IPStreet Analysis Report
Final Project Deliverables

In cooperation with

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Executive Summary

For the spring quarter of 2013, the class of Informatics 380, instructed under Greg Hay, was assigned to perform a systems analysis of an organization. This documents encompasses an eight week systems analysis with IP Street, conducted by Group 27 from this class. This team consists of Kate Kinsman, Janella Ignacio, Stephy Ma, and project manager Harsha Ravula, all of which are undergraduate Information School students at the University of Washington.

Client Overview

IP Street aims to "utilize cutting-edge analytics technologies to simplify the complexities of [intellectual property] analytics and provide transparent, intuitive, and meaningful IP intelligence that business people can understand." They provide tools and guidance for both innovators and manufacturers in protecting their ideas, as well as understanding the benefits of creating patents. Buying a subscription establishes a closer relationship between IP Street and the customer, giving the customer further guidance on how to direct their business. IP Street provides their customers with the tools needed to analyze and intuitively, effectively present IP information to determine the best direction to take their company.

Purpose

IP Street, a start-up company, is currently only made up of only five employees, three of which are developers. Their lack of people dedicated to testing run the risk of launching their products with major technical issues. The end-goal of this project is to come up with a solution that will result in enough money saved to hire a testing team.

Stakeholders

Lawyers
Patent holders
Various companies looking to improve their business with knowledge of existing patents

Methodology

Points of contact with the company were Tammy Krieger (the vice president of product) and John DeRosa (chief technology officer). Methods of interaction primarily consisted of in-person interviews at company headquarters in Seattle, and via email.

Findings
Initially two areas of improvement were identified, testing and marketing. However, testing was chosen to be further explored. Throughout the investigation, solutions were created; adding testing objectives to tickets and publishing a general testing framework. The first solution was found to have a higher feasibility score while the second was calculated to have a higher return of investment.

Conclusion & Recommendations
Considering the contrast between the two solutions' benefits, an evaluation of a combination of the two solutions resulted in both a higher feasibility and return of investments score.

Introduction

This analysis was embarked on by four undergraduate students from the Information School at the University of Washington, in a Systems Analysis course. The purpose of the assignment was to get students familiar with real-world business processes and what it's like to dig deep for unknown efficiencies in systems and come up with viable system process improvements, and to provide a valuable analysis to the client. It was a project assigned that perfectly aligned with the needs of IP Street in seeking insight into their business processes.

Here's a brief introduction to the team:

Harsha Ravula
A third year informatics student currently at the University of Washington. He wishes to stress upon Human computer interactions as well as achieve a minor in mathematics for UW. He wishes to use his degree to support those who do not have any educational resources by implementing innovative ideas in addition with advance technologies to provide educational access to those less fortunate.

Kate Kinsman
is in her second year at the University of Washington, having graduated with her Associates of Arts out of high school. She is studying Informatics, concentrating in web development and design, and Business, with a concentration in marketing. She'll graduate next year, and hopes to work in web consulting.

Janella Ignacio
In her fourth year at the University of Washington, Janella is finishing her first year in the Informatics Undergraduate program with a focus in Human-Computer Interaction. She is also holds curiosity in how information technology can benefit rural communities and pro-environmental efforts. In addition, she is pursuing a minor in dance.

Stephy Ma
As a junior at the University of Washington, Stephy is majoring in Informatics with concentration in Information Architecture. She is also a web programming courses teaching assistant at Information School. She has prior experience in web and mobile application development, and would like to work as a software development engineer after she graduates next year.

This project was advertised by the team on a local start-up listserv, and IP Street responded to the call, offering to sponsor the team's project. Because IP Street is a start-up, only in their fourth year, they were quite frank about the fact that they had many systems and processes that could be improved. They encouraged us, the team, to find the system that would benefit the most from improvement and not feel limited by the lack of capital that IP Street possesses in finding a solution.

The premise of our project relied upon improving system processes that were already in place, as a team we would interact with the sponsor and close in on any areas that seemed to act as a bottleneck to the company. Once establishing these areas, the decision to reduce our scope even further and entail a single area of concern was taken. From here on the rectification of those specified areas was eminent. Which brings us the proposition of viable solutions and comparing them to each other to choose the most feasible solution from all standpoints and present it to IPStreet.

Client Overview

IP Street aims to “utilize cutting-edge analytics technologies to simplify the complexities of [intellectual property] analytics and provide transparent, intuitive, and meaningful IP intelligence that business people can understand.” This business provides tools and guidance for both innovators and manufacturers in protecting their ideas, as well as understanding the benefits of creating patents. Throughout IP Street’s website, users will find introductions to understanding patents and questions to determine whether or not the user should consider creating protection for their intellectual properties. If the user find his or her company could use protection, they are encouraged to contact IP Street to subscribe and buy a license. Buying a subscription and license establishes a closer relationship between IP Street and the customer and further guidance on how to direct their business. This company provides their customers with the tools needed to analyze and intuitively, effectively present IP information to determine the best direction to take their company. The United States Constitution's copyright clause was created with the purpose to encourage artistic and creative practices to develop culture. IP Street understands the importance of IP “in a world economy increasingly dependent on innovation.” Their goal is to help companies organize and thrive in an economy constantly changing.

With the number of businesses and innovative ideas exponentially increasing every day in our world, a set of intellectual property laws and patents arise correspondingly with each business or idea. Lewis Lee, the founder of IP street, conceived IP street solely with the purpose to simply patent establishments and searches for uprising business. Prior to the commencement of IP street Lewis Lee co-founded a law firm Lee & Hayes, during his time at his law firm Lee interacted with numerous inventors which specialized in information system technologies. It was then he had come to the realization coupled with his desire to inform people about the importance of intellectual property led to the conception of IP street. From here on out Lewis’ goal was to simplify the complexities of IP using cutting edge information systems that effectively searched, sorted, and produced IP laws and patents.

IP Street is a way that companies can manage competitive threats, gain insights into potential risks or infringement, find patented technology relevant to their products, identify who owns the patents, review key patents, and assess the quality of key patents (beta version). IP Street is an easy to use, web-based search tool which allows a company to quickly discover Intellectual Property and patent information that is of most value to them. IP Street utilizes advance keyword search technology as well as a proprietary concept search tool provided by Content Analyst. You can search for a

specific word or set of words that are contained in over 10 million USPTO and PCT patent documents within seconds. The platform is designed to transform large volumes of unstructured data into relevant information. You can view and download highly graphical summary reports with point and click technology, allowing you easy, immediate access to drill down to individual patent information in the amount of detail you require.

As with any great innovative idea, others dwell upon the success of the idea by implementing similar innovations. IP street is geared toward easing the complexity of Intellectual property laws for businesses. Although IP street provides a truly unique product, there are other companies that have eerily similar commodities. One being Google Patent, it allows its users to "discover, search and read them (patents) online." it also covers the entire collection of granted patents and published patent applications. IP street also embraces a vast collection of patents, but the difference being the method of delivery of patents to the person of interest. Another major competitor to IP street is PriorSmart.com, instead of holding a record of patents in their servers, Priorsmart opted to allow their user to search through numerous websites using a single interface. An advantage that accompanies is it allows the user to use any format when searching for patent numbers. Although these companies provide insight into other patents, they do now allow the user to research and create unique patents intended for his or her own use.

In order to succeed an ambitious business endeavor such as IP street, the founders must have a clear vision of where this company is headed and how to get to there. Lewis Lee the a co-founder of Lee & Hayes, a IP law firm has presence from Seattle to Taiwan. His firm has been awarded the #1 ranking as the highest quality patent law firm in the U.S. for three years in a row by Ocean Tomo and IAM Magazine, according to IPstreet.com. Lee has earned a BS in Electrical engineering and a BA in Business Administrations as well as a JD from the George Washington University School of Law. The juxtaposition of these unique talents has helped him conceive the idea of IP street. Lee has surrounded himself with a group of successful partners in order to proceed with the growth IP street.

Problem Statement

IP Street allows users to search for intellectual property patents. Results and data returned can be displayed in various views called lenses and periodically IP Street releases a new lens. However, during the first interview, it was mentioned bugs are often still being fixed just hours before launch of a new lens or version of their product. This could lead to releasing their products with more bugs and losing their customers' trust and subscriptions. Our client's company only has a team of about five members; Tammy Krieger (VP of Product) paired with another patent lawyer, and John DeRosa (CTO) with two other developers. As a start-up, it is difficult for the company to keep up with all the bug fixes and can sometimes be overwhelming.

Recently, our clients had a troublesome launch. Some of the issues they ran into included having bad server configurations (having never tested from end to end, making queries with the entire database as opposed to a smaller set) and general bugs. Most of these issues could have been prevented had they spent more time testing the changes in their launch. They currently do not have any methods for testing excepting using a checklist when addressing bugs.

This problem can affect a number of people, including John, Tammy, and the rest of the team. They have deadlines to meet and have to make sure the bugs that occurred during development process are fixed before the deadline. In some unfortunate cases, bugs might not be fixed in time. Therefore the customers of IP Street will certainly be affected as well. This includes but not limited to getting products with more bugs. The problem definitely needs a solution as soon as possible because it goes against company's mission, which is producing great product in a timely manner. In addition, the company's reputation could be damaged.

Being a startup company, the client-base is scarce and precious. A bad first impression on potential clients means that the client-base does not grow, and consequently profits do not grow. Secondly, if the time spent testing can be minimized, this will not only lead to decreased product costs, but will also give employees more time to focus on marketing the product, which will in turn lead to more revenue. The total cost that would be gained in this scenario would be equal to the reduced production expenditure plus any revenue generated from pitching the product to eagerly awaiting customers.

Ideally, a professional tester could be hired to independently and quite thoroughly troubleshoot the product. However, the company cannot expand with how finances stand at the moment. Their five employees are all-purpose, making it

hard to implement checks and balances by separation of duties. In a company where the code that the developers produce is the company's main revenue stream, everyone is intimate with how the product works. This makes it particularly hard to test the product, because every employee thinks in terms of how they created the product to work and not in terms of how a novice user would use it. In some circumstances, because testing has been spread out between all employees, no one quite knows what has been tested by who, or if it has been tested at all. This means that the product is inevitably launched with bugs or use-case issues that no one expects the product or the user to encounter, leading to an unsatisfied customer and more time and money spent fixing errors. With the accumulation of combined funds saved per year by using time more efficiently to thoroughly locate potential problem areas before launch, a professional tester could be hired to independently troubleshoot the product. This, in the long run, would save substantial hours a year, currently spent on testing and could be used to develop more features that would appeal to a wider base of clients.

Analysis and Findings

After the 4 interviews we have conducted with IPstreet, we gained insight in a few areas of them. They include details about their primary product, problems they face with product testing, marketing issues, and overall team operation.

Starting with their primary product, a lense is a special view that displays returned results and data on intellectual property patent search. Since it represents data in an easier way for their clients, it sets them apart from other IP search services. A single lense project takes from two days to two weeks to finish. Unfortunately, just like any other products, lenses also have bugs during development process. In some scenarios, bugs cannot be fixed until hours before launch. This is problematic because they have to rush to meet deadlines. Working under stress sometimes will only lead to more bugs. As a result, products might not meet customers' expectations and it will damage their company reputation and image. There are two potential reasons behind this problem. First,the time spent on researching before lense creation is not enough. And second, there is no standard testing framework that ensures them to discover bugs right away and fix them in a timelier manner.

On the subject of product testing, IPstreet's current strategy is to test as they go. Tammy is the only person in charge of most testing while she still has to handle the customer service as well. Testing takes up a lot of Tammy's time and there is a lack of a system to keep track of who has tested what. As stated above, it usually results in

rolling products out with lots of bugs and runs in situations that they have to scramble last minute to fix. It is urgent that they need a standard testing framework as soon as possible. It needs to be a repeatable and efficient procedure that can significantly assist them in testing process. Releasing the product that malfunctions on occasion can increase reluctancy among the clients that IPstreet currently has. not only will their current clients become reluctant but they may also turn away any potential clients or customers that may be to subscribe to the service, which consequently leads to them choosing services among IPStreets competitors.

Additionally with releasing a product containing less bugs the employees of IPstreet will be able to save valuable testing time. And since the entire staff consists of less than 10 members they will be able to work on other tasks at hand that need to be addressed.

IPStreet seemed to have a ticketing system already in place, which leads to better communication amongst its employees. Although sometimes they didn't seem to be on the same page with regards to launch time and other deadlines. So a daily morning scrum would be extremely beneficial to the group as they will know what each of them are working on which will allow them to maximize their productivity. Although this is just a suggestion we highly recommend applying a daily scrum.

We also found IPstreet hardly focuses on in their marketing at all. The only way is purely word of mouth. They have access to a wide base of lawyers as the CEO himself is a lawyer with a lot of contacts, and their office resides inside of a law firm. Their word-of-mouth is not a poor strategy by any means, but they cannot solely rely on that. Marketing is expensive, and as a startup company they haven’t thought of spending a big portion of money on advertising. It seems that they would need some ways to help them advertise, without too much investment. They do not measure customer satisfaction. They basically try to satisfy their customers as best they can. If a customer contacts them about anything, they make it a point to solve issues as fast as possible.

Initially we suspected we should focus on the lenses because these are their main products. However, we soon discovered that testing would be the best area to dig into. What we found was most issues are traced back to testing and lack of the manpower to take care of all the testing efficiently in time for launches. So we decided to investigate ways to raise more money for this purpose.

Methodology

Our methods of gathering information from AP Street mainly consisted of in-person interviews and email exchanges. Our interaction history is as follows.

Interview #1

Method: In-person interview (recorded with permission)
Date: January 21
Location: Madison Convention Center
Attendees:

Tammy Krieger,
John DeRosa,

Harsha Ravula,

Kate Kinsman,
Janella Ignacio

Interview Subjects:

- Background information (personal history and interests)
- Employees' relation to company - job descriptions
- About company
    - verifying the information we gathered from researching their website
- Methods of operation (stakeholders)
    - Where do they get their data?
- Relationship / how do they interact with customers?
- Fishing for problems
    - data quality issues, how do they measure

Interview Results:

- Verified our research on the company
- Got to take a look at the product (lenses) from a customer's point of view
- Without previous knowledge of patent information and its particular uses in business, it was a little difficult to understand exactly how their clients use their product
- Discovered their lenses (easy to understand data representations) set them apart from other IP search services.

- Customer service is primarily handled by Tammy by answering emails directly from clients
- Gathered their operations are busy, but more casual and informal (not particularly systematic)

Interview #2

Method: Email
Date: sent Jan 24, reply received Feb 6
Notes: questions were divided between the two contacts and answers sent separately

Interview Subjects:

- Clarifying what their actual product is. We suspect they are lenses.
- How lenses are created? - Searching for processes
- How customer satisfaction is measured
- Marketing strategies
- Trying to find metrics (ex. prices for subscriptions)
- Looking for issues in the way they organize their processes
- Nightmare situations (outside of development)

Interview Results:

- Not a lot of time spent researching
- Lense projects can take 2 days to 2 weeks
- Don't have any metrics to measure customer satisfaction
    - "still defining market and proving value"
    - "business is delight them in whatever way to the best of our ability"

Interview #3

Method: In-person interview (recorded with permission)
Date: February 12
Location: Madison Convention Center
Attendees: Tammy Krieger,

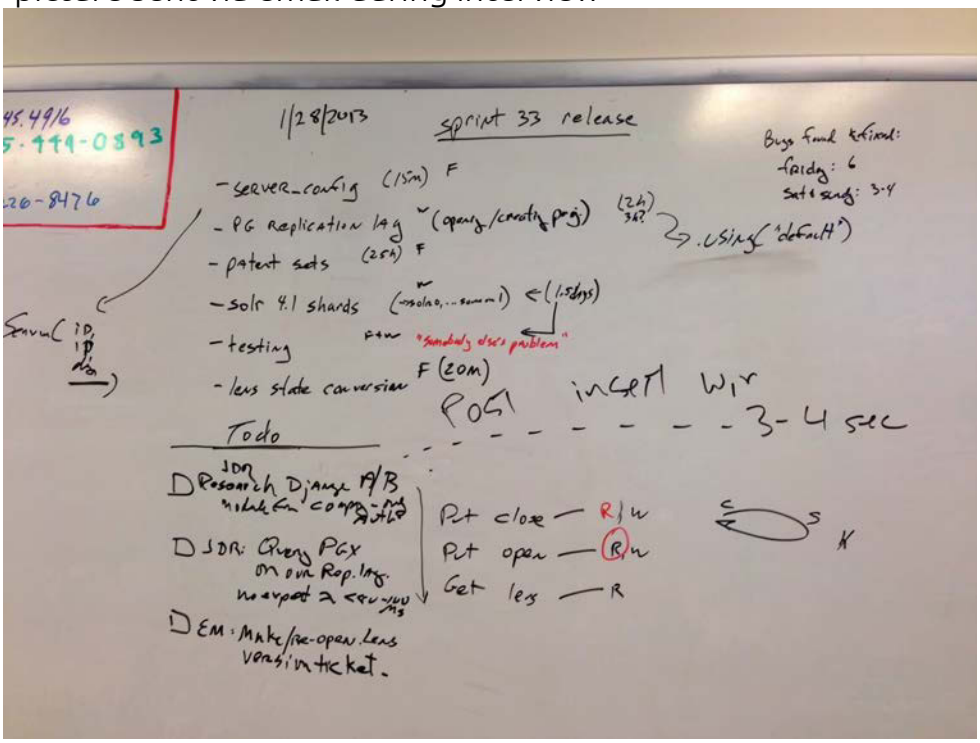
John DeRosa,
Harsha Ravula,
Kate Kinsman,
Janella Ignacio

Interview Subjects:

- Where could we find possible areas that could be inefficient or potentially problematic
- Find the bottlenecks within IPstreet, any areas that hold you or your team back.
- What are any possible solutions that could rectify these bottlenecks.
- Analyze the issues that occurred with the previous launch.(the rundown)
- How can you bypass these issues next launch.
- Are they confident that the new system is going to be efficient?
- What are the costs? Is it the best decision. How did you come to this decision?

Interview Results:

- Received more information about difficulties of recent launch
- Post mortem notes
    - insight on how they take notes of meetings
    - simply write on whiteboard and take pictures of it on phones
    - picture sent via email during interview



Mentioned in an interview, post mortem notes (sent via email)

Interview #4

Method: Email
Date: sent March 5, reply received March 6
Notes: questions were divided between the two contacts and answers sent separately

Interview subjects:

- Time spent on testing and fixing errors during/after launch.
- Hourly estimate of monetary value of employee's time

Interview Results:

- They spend 2 -4 hrs testing each week
- Assume that the salary of the average employee at IPStreet is $ 140,000

Opportunities

Based on our analysis and findings, our team have come up with a few suggestions on testing and marking that IPstreet may find useful for them. For testing, IPstreet can consider creating testing tickets in their system. A testing ticket describes what needs to be tested on and how to do it. They can be focus on pieces of code produced during development process, or objective that they have to test on at the final stage of production. This will make a huge impact to their current situation. It will definitely relieves some stress on Tammy from testing. Any team members can now help with testing by simply claiming a ticket. Assume that testers commit to their job and finish testing on time, bugs could be discovered and fixed right away instead of accumulating until last minute. Creating testing objectives can also keep track of the entire process, specifically who has tested what. In addition, they can also add testing framework, which should be a repeatable testing procedure. It holds guidelines for an employee to follow to test a program. It is important that regulations are held on the details of the procedure. The benefits are that it is more guaranteed employees will complete testing with regulations, and testing time can be reduced in the future since the same procedure will be followed through every time once it is created. Furthermore, IPstreet can talk to schools about opening code testing classes. This can potentially interest many students pursuing in technical fields, especially the ones who want to work as software development engineer in test. Our final suggestion, however, is to hire new testers for IPstreet. Testing is an important

procedure for them and it is time consuming. In fact, the testing process was slow potentially because the lack of testers. We think that adding new testers and immediately help them with this problem.

On marketing aspect, IPstreet can do it wisely in a few ways. First of all, they can connect with law schools at nearby colleges, for instance, University of Washington. They give access to students and professors for study and research purposes. In addition, they can hold seminars and workshops in law schools to spread knowledge on patent. Or they can even recruit focus group to help them with research on lenses production. This will be a win-win strategy, as IPstreet will get much more exposure of their company in colleges, where population is dense and news and information can spread faster. On the other hand, law school students will be more than happy to have an opportunity to work closely with real companies like IPstreet that specializes in patent search, which can help them with patent law study. Secondly, IPstreet can market toward other law firms, especially patent law firms, to promote themselves. Alternatively, they can market to U.S. government as well.

SOLUTION 1

Adding Testing Tickets to System

Payback Analysis:

Cash Flow	Month 0	Month 3	Month 6	Month 9	Month 12
Dev Costs	$0	$0	$0	$0	$0
Operational Costs (time spent brainstorming & testing)	0	$(1809)	$(1809)	$(1809)	$(1809)
Cumulative Costs	0	$(1809)	$(1809)	$(1809)	$(1809)
Benefits		$2412	$2412	$2412	$2412
Net Costs+Benefits	0	$603	$603	$603	$603

ROI Analysis

603*4/(1809*4)= .33 or (33 % profit) so 133 percent of original investment

SOLUTION 2

General Testing Framework

Payback Analysis:

Cash Flow	Month 0	Month 3	Month 6	Month 9	Month 12
Dev Costs(time spent developing framework)	6030	0	0	0	0
Operational Costs (time spent testing)	0	0	0	0	0
Cumulative Costs	$4824				
Benefits	0	$2412	$2412	$2412	$2412
Net Costs+Benefits	6030	2412	$2412	$2412	$2412

ROI Analysis

- 6030 + (4 * 2412) / (4825) = 0.60 or 60 % profit
- or 160% on investment (for every dollar we put in we get 1.60 $ back)

Feasibility Analysis Matrix:

	Weight	Candidate 1	Candidate 2
Description		Add testing objectives to tickets to address issues right away in the development stage and save VP time with testing	Create company-wide general testing framework procedures to establish a repeatable process.
Operational Feasibility	40%	organized system Ensures that all testing objectives will be met takes time because someone has to sit down and enter them ensures efficient division of tasks keeps track of who did what means that all testing has to be done after all development ceases	ensures general testing objectives are not missed not customizable to each project harder to split up testing in a concrete way, unless divided into several sections for that purpose hard to check whether someone has completely adhered to the manual and done each test
		Score: 90	**Score: 70**
Technical Feasibility	40%	integrates with already implemented technology	a lot of initial work to come up with manual

		if ticketing system experiences difficulties, this solution will as well access to ticketing system would be limited to typical users of system (hence testing objectives not accessible to others to reference) **Score: 85**	requires no additional software **Score: 70**
Economic Feasibility	5%	no additional software cost value of time spent brainstorming all the testing objectives plus putting tickets into system **Score: 90**	value of time spent producing manual value of time spent going through manual each time **Score: 80**
Schedule Feasibility	15%	Can roll out immediately extra time spent brainstorming **Score: 95**	1-2 weeks to create manual more waterfall, all developing must be complete before testing begins **Score: 80**
Weighted Score	/100	**88.75**	**72**

Proposal

By now our team has presented the opportunities that in our opinion will have a sizable impact on your organization. We have analyzed and reviewed the data that we have collected over our multiple meeting and stipulated all the gathers and have inferred what problems we think will be most fiscally beneficial as well as having no compatibility issues.

Firstly we have conducted a feasibility analysis from economic, technological, operational, and schedule perspectives. Upon doing so we have accomplished to some degree in rating or organizing the solutions that have been proposed. As previously explained in the opportunities section, we have inferred that inefficiencies or gaps are present among the testing procedures that are currently taking place at IPStreet. Our solutions will somewhat rectify and mitigate have severe complications and disputes

that arise while testing. From here I will introduce the two solutions that our group has created and then we will discuss which of the two will be more fitting for IPStreets current situation.

Description of Solutions

Solution 1 : Solution 1 involves creating testing objectives that contain information on what need to be tested and in what fashion. Upon completion of this the team then sets the objectives into the ticketing system that is already in place but currently handles organization of other business tasks. The designated developers briefly test pieces of code as they create them, but towards the end of development, they brainstorm all testing objectives they would like to reassure and add tickets containing those objectives to the system. From here, a team member who would like to test a certain objective simple chooses a ticket to ensure only he or she is currently working on the objective and after completion can discard the ticket containing the respective objective.

Solution 2: Solution 2 propositions in creating a general testing framework so that a repeatable testing procedure is present when testing a product. This Framework or manual will hold all guidelines to follow when an employee elects to test a program. When creating the framework the organization must ensure the detail and meticulousness of the framework is up to regulations. Consequently the testing procedures will be in accordance with the framework. In other words, if the framework is very detailed then the testing will be thorough else the testing might fall below regulations as well. Accepting solution 2 will not only ensure that the employee fully completes testing but will eventually reduce testing time once it becomes accustom throughout the organization.

Overall Feasibility:

Solution 1 scored higher on every aspect of feasibility. It has more standards and regulations. It not only ensures the goals are reached but also keeps track of the entire process. It integrates with other technologies and the access to ticketing system is only available for certain users for security purposes. Economically speaking, solution 1’s value of time mostly spends on brainstorming testing objective and putting into ticket system. Solution 1 is also more feasible in scheduling. It doesn’t require much time for the “physical work” that needs to be done. Instead, all the extra time is spent on brainstorming, which is not limited to a fixed schedule.

Solution 2 did not score as high as solution 1 mainly because its purpose addresses the client's testing system as a whole and does not provide regulation opportunities. Solution 2 is designed to be applicable to all potential projects and provide a checklist for testing. Although solution 2 creates a testing protocol, it is merely a checklist to remind the tester of the various aspects that tend to need more particular attention. Other than this purpose, the framework doesn't interact with any other system functions. In addition, solution 2 requires are a lot of time (initially) to actually create manual. We expect the development to take at least 1 - 2 weeks spending several hours on it per day. Because the implementation of solution 1 has the ability to provide information to others on the team, it came out with a higher score. We should point out however, that It is interesting that our monetary calculations show solution 2 as the most economic option.

Expenses:

Solution 1: There were no development costs as the ticketing system already exists, and already is in use. Because it is already in use, we considered this a sunk cost, and not relevant to our cost analysis. The operational costs were based upon the average amount of pay per hour per employee ($67). Potentially, brainstorming and entering the tickets into the system would take 45 minutes. We are assuming that a 3 hr testing session for each employee is a sunk cost and will happen regardless of implementing our solution. This means, per week, .75 hours per 3 developers per week, assuming 4 weeks in a month is calculates to $1809 in wages for a period of 3 months.
Part of these costs are recouped in the 4 hours of testing per person spent going back and fixing uncaught errors potentially saved by having an organizational scheme around testing. In order to get a true differential cost, we also added back in wages for the two hours that would have been spent on testing regardless.

Solution 2: There was an initial development cost for the framework totaling to $6030 in wages spent for a 30 hour development period solely for the creation of the Framework. The operational costs were based upon the average amount of pay per hour per employee ($67). The resultant testing would take the scheduled 3 hours per employee. This means, per week, 2 hours per 3 developers, totaling to $4824 in wages for a period of 3 months. But the testing is being regarded as a sunk cost therefore we do not include it in our analysis.

Part of these costs are recouped in the 4 hours of testing per person spent going back and fixing uncaught errors potentially saved by having an organizational scheme around testing. In order to get a true differential cost, we also added back in wages for the two hours that would have been spent on testing regardless.

ROI:

Solution 1: The return on investment in case one relates the total costs over the duration of a year with the total benefits received over the same year. In our first solution we came up with an ROI of .33 which means that for the total amount of money spent on the solution the company will see exactly a return of 33% amount in benefits over the course of the year. For example the company would spend $7236.0 dollars per annum and would receive benefits of $9648.0 over the duration of a year. According to the ROI this solution would be a viable solution for the company to implement if they are inclined to mitigating costs of product testing.

Solution 2: For the second solution the company must spend much more money upfront in order to create the set of testing guidelines and consequently will not incur any excess operational charges over the remainder of the year apart from testing. According to the ROI which was calculated to be 0.6 this solution is even more feasible than the first one. Although there are several impediments when initially incorporating this solution due to the overall integration factors. The employees might struggle during the beginning and will become accustomed to the set of guidelines over time and will ultimately be a very suitable solution.

Use Cases

The use cases for each solution are provided in the appendix(pending number). The use cases provide a detailed walkthrough of the steps that need to be taken in order to implement the solutions, additionally they provide a pictorial diagram of the very same steps for easier comprehension.

Conclusion

According to all the data presented, our team believes that implementing either solution will be beneficial to your company as a whole. Both solutions have the strong points as well as the ineffective ones. We have concluded that implementing both solutions will be viable and the most advantageous over a period of time. To assess implementing both solutions, the organization would have to create the framework initially and spend approximately 30 man hours for 3 employees and then brainstorm, create, and add testing tickets into their system on a weekly basis which requires 45 minutes per week for 3 employees. We will cover the economic benefits and feasibility in depth in the recommendations section.

Each proposed solution has its respective benefits to the organization, we believe that implementing both would be most constructive as each will be able to cover any inconsistencies the other fails to address. To reiterate, solution 1 will provide a sense of organization when dealing with the complexities of product testing. Solution one will also ensure that employees cannot simultaneously be working on the same ticketing objective and lastly it will relieve and testing responsibilities off of Mrs. Krieger, which will lead to more productivity of the other duties she has at hand. Solution 2 certifies the testing quality of objectives are up to regulations. By creating the universal framework to a certain level of degree, employees must abide to the framework when testing an objective and therefore will ensure its fully functional while mitigating and erroneous tasks taken by the program. In unison these solutions will provide and organized, efficient, and quality driven procedure of product testing.

Recommendations and Conclusion

In the proposal section of our project, we have concluded by recommending the overall solution to the testing inefficiencies present. We have covered some of the fiscal benefits of implementing both proposed solutions, here we will reason some of the intangible benefits gained from implementing both solutions as well as the next steps that need to be taken if our proposition is to be accepted. In addition to this we will include a discussion on the major impacts that are a result and a conclusion of our thoughts and considerations of IPStreet .

Firstly, we have the step by step procedure of the next steps that need to be taken in order to fulfill the suggestions that have been put forth by our team. Each step must be considered and achieved nearly in order to make certain that the solutions are consistently operational to their fullest extent.

1. Developers complete any unfinished testing
2. The group of employees must create the Framework from scratch
3. Once completed, execute trail testing runs using the framework and ensure effectiveness
4. Upon completion of next project brainstorm and create testing objectives that need to be completed
5. Add those objectives to the ticketing systems via tickets
6. Complete testing tasks in accordance with the completed Framework

Once these steps are concluded then the organization has successfully implemented our propositions. The usage of this system will ensure that multiple employees will not be simultaneously working on the same testing objective which will mitigate any time wastage that may occur otherwise. Along with this, the system will ensure that every testing objective that is taken up by an employee or developer will be completed to the degree appointed by the testing framework. The degree of meticulousness of the created testing framework must be closely monitored as designed to the satisfaction of John DeRosa and Tammy Krieger as well as anyone else whom it concerns. If the detail entailed by the framework in sub-par consequently the testing objectives will be completed and detailed to the same level and then possibly may experience malfunctions. Assuming that the steps shown above are completed up to standards then the organization will be in position to proceed with our solutions.

From the data that we have inferred during our meeting, we have comprehended that Tammy Krieger handles the bulk of the current testing objectives of the organization. This in turn deters from her ability to engage in the main tasks are appointed to her. Some of which include customer service, lens design, marketing, and finally application of legal knowledge. Assuming that our solution follows through the burden of UI testing will be relieved from Mrs. Krieger's responsibilities which will allow her to ultimately focus on other tasks on hand. After completion of the rundown of the postmortem analysis that was conducted by IPStreet, our team immediately scoped in on mitigating any major bugs after release of the final version. Because, from our perspective, if the clients experience is tarnished by program malfunctions the clients reluctancy towards the product will rise and maybe a decisive factor when choosing amongst competitors. With the moderation of post release malfunctions, this directly will correspond with a more satisfactory experience from IPStreets's clients and this will subsequently boost any customer sales and subscriber ratios that were originally set.

of both proposed solutions is what our team believes would be best suited, as we have shown from the economic feasibility. To recap the expenses and benefits of each individual solution, we have for solution 1 no development costs since the ticketing system is already in place and allows for unlimited number of tickets. Operational costs of solution one compile to about $1809 per month from brainstorming, creating, and entering the tickets. And benefits gained from solution one are $2412 per month from the time saved from excess testing. So a total net gain of $603 per month. As for solution two the development costs are $6030 for the entire creation of the framework, no operational costs and total benefits of $2412 per month. So combining both solutions we can create a single economic feasibility analysis for the both solution in unison.

Cash Flow	Month 0	Month 3	Month 6	Month 9	Month 12
Dev Costs	$6030	$0	$0	$0	$0
Operational Costs (time spent brainstorming & testing)	0	$(1809)	$(1809)	$(1809)	$(1809)
Cumulative Costs	$(6030)	$(1809)	$(1809)	$(1809)	$(1809)
Benefits		$4824	$4824	$4824	$4824
Net Costs+Benefits	$(6030)	$3015	$3015	$3015	$3015

Calculating the ROI, we achieve a 0.833 return on investment. Assuming these calculations hold true, then for every dollar input into the solution IPStreet will see a return on $1.83, which is an 83% profit. According to the number the ROI is the highest for both solution combined when compare to either single solution so from an economic perspective implementing both is very feasible.

Lastly, the application of the elucidations will help keep IPStreet organized in regard to product testing. It will provide a seamless approach to the complexities of testing while ensuring that the final product will be released into the market with fewer malfunctions respectively. This will relieve some of the testing responsibilities off Mrs.Krieger and additionally lead to increased number of customer subscriptions. The economic feasibility of applying both solutions is considered superior than any one solution from an accounting standpoint.

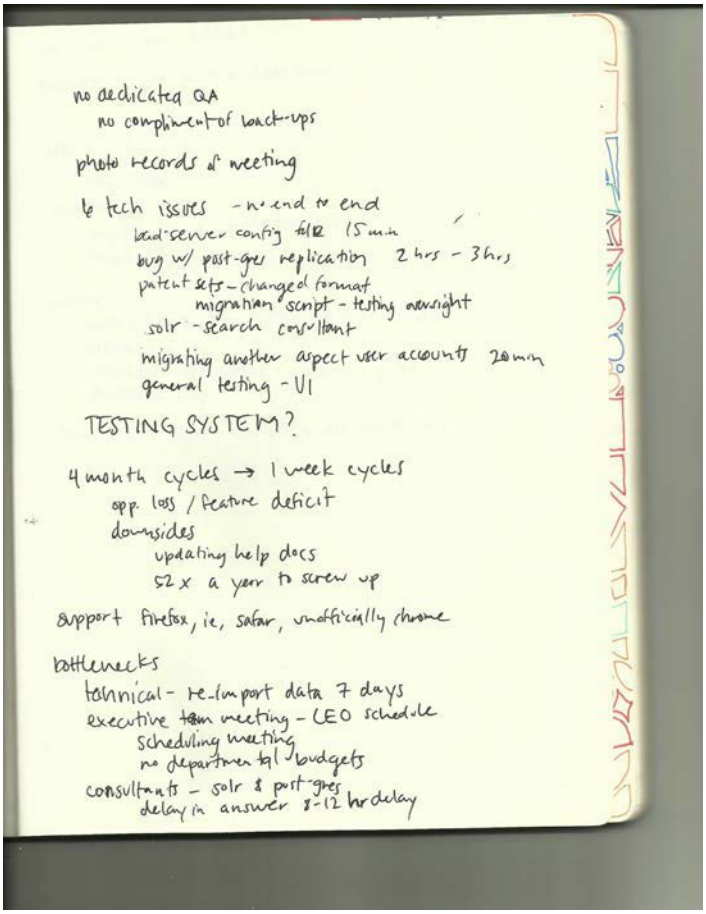
Though and Considerations

Over the time period of working and being associated with IPStreet we have been introduced to the complications, impediments, and difficulties that the staff and organization face on a daily basis. We also have been exposed to the problem solving and analytical mindset of the organization and how impediments and bypassed with relatively little turbulence. In addition to our entire team has been introduced to the real life work environment that we will face in the years to come and with this knowledge we will expectantly have greater success in our field of work. We have had the pleasure of interacting with Mrs.Kreiger and Mr.DeRosa, whom have been very informative and welcoming when taking up this project. We sincerely hope our findings and proposals help your entire organization in any way possible and we wish you the best of luck.

Sincerely,

Harsha Ravula
Kate Kinsman
Janella Ignacio
Stephy Ma

Appendix

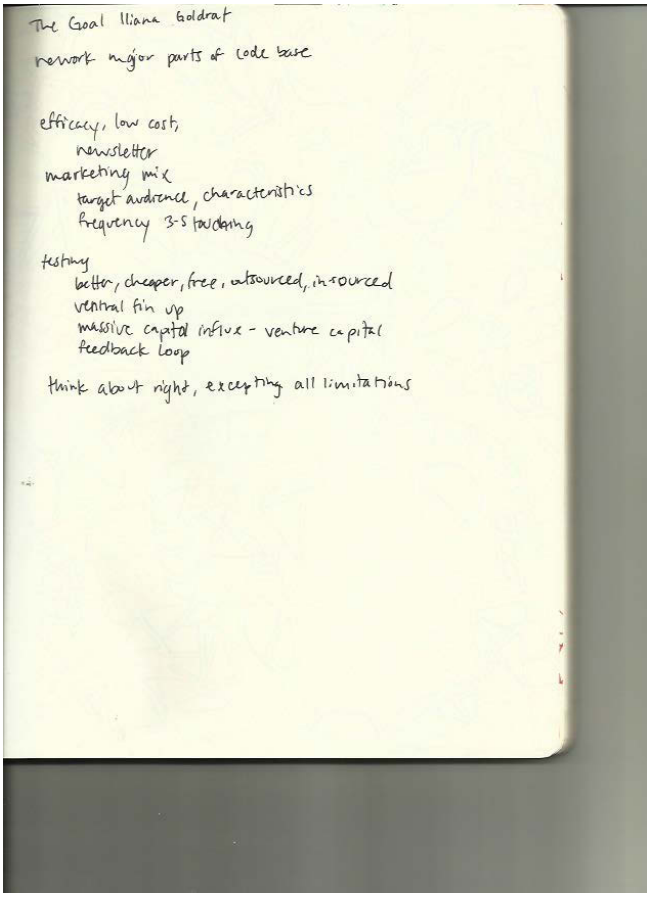


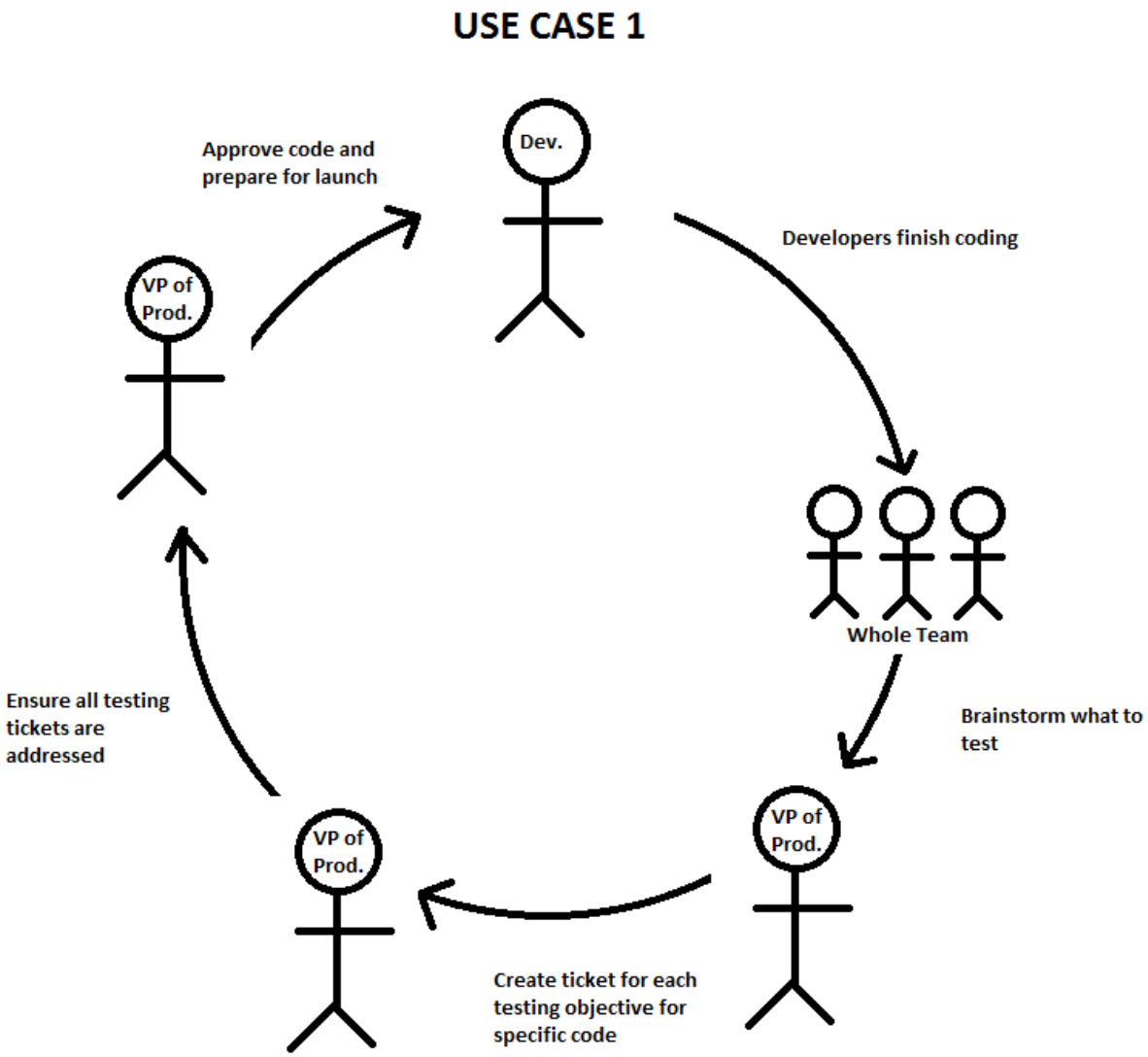
Harsha Ravula
Lead

Katie Kinsman
Facilitator

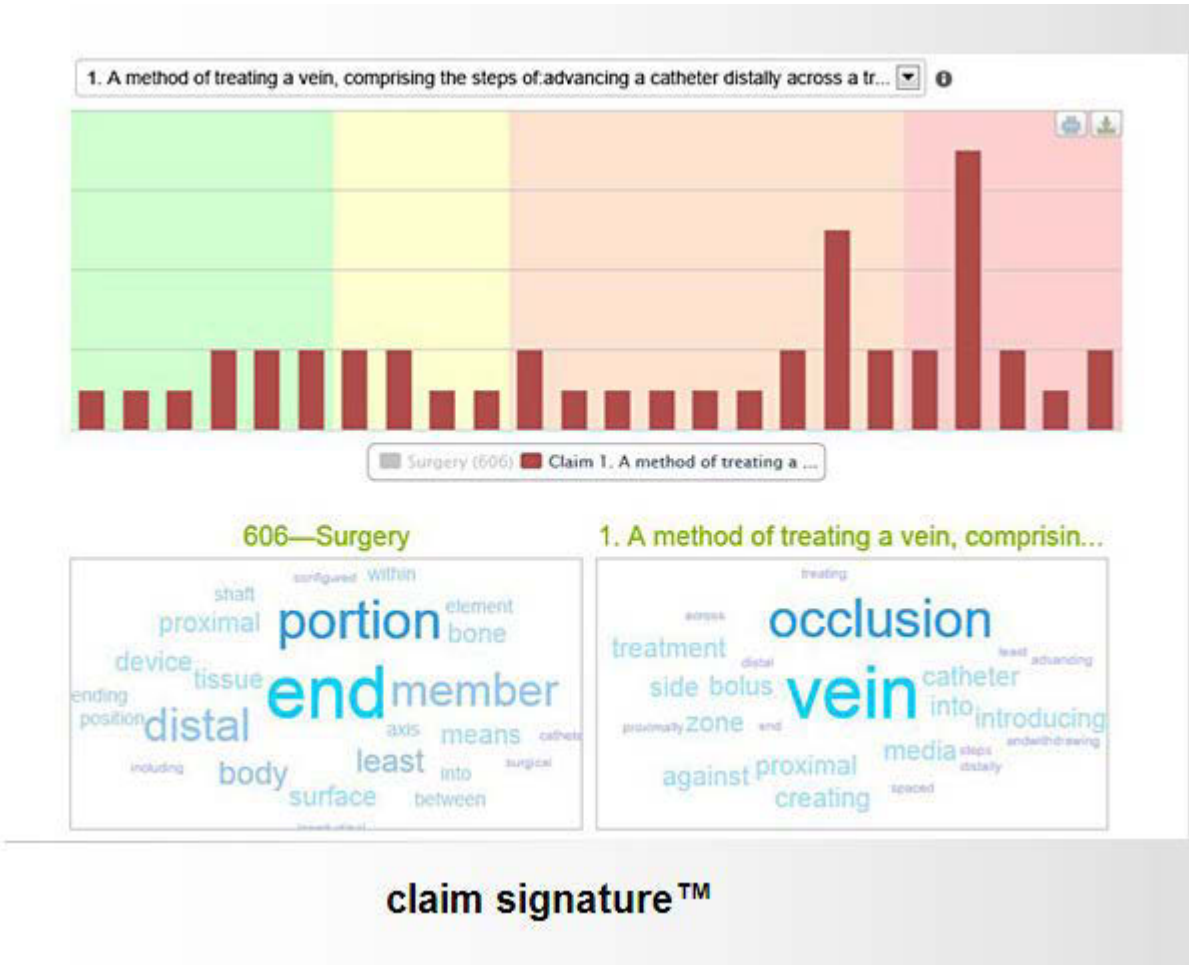
Janella Ignacio
Notetaker

Stephy Ma
Time Keeper


The Goal Iliana Goldrat
rework major parts of code base
efficacy, low cost,
newsletter
marketing mix
target audience, characteristics
frequency 3-5 touching
testing
better, cheaper, free, outsourced, insourced
ventral fin up
massive capital influx - venture capital
feedback loop
think about right, excepting all limitations


USE CASE 1
Dev.
Developers finish coding
Whole Team
Brainstorm what to test
VP of Prod.
Create ticket for each testing objective for specific code
VP of Prod.
Ensure all testing tickets are addressed
VP of Prod.
Approve code and prepare for launch

Use Case 1^



Harsha Ravula
Lead

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Facilitator

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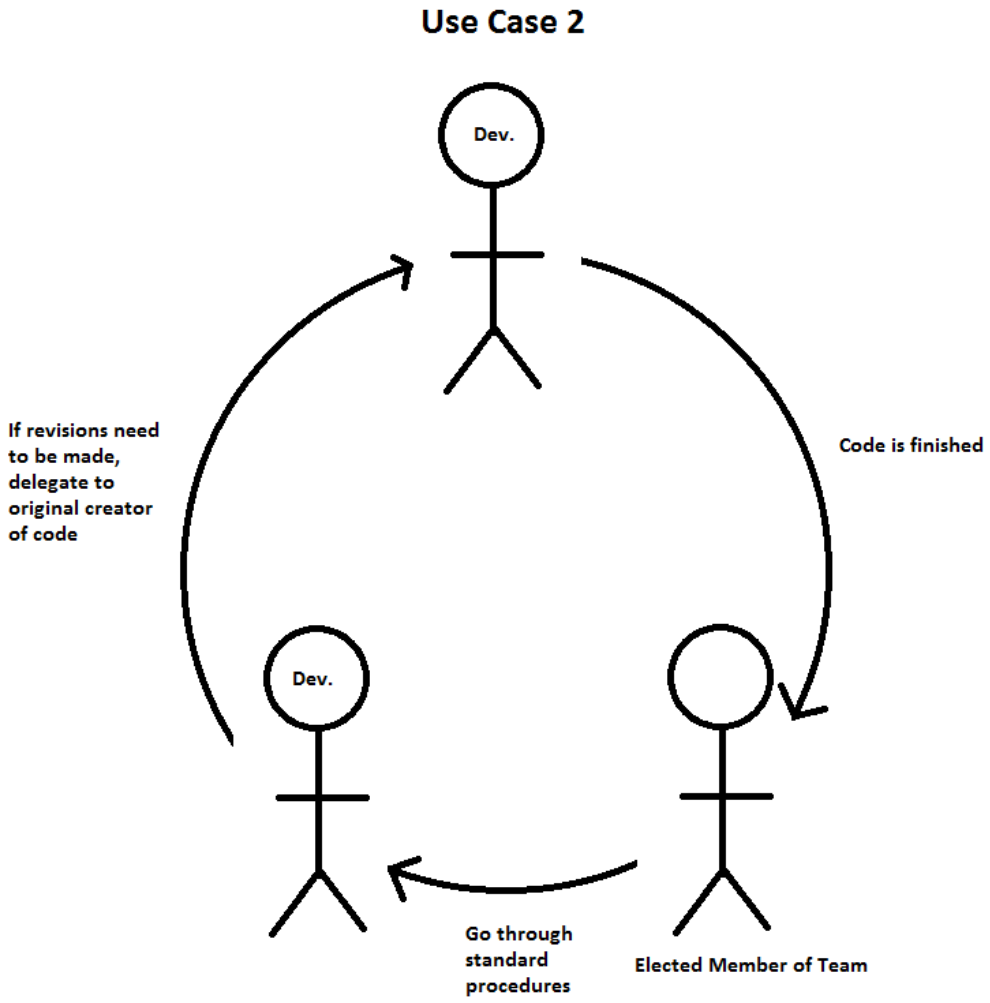
3) use case 2


Use Case 2
Dev.
If revisions need to be made, delegate to original creator of code
Code is finished
Dev.
Go through standard procedures
Elected Member of Team