identifiers for each purchase requisitions.

Test: Visually inspect and verify that the system generates a unique identifier for each purchase requisition.

3.20 The system shall allow for searching of previously made requisitions pre-submission or before it has been interacted with by the account manager.

Test: Search for previously made requisitions pre-submission.

Test: Search for previously made requisitions before they have been interacted with by the account manager.

3.21 The system shall "data scrape" all specified required information to push to Datatel and ImageNow.

Test: Verify all required and specified information is exactly correctly.

3.22 The system shall push all requisition information and attachments to ImageNow and Datatel.

Test: Verify that all information and attachments have been pushed to ImageNow and Datatel correctly.

3.23 The system shall allow only one user to edit a requisition at the same time.

Test: Try to have multiple users edit a requisition at the same time.

3.24 The system shall let users view requisitions that are being edited in a read only format.

Test: Verify that users accessing the requisition while it is being edited is in read only format.

3.25 The system shall time-out users while editing a requisition after 15 minutes of inaction presubmission.

Test: Verify a user will get timed out after 15 minutes of inaction to "unlock" the requisition for editing.

3.26 The system shall utilize the log in into the sysu.edu portal and fill in as much information as possible based on user's account information.

Test: Verify that the system fills in as much information automatically as possible.

Commented [BW23]: Why is this is quotes? If it is not actually scraping the data, say what it is doing.

Test: Verify that the information automatically filled in correctly.

3.27 The system shall notify of errors in fields immediately.

Test: Visually inspect that the user gets notified immediately if there is an error.

3.28 The system shall provide a checkbox to allow a requisition to be applied to the next fiscal year.

Test: Check the box and verify the field is stored.

Test: Transfer a requisition to Datatel and verify the appropriate field is selected in Datatel.

3.29 The system shall provide a pending requisition list for the user upon login.

Test: Save a requisition the logout and back in and verify the requisition shows in the list.

3.30 The system shall provide a status regarding the requisition.

Test: Verify the status changes accordingly as the requisition moves through the approval process.

4. Purging

 $4.1\,\mathrm{The}$ system shall purge records immediately upon transfer the requisition into Datatel and ImageNow.

Test: Verify the requisition has been removed from the requisition system.

4.2 The system shall purge rejected requisitions after they have been held for 6 months.

Test: Verify requisitions have been purged after 6 months from rejection date.

5. Imports

 $5.1\,\mathrm{The}$ system shall support the import of yearly updates to dropdown information from a spreadsheet created by the provost office.

Test: Try to import spreadsheet information.

5.2 The system shall maintain a history of previously imported data.

Test: Inspect if previous information is still there.

6. Backup

6.1 The system shall be backed up.

6.1.1 The system shall back up all records for the purpose of recovery.

Test: Verify that the system backed up all documents to their proper location.

6.1.2 The system shall back up and preserve all previous figures of authority.

Test: Verify that previous figures of authority get preserved upon changing records.

7. Restoration

7.1 The system shall restore backed up data.

7.1.1 The system shall only allow authorized users to restore and alter backed up data.

Test: Try to restore backed up data as an authorized user and as an unauthorized user.

Test: Try to alter restored data as an authorized user and as an unauthorized user.

APPENDIX C: COST BENEFIT ANALYSIS

Overview

The following is an analysis of the cost and benefits associated with the proposed system. All the hardware required for the system is already in place and available for use. Benefits include both tangible and intangible items.

Costs

There are no known costs at this time.

Benefits

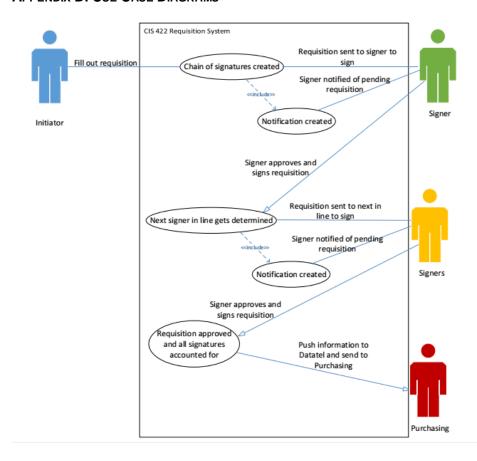
Tangible benefits include:

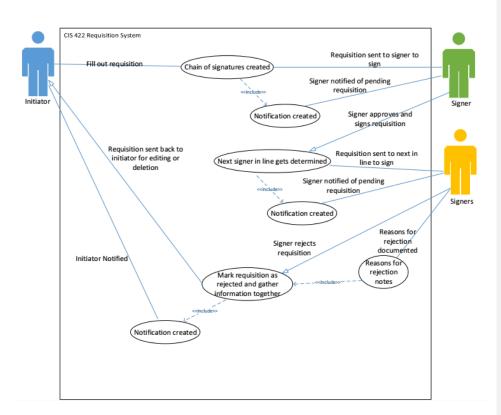
- A monetary savings of a minimum of \$7000.00 per year; based on the commercial software review. (Appendix K)
- Productivity increases by eliminating the paper form.
- The software is designed to meet the exact requirements of the users.

Intangible benefits include:

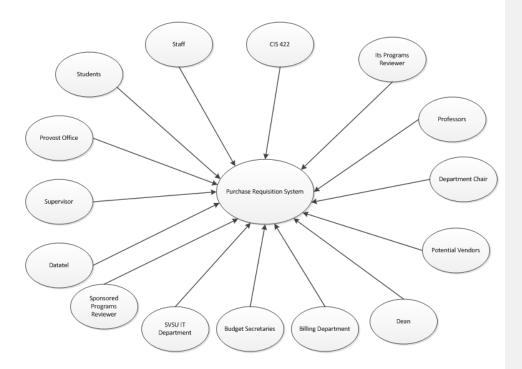
• Improved ease tracking purchased requisition.

APPENDIX D: USE CASE DIAGRAMS

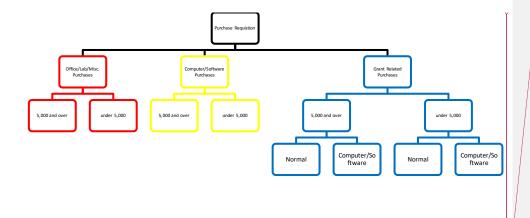




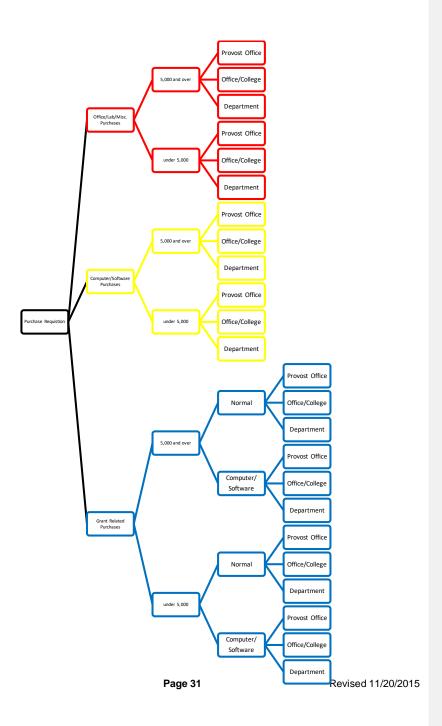
APPENDIX E: CONTEXT DIAGRAM

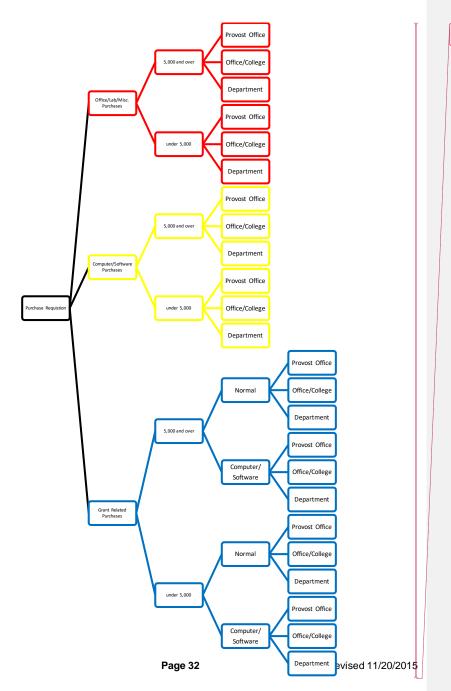


APPENDIX F: HIPO DIAGRAMS

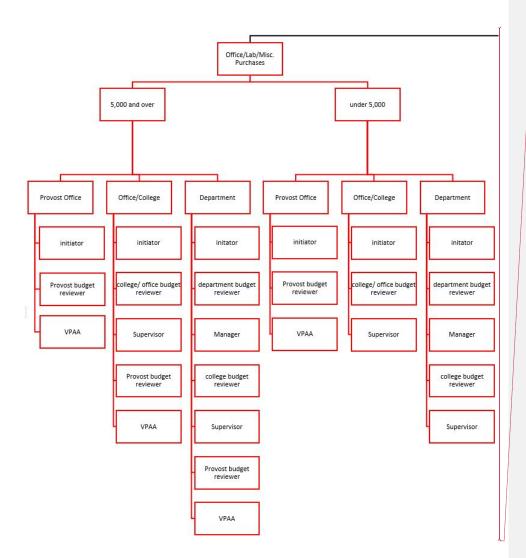


Commented [BW24]: If possible, make it so "software" is all on one line.

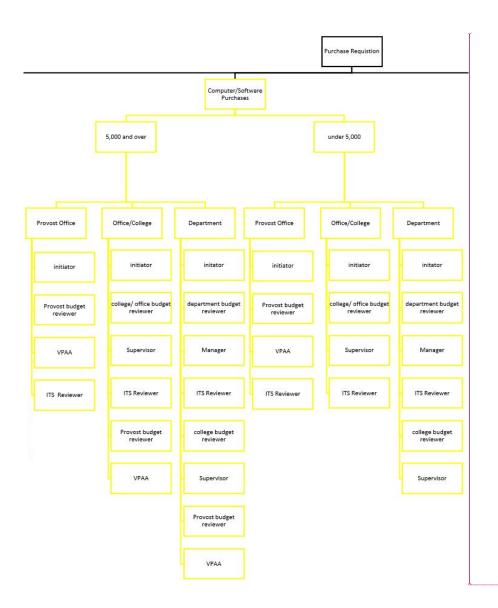




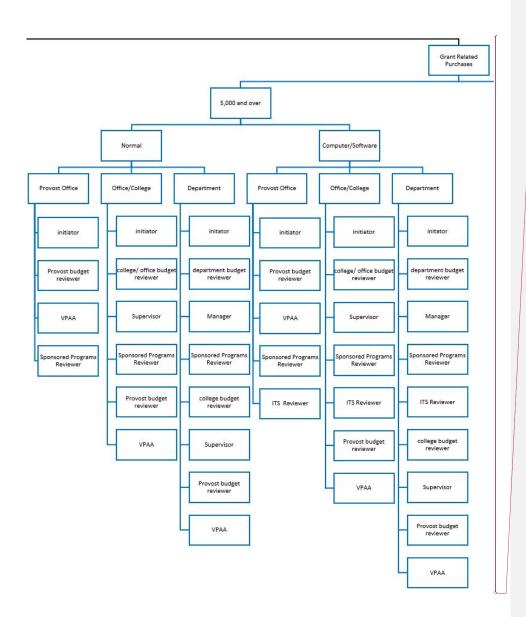
Commented [BW25]: Is this a duplicate from the previous page?



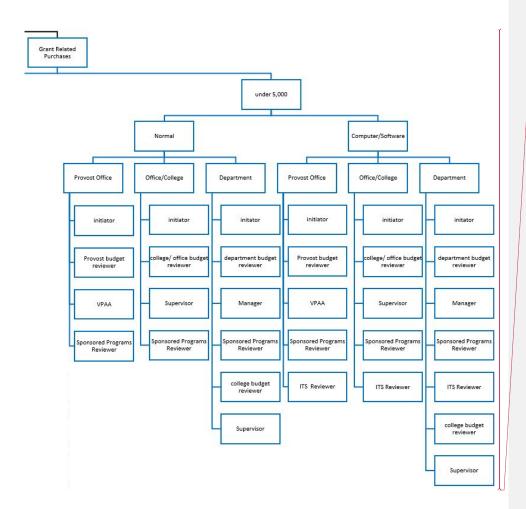
Commented [BW26]: Why are some lower case? Consistency.



Commented [BW27]: See comment on previous page.

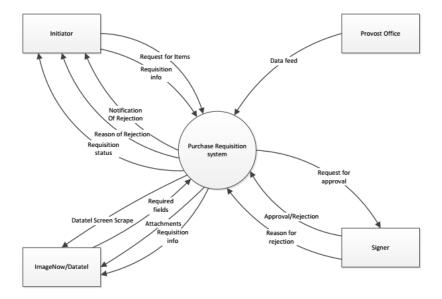


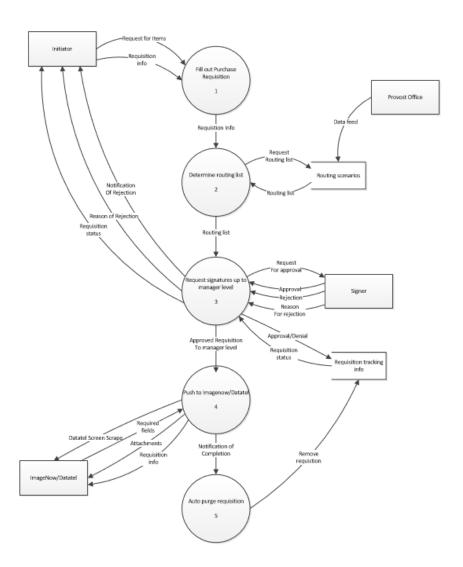
Commented [BW28]: See previous page.



Commented [BW29]: See previous page.

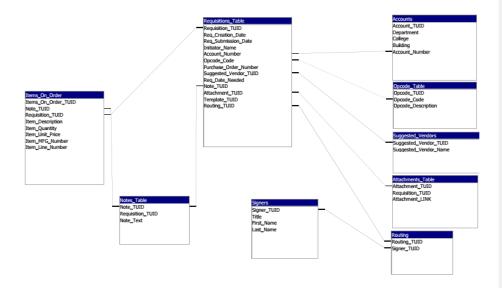
APPENDIX G: DATA FLOW DIAGRAM





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APPENDIX H: DATABASE SCHEMA



APPENDIX I: DATA DICTIONARY

Name	AccountNum	Type	Varchar
Aliases	Account Number	Length	16
Source of Origin	Datatel	Format	Text
Definition/Description	Unique identifier for each initiator to determine who is initiating the purchase requisition and what route the		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	Email	Туре	Varchar
Aliases	<u>∨</u> ⊬mail	Length	50
Source of Origin	SVSU Email Server	Format	text@svsu.edu
Definition/Description	Email address through which routing and notification will take place		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	Signature	Type	Varchar
Aliases		Length	50
Source of Origin	User	Format	text
Definition/Description	Signature provided by user within routing to denote approval of a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	FormNum	Type	Integer
Aliases		Length	
Source of Origin	System Generated	Format	Numeric

Definition/Description	A unique number assigned to each purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	ItemDesc	Туре	Varchar
Aliases		Length	50
Source of Origin	User defined/purchasing source	Format	Text
Definition/Description	Text defining what the item is and any other attributes		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	UnitCost	Туре	Decimal(0,2)
Aliases		Length	
Source of Origin	User defined/purchasing source	Format	Numeric
Definition/Description	Base cost of an individual item within a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	ItemQty	Туре	Integer
Aliases		Length	
Source of Origin	User defined	Format	Numeric
Definition/Description	How much of 1 item is being requested in a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	Numltems	Type	Integer
Aliases		Length	
Source of Origin	User Defined	Format	Numeric
Definition/Description	Number of items within a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	UnitCost	Туре	Decimal(0,2)
Aliases		Length	
Source of Origin	User defined/purchasing source	Format	Numeric
Definition/Description	Base cost of an individual item within a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	PurchaseReqTotal	Туре	
Aliases		Length	
Source of Origin	Generated based on provided item quantities and prices	Format	Numeric
Definition/Description	The total of all items requested in a purchase requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	SplitPercentage	Type	Floating
Aliases		Length	
Source of Origin	User Defined	Format	Numeric
Definition/Description	The percentage which a purchase requisition is split between multiple account numbers		
File data items occur in			

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Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Adillois	Adam	Date Delined	10/31/2013
Name	SuggestedSource	Type	Varchar
Aliases		Length	
Source of Origin	Datatel	Format	text
Definition/Description	A source of purchase which is suggested or has been previously used		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	PurchaseSource	Type	Varchar
Aliases		Length	
Source of Origin	Purchasing	Format	text
Definition/Description	Where		
File data items occur in	111111111111111111111111111111111111111		
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
7.001010	7 ddiii	Dato Domitoa	10/01/2010
Name	Notes	Type	Varchar
Aliases		Length	
Source of Origin	User Defined	Format	text
Definition/Description	A description of external notes regarding a purchase requisition including why it may have be declined		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	IsRejected	Type	Boolean
Aliases	,	Length	
Source of Origin	User Defined	Format	True/False
Definition/Description	Raised in the event of		
	a rejected purchase requisition		

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File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Adillois	Adam	Date Delineu	10/31/2013
Name	OpCode	Type	Varchar
Aliases	1	Length	
Source of Origin	SVSU Opcodes	Format	Text
Definition/Description	A 4 digit number that		
	defines the type of requisition		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
NI.	D. C. N.	_	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Name	RoutingName	Туре	Varchar
Aliases	Haar Dafin ad	Length	50
Source of Origin	User Defined	Format	Text
Definition/Description	Names who the		
	purchase requisition		
File data itawa a sawa in	need to be routed to		
File data items occur in			
Modules Used In	Adam	Data Dafin ad	40/04/0045
Authors	Adam	Date Defined	10/31/2015
Name	Permissions	Type	Varchar
Aliases		Length	T di Cital
Source of Origin	System Defined	Format	Text
Definition/Description	Defines what level of		
	usage a user has and		
	what that user is able		
	to do with purchase		
	requisitions		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	JobTitle	Туре	Varchar
Aliases		Length	
Source of Origin	System Defined	Format	Text
Definition/Description	Defines what level of		
	usage a user has and		

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	what that user is able to do with purchase		
	requisitions		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	DateNeeded	Туре	DateTime
Aliases		Length	
Source of Origin	User Defined	Format	Date
Definition/Description	When the items requested are needed by		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	SignedDate	Type	DateTime
	SignedDate	Type	Date fille
Aliases	0	Length	D-4-
Source of Origin	System Generated	Format	Date
Definition/Description	Date when a purchase requisition is approved by a user with authority to do so		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
	1 2 27		
Name	BuildingName	Type	Varchar
Aliases	Ţ.	Length	
Source of Origin	User Defined	Format	text
Definition/Description	Where the initiator is		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
	1		1 3. 0 ., 20 . 0
Name	ItemNum	Туре	Integer
Aliases	Reminum	Length	integer
Source of Origin	User defined	Format	Numeric
Definition/Description	Determines which line	i Ulliat	INUITION
Definition/Description	item is in reference of		
	Dogo 45		Davisod 11/20/2011

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	the purchase		
File data itawa assumin	requisition form		
File data items occur in			
Modules Used In		5 . 5	40/04/0045
Authors	Adam	Date Defined	10/31/2015
Name	UnitsOfMeasure	Type	Varchar
Aliases		Length	
Source of Origin	Prepopulated	Format	text
Definition/Description	Abstract units of measurement that are defined by container which item is held(IE: Case, barrel etc)		
File data items occur in	,		
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
7.0	7.00	2010 20111100	
Name	PartNum	Typo	Varchar
	Partinum	Type	varchai
Aliases	Durah saisa a sauras	Length	4av4
Source of Origin	Purchasing source	Format	text
Definition/Description	Location of the part requested in the purchasing source		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
	1 2 21		
Name	CatalogNum	Type	Varchar
Aliases	g. ram	Length	
Source of Origin	Purchasing source	Format	text
Definition/Description	Location of the item requested in the purchasing source		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015
Name	ExtendedCost	Type	Decimal(0,2)
Aliases		Length	(-,-)
Source of Origin	Calculated	Format	numeric
· · · · · · · · · · · · · · · · · · ·	Page 46		Device d 11/20/2015

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Definition/Description	The total of a single line items quantity multiplied by the single line items unit cost		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

Name	InitiateDate	Type	DateTime
Aliases		Length	
Source of Origin	Day of	Format	Date
Definition/Description	Day the requisition is initiated		
File data items occur in			
Modules Used In			
Authors	Adam	Date Defined	10/31/2015

APPENDIX J: RAINY DAY SCENARIOS

1. User fired:

Issue: The User has been fired from the job and is required to be removed from the system.

Solution: The admin should update xls spreadsheet for active users and reimport the list.

2. The attachment failure:

Issue: The user wants to attach a file. The attachment doesn't work.

Solution: The user should try converting to a common format such as a pdf, png, etc. to attach. If that doesn't work try to re-open the system.

3. Internet troubleshoot:

Issue: The system cannot connect to the internet. And the user cannot access the system.

Solution: The admin should test the connection and contact networking. The internet may be down and the user will have to wait until connection is reestablished.

4. Database connection:

Issue: The system cannot connect to the database.

Solution: Contact ITS to verify the server is working properly.

5. Object code doesn't exist for an Item:

Issue: The system doesn't show the object code for this item. The user cannot select the object for this item.

Solution: The user should add the item manually and/or use another opcode.

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6. Browser capability:

Issue: Switch to a preferred browser, such as <u>Cehrome or <u>F</u>firefox. If that doesn't work, contact ITS.</u>

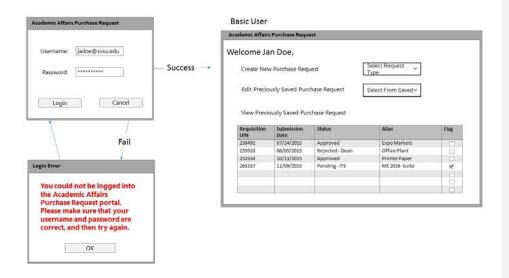
Solution: The system should have all the plug-in to run over across all browsers.

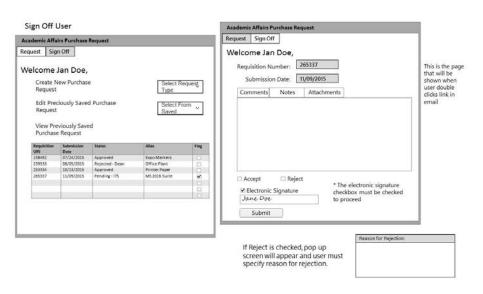
7. System failure:

Issue: What do we do after we push the system and errors occur with the system?

Solution: Contact a consultant, preferably from <u>W</u>winter 2016 <u>C</u>eapstone (<u>CIS 422/424</u>) class.

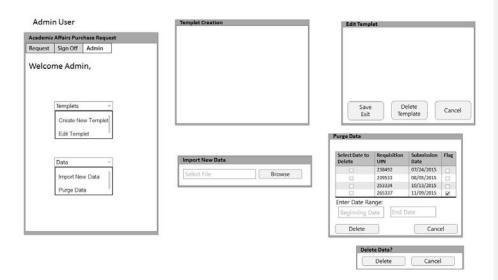
APPENDIX K: FIRST DRAFT STORYBOARDS

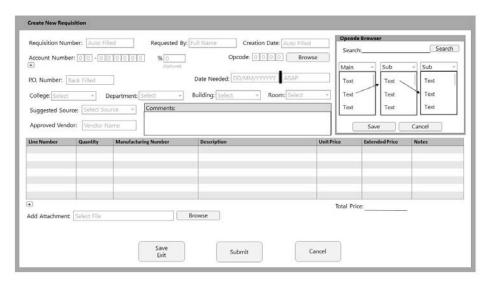




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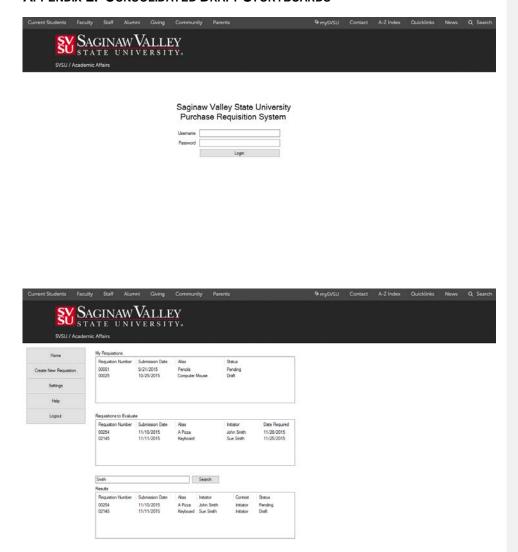




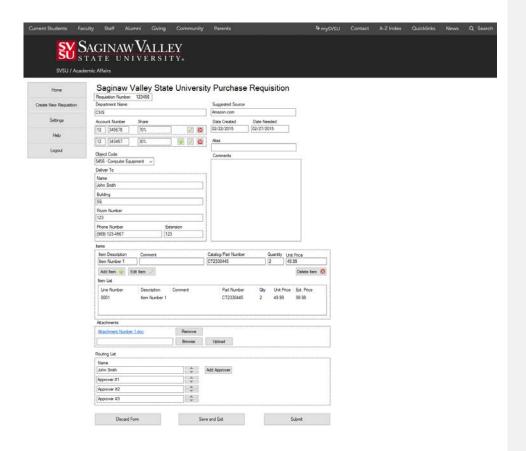
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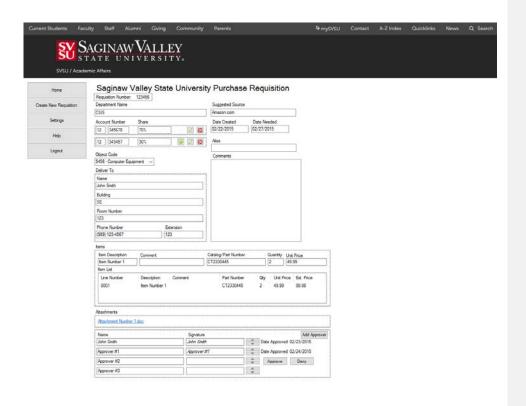
Revised 11/20/2015

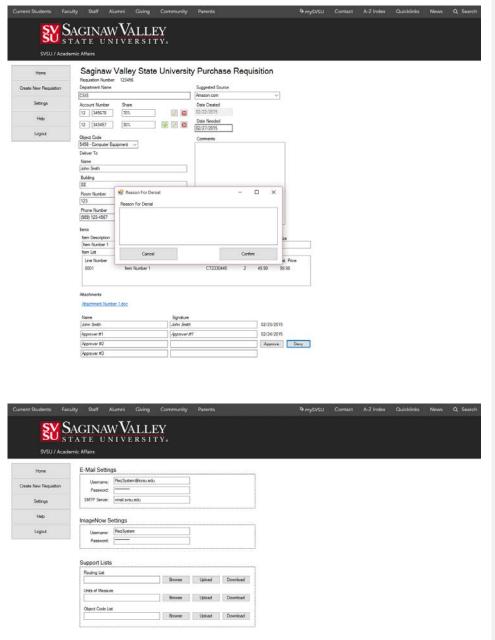
APPENDIX L: CONSOLIDATED DRAFT STORYBOARDS











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APPENDIX M: COMMERCIAL SOFTWARE REVIEW

Procurify is the commercial software we reviewed. The motto of this software solution is: "Purchasing made ridiculously easy."

The features include:

- · Creating requisitions
 - o Select from list of vendors
 - o Create a new order item
 - o Import items
- · Approving requests
 - o Review incoming orders on both Android and iOS
 - o Edit, approve, or deny
 - Send messages to requesters
- Purchase
 - o Create purchase in less than three clicks
 - Email PO's directly to vendor through our system
 - o Revisions on the fly
- Receive
 - o Use mobile phone to take pics to attach to POs
 - attach received items and packing slips
 - receive real-time notifications
- · View Real-Time Budgets
- Multi-Level Approvers
- Create Expense Reports
- Real-Time Analytics
- Create Custom User Roles
- Built-In Customer Support
- · Accounting Software Integration
- Get Help with Implementation
- Unlimited Data Export and Import
- Manage multiple locations and departments

The benefits include:

- Budget Management
 - o One platform to track everything
 - o Eliminate duplicate
- Fraud Prevention

Commented [BW30]: Formatting of this section doesn't match the rest of the document.

 $\label{lem:commented BW31: Say what this means before using the acronym. \\$

Purchase orders (PO)

- o Monitor purchasing
- o Set approval mechanisms
- Real-Time Tracking
 - o Track requisitions, approvals, purchase orders and expenses live
 - o Produce up to the minute reports
 - o Access data from anywhere

Cool features include:

- Data Migration
 - o Setup wizard that helps guide your data transfer
 - o Takes pre-existing data and migrate it over
- · What Procurify will move over
 - o Budgets
 - o Users
 - o Account Codes
 - o (subcodes)
 - o Purchase Orders
 - o Expenses

Pricing:

- Standard Users Free
- Power Users \$65 per month per user (minimum of 10 Power Users)
 - o If billed annually 10% discount
 - Approximately \$7,000 a year

Type of Users:

- Standard user
 - o Has the ability to
 - Create Purchase/Expense Requests
 - Receive
- Power user
 - o Has standard user abilities as well as
 - Approve Orders
 - Create Purchases Orders
 - Purchase
 - Admin Privileges

Commented [BW32]: Consider re-wording. Remember, this is a formal report.

Feel free to use words such as "interesting" or "estimable."

Commented [BW33]: The colon already explains that you will be showing what features are included.

Data Security:

- Supported by Amazon Web Services
 - o Protected with bank level security
 - o Backup all data every 24 hours

After scouring Procurify's website, we believe that Procurify would be the most appropriate commercial software to go with. Though there are many other commercial software options available, Procurify streamline and easy to maneuver application was our top choice.

APPENDIX N: HARDWARE AND SOFTWARE REQUIREMENTS

A computer, desktop or laptop is with Windows 7 operating system and above are is required. The computer must have internet access and web/file browsing capabilities. The preferred browsers are Firefox (version 42.0) or Google Chrome (version 46.0.2490.80 m). A mobile device with internet access will also work. Android devices must have Android Lollipop operating system or above. Apple devices must have iOS X or above.

Commented [BW34]: Formatting of this section doesn't match the rest of the document.

APPENDIX O: PRE-POPULATED DATA

Department Budget Reviewer

- Bob Mackie
- Brian Nelson
- Chad Dewey
- · Cheryl Saffarian
- Cheryl Saffarian
- Cheryl Saffarian
- John Potts
- Kathleen Pelkki
- · Kelly Helmreich
- Steve Erdody

Department Chairs

- Anthony Crachiola
- Brad Herzog
- Brad Jarvis
- · Brooks Byam
- Charles Pelzer
- Daniel Gates
- David Schneider
- Deb Lively
- Deb Lively
- Donald Earley
- · Gary Thompson
- Hideki Kihata
- II-Hyung Cho
- Jane Girdham
- Jesse Donahue
- Jonathon Gould
- Jonathon Gould
- Joni Boye-Beaman
- Julie Foss
- Lucy Mercier
- Margaret Borkowski
- Martin Arford
- Ming-Tie Huang

- Peter Barry
- Rama Yelkur
- Rama Yelkur
- Rama Yelkur
- Rebecca Schlaff
- Rebecca Toth
- Rene Hernandez
- Ric Roberts
- Russell Clark
- Scott Youngstedt
- Tami Sivy
- Tim Rowlands

Deans

- Craig Douglas
 - o Alternate Signature Anne Tapp
- Frank Hall
 - o Alternate Signature Andrew Chubb
- Judith P. Ruland
 - o Alternate Signature Jeremy Knous
- Marc Peretz
 - o Alternate Signature Carlos Ramet
- Rama Yelkur
 - o Alternate Signature Anthony Bowrin

Provost Budget Reviewer

Rebecca Clifford

Provost

- Deborah Huntley
 - o Alternate Signature David Callejo

Units of Measurement

- BT-Bottle
- BX-Box
- CT-Carton

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- CS-Case
- DS-Dose
- DZ-Dozen
- EA-Each
- FT-Feet
- GL-Gallon
- GR-Gross
- HR-Hour
- C-Hundred
- JB-Job
- KT-Kit
- LT-Lot
- MO-Month
- PK-Pack
- PL-Pail
- PR-Pair
- PC-Piece
- LB-Pound
- RO-Roll
- ST-Set
- TN-Ton
- M-Thousand
- UN-Unit
- YD-Yard
- YR-Year

Colleges

- College of Arts & Behavioral Sciences
- College of Business & Management
- College of Education
- College of Health & Human Services
- College of Science, Engineering & Technology

Departments

- · Accounting, Law, and Finance
- Art
- Biology
- Chemistry
- Communication
- Computer Science
- Criminal Justice
- Economics
- EDL
- Elec. Computer Eng.
- English
- ETD
- Geography
- Health Sciences
- History
- Humanities
- Kinesiology
- Management/Marketing
- Math Science
- Mech. Engineering
- Mod. Foreign Languages
- Music/Music-Applied
- Nursing
- Occupational Therapy
- Philosophy
- Physics
- Political Science
- Psychology
- Rhetoric & Professional Writing
- Social Work/Youth Services
- Sociology
- TE-Elem/EC/Sp Educ
- TE-Middle & Secondary Educ.
- Theatre

Building

- Arbury Fine Arts Center
- Art Studio
- Bookstore
- Brown Hall
- Curtiss Hall
- Founders Hall
- Marshall M. Fredericks
- Gilbertson Hall
- Groening Commons
- · Grounds Building
- Health & Human Services
- Ming Chuan University
- Performing Arts Center
 - o Malcolm Field Theatre for Performing Arts
 - o Rhea Miller Recital Hall
- Pioneer Hall
- Ryder Center for Health & Physical Education
- Dow Doan Science Building East
- Dow Doan Science Building West
- South Campus Complex (Buildings A, B & C)
- Student Center
- University Health Center
- University Police/Parking Services
- Wickes Hall(Admissions & Financial Aid)
- Zahnow Library (Center for Academic Achievement)