THE PROBLEM OF GROUP INDECISION

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Abstract

There are boundless possibilities and options for people to choose for group entertainment (restaurants, amusements, shows, events, etc), yet group decision-making is challenged, leading to sub-par group experiences. Our system attempts to solve that issue by creating excitement amongst friends and an environment where everyone can come together on a unified fun event. We utilize basic problem analyses (Venn, PESTLE, VSA/Kanban, Org Charting, DFDs) to arrive at five summary conclusions in the run-up to a traditional systems analysis. These five observations include 1) groups lack a cohesive plan, 2) current systems lack the tools needed to make unified plans, 3) culture trends favor spontaneity but lack well planned exciting events. A new system is now proposed, in lieu of a complete problem domain analysis.

Contents

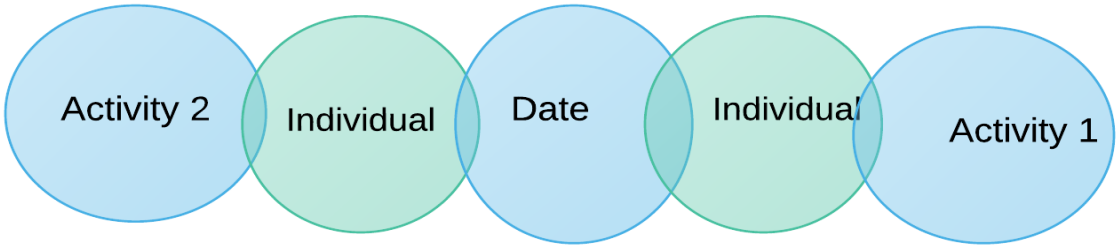
Introduction

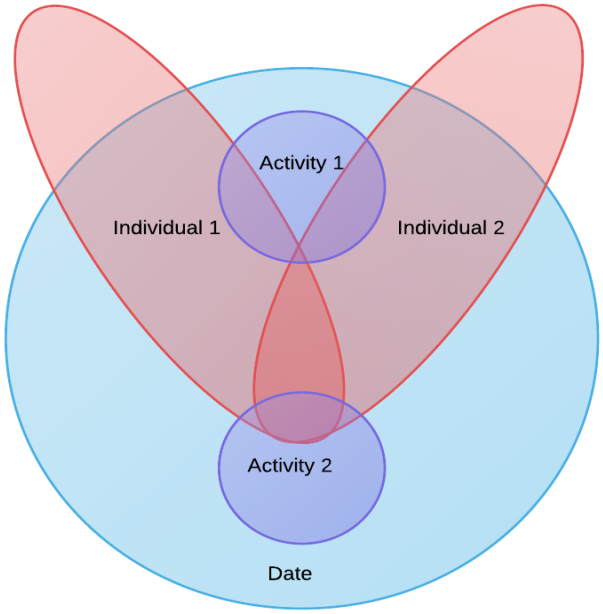
Our studies on the problem of indecision indicate that

1. People want to have fun, and be social. They want to have new experiences.
2. There are already many options out there for events but nobody seems to be utilizing them.
3. Groups of people come to conflict when there is indecision about a social gathering.
4. When someone does not have a good time they are less likely to participate in future gatherings
5. There is a large lack of accommodation for this indecision
6. Generating anticipation is vital to having fun and a cohesive group attitude

These factors are all a part of the behavioral problem that plagues our society today; it leads to indecision, lack of excitement, and people just not having fun. In this report we will present five analyses which allow us to see and process through the problem along with potential solutions to the problem.

Applying a Venn Analysis





In order to map the global domain of data belonging to each intersecting thing in our business problem, we devised a Venn diagram containing elements related to dates within couples, friends, or parents. In most relationships, it is very difficult choosing where to eat and what activity to do afterwards. Most likely both individual have different preference of which restaurant or activity to attend.

This Venn Analysis yields several observations:

1. It shows two individual going on a date.

2. The two individuals have different preference on where to go.

3. Then they decide where to go.

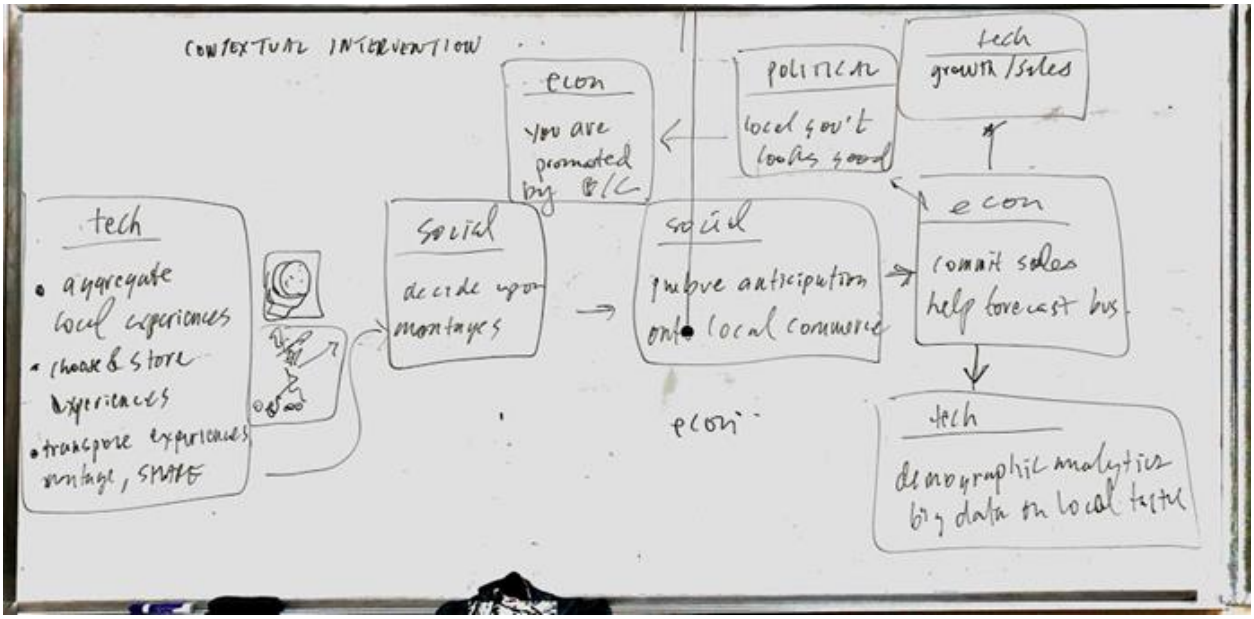
4. Date time!

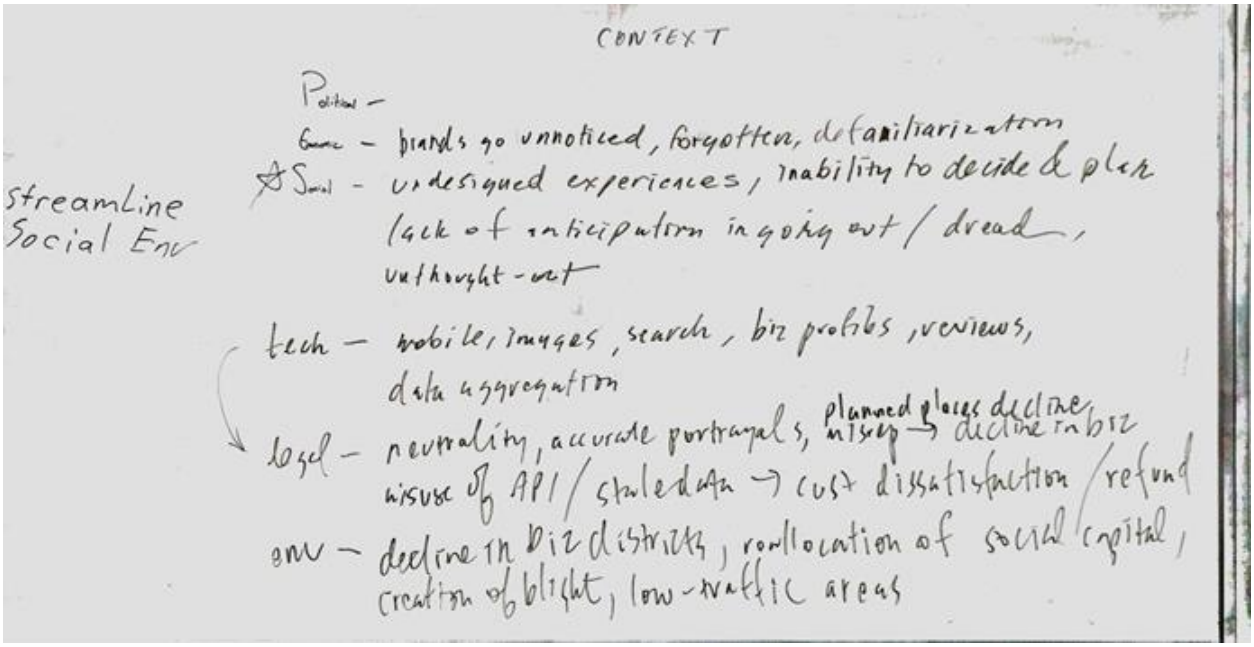
From this we conclude that the global domain of information related to this problem contains this issue:

> *It's a timeless, exhausting, and frustrating struggle. You're with a friend or your significant other and you're both so hungry you start to wonder what to eat. This happens all the time. One individual will say, "You pick." Do we do this because we know that if we do pick, we end up going through the, "no I really don't want to eat there, pick something else?" You suggest pizza, but the other person just had that last night. They suggest Chinese, but you were planning on having Panda Express tomorrow. Most females prefer not to choose because they do not want to appear as high-maintenance. Instead, they will tell you, "I don't care." Then finally once it is narrowed down what type of food you want then you have to go through the list of restaurants. After lunch or dinner, you have to decide on what activity to do afterwards. You end up sitting in the car for at least thirty minutes deciding what to do. There are many choices for both food and activities. Frustration will build up and both of you are going to stay home order pizza and watch the Walking Dead.*

Applying a Pestle Analysis

The PESTLE framework consist of macro-environmental factors used in the scanning component of strategic management. As part of the external analysis it is a useful strategic tool for understanding market growth or decline, business potential, social position, and/or direction for operations.



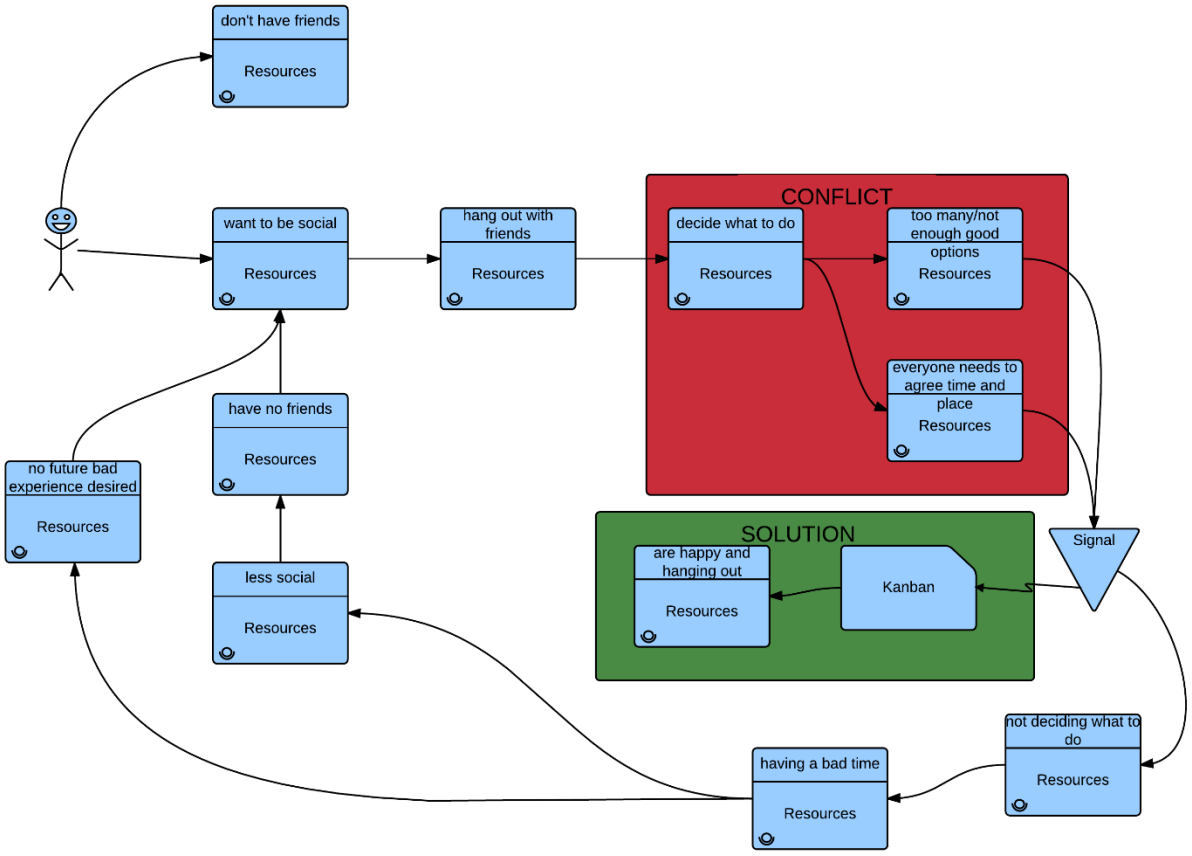


There are several observations that are made with regard to the PESTLE beginning with the political players and actors involved.

1. The project must take into consideration that of local and state governments with regard to environmental impacts and overall image of managerial officials. Government officials can streamline a project that is beneficial to all parties involved especially when it boosts the image of city managers. In contrast they may be fast bury one that may impact the government in a negative fashion.
2. This of course encompasses the economic, social, and environmental aspects as well. Working closely with government offices is key to a successful project in any realm. In addition to having access to all the groups involved and/or impacted by the project pertinent information that can impede the progress will be available almost immediately as it becomes available from legal and technology departments embedded in almost every governing body.
3. What one must pay attention to is how every actor can and will impact the next as they operate as a complete unit.

Applying a Value Stream and Kanban Analysis

The value stream analysis provides a view of the as is system. It can help by highlighting areas of waste or problem areas. As a result, it can help show areas for improvement. The value stream analysis for our social interactions begins with an individual who wishes to be social. The individual then will want to hang out with friends. The group of friends then will need to decide where to go. Deciding where to go could have too many options or not enough options. There also needs to be agreement on the time and place. As a result the group does not decide what to do, which leads to having a bad time. This could result in the individual deciding to be less social and have no friends. Or the individual would decide they wish not to have any more future bad experiences and loop through the cycle over again.



After viewing the entire process related to social interactions we concluded that the following areas are where the conflict will occur:

1. Deciding what to do.
2. Having too many options or not enough.
3. Having everyone agreeing to a time and place.

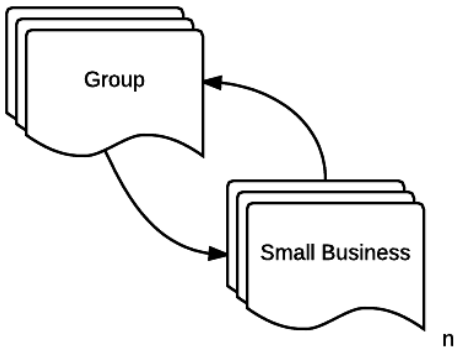
We learned that when there are too many options to decide, the group will not have a good time due to the group not agreeing amongst the many choices. For example, three want to go to the

movies, two want to go bowling, and one wants to go to eat. In this instance, fewer place options are needed. When there are not enough options, the group will not be able to have a good time due to some not having a viable option. For example, two want to have lunch, one has to work, and three have no idea what to do. In this instance, more time and place options are needed. The friend who has to work has a time conflict, and the three friends who have no idea what to do have a place conflict.

These three topic areas are where we need to focus in later analysis. When someone does not have a good time they are less likely to participate in future get-togethers. Thus less businesses will be patronized. Or if a group cannot decide on what to do, then they might just go do something safe that they have done before and new businesses will suffer. Doing the same thing over and over can lead to people not having a good time and participating less in the future. Then, the established businesses suffer.

The next step is to apply Kanban to our value stream analysis. Kanban illustrates where the demand comes and shows how to predict it. It can also highlight the problems of the as is system. For the system the Kanban is signaled by the conflict that occurs in the in the decision making process. Due to this conflict, it is much more difficult for a group to have anticipation about the event in question. It shows us that our system should focus on solving the conflict that occurs here, as this is where the demand will come from for the system.

Applying an Organizational Hierarchy Study

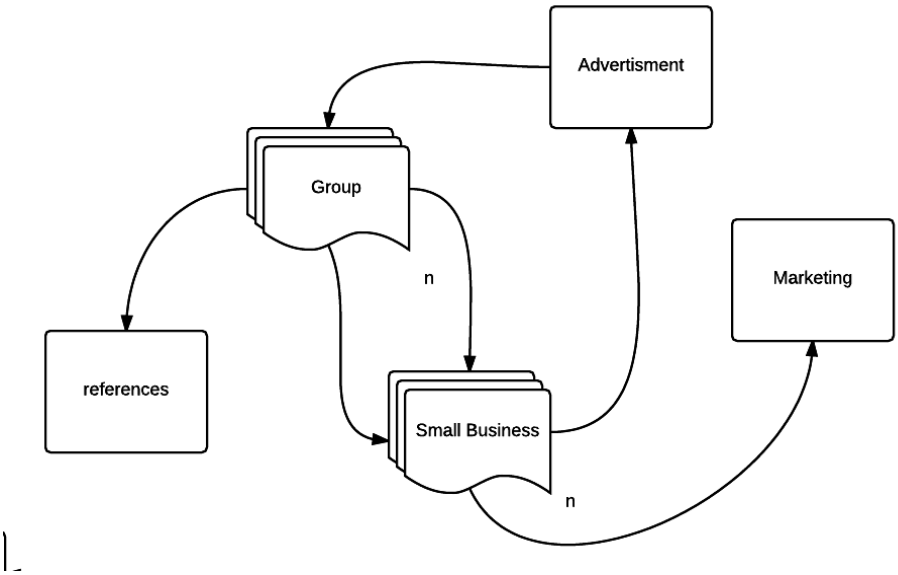


The initial organizational hierarchy is quite simple, we have our group interacting with a small business which will likely be frequented by the individuals who use our app. The important part of this structure is that a small business will likely have little to no marketing reach. Our group can actually provide this, if we present the small business by promoting it as a possible group destination for users of our app. They also get noticed more, first by our recommendation, and if the users liked the experience they will rate the business and likely spread more marketing via word-of-mouth. Such a structure would be used for all small businesses the group interacts with, such as restaurants that picked a location with bad visibility so they don't get much business.

What's important to maintain in the relationship between the small business and us, is the close collaboration. Most small businesses are run by what's called a "mom and pop" team, which is essentially the family of the primary owner in the business. These kinds of businesses as mentioned above, don't have a dedicated or powerful marketing team, and with close collaboration and matching business values/ethics we would easily be able to form a great working relationship and a seamless organizational hierarchy.

Discovering Discrete Data Flows within the Sociotechnical System

In addition, the data flow diagram provides a visual representation of discrete data flow that occurs within the sociotechnical system. The visualization illustrates where the data will go, and where it will be processed. Serving as the groundwork for establishing an overview of the system.



Our group will see advertisements from small businesses, resulting in exposure for that business. Also, small businesses can utilize marketing and advertising too demonstrate to the users in the group that their business is an excellent choice for their destination. As data flows between the group and small businesses, the information will be stored and utilized for advertising; attracting more users to the business involved in the loop. In addition, the flow of data continues through groups and their references. Once users have had an experience with the business of their choice, they will then share their experience and information of the small business with their friends, and family. Furthermore, references will then become potential customers for small businesses since they have been informed on the experience groups passed on. Therefore, small businesses that need exposure will receive a free audience they can market and advertise to. More specifically, they will receive data flowing from groups, and will be able to use this to tailor advertising and marketing tactics.

Conclusion

Our studies on the problem of indecision conclude that

1. There is a general need to be social and have plans
2. Options are out there but they aren't being utilized
3. Indecision about group events leads to conflict
4. This conflict leads to a decreased likelihood to participate in future events
5. There aren't other options that create unified plans for groups
6. And in general there is a lack of anticipation and excitement for events

Considering these points it can be easily seen where the problem domain lies. No excitement, cohesion, and general consensus on group activities. With the five analyses presented in the report the problem domain is easily mapped out and a platform for a solution is visible. Groups of people need a platform where group decisions can be made that generate a sense of excitement and anticipation amongst the group as well as leading to discoveries of new areas of social experiences that may not have been discovered before.

GRUBQUEST: A COPRATE STRATEGY

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Introduction

Our studies of the problem of indecision indicate that:

1. People want to have fun, and be social. They want to have new experiences.
2. There are already many options out there for events but nobody seems to be utilizing them due to factors including: group disagreement, unfamiliarity, indecisiveness, etc.
3. Groups of people come to conflict when there is indecision about a social gathering.
4. When someone does not have a good time they are less likely to participate in future gatherings.
5. There is a large lack of accommodation for this indecision.
6. Generating anticipation is vital to having fun and a cohesive group attitude.

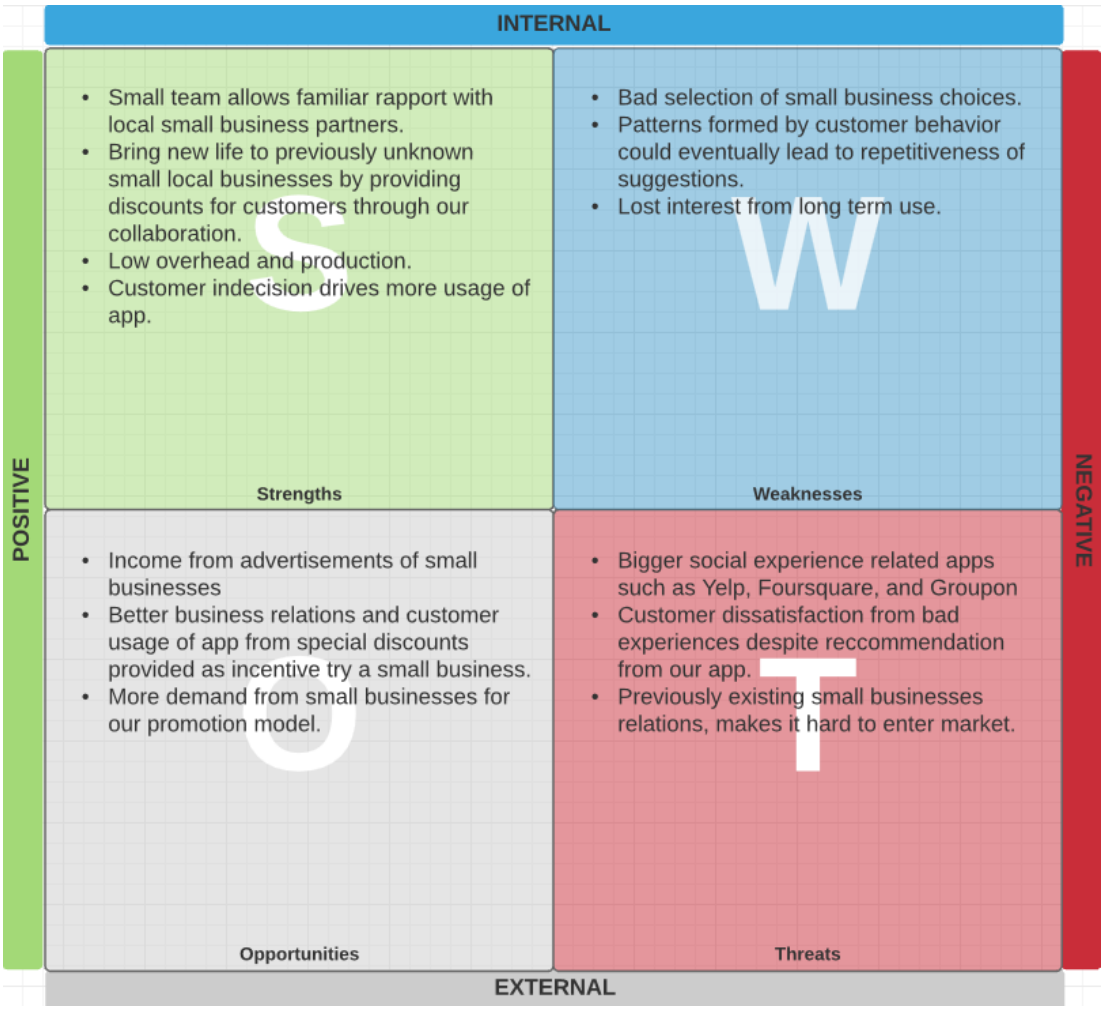
Our corporate strategy to solve these problem entails:

1. Assisting people to have fun; magnifying the fun in group ventures.
2. Emphasize user acceptance around a group decision making metaphor that aggregates local entertainment choices.
3. Resolve group conflict related to social planning.
4. Ensure each group member finds personal satisfaction in group gatherings or perpetuate group experiences.
5. Enhance the anticipation for group gatherings through a visual metaphor, aggregates imagery from the locale (venues, restaurants, etc).
6. Motivate group commerce through visual narratives about local experiences.

The GrubQuest application targets the basic need for people to be social while focusing on the elimination of indecision rooted in certain common arenas revealed through the problem domain analysis. People have a general need to be social and interact with and within peer groups. The mission of GrubQuest targets that very concept with the intention of bringing people closer together and offering numerous opportunities for all involved to prosper. The idea of fostering a healthy and thriving relationship among all participants helped to shape the initial vision of GrubQuest. Due to increasing amounts of indecision in group events, and this

indecision leads to conflict there is a lack of groups that gather and do social activities together. This lack of groups doing social activities negatively affect local commerce. Our mobile app plans on creating move group events and increase local commerce. The desired result is to bring people closer together though cohesive social interaction.

SWOT Analysis



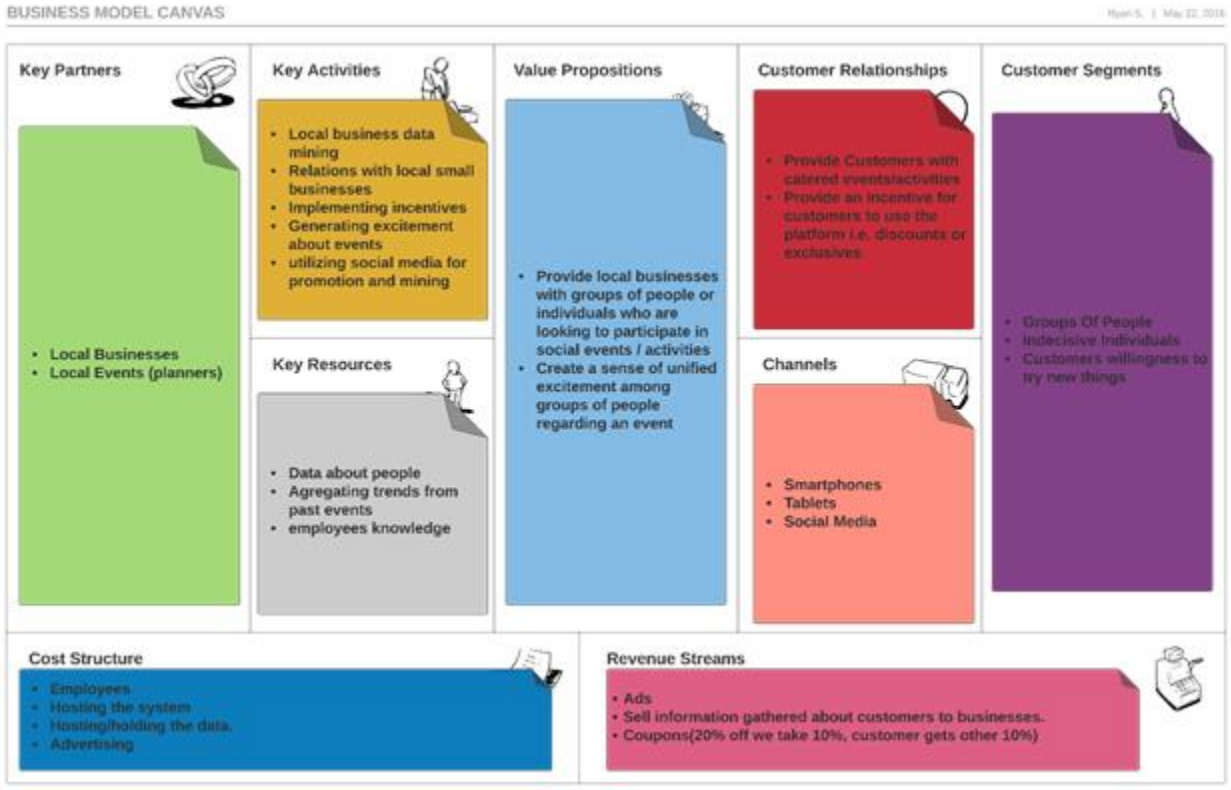
In our SWOT analysis the one main variable that is always present, and this is also the case in the problem domain analysis; this variable is the small business and our relation with them. Then comes our ability to bring promotion to the small businesses that have bad visibility but offer a great experience that can be highlighted from our business process and data aggregation model.

One of our main strengths is the fact that we are a small team, and familiar faces helps with relations when it comes to small businesses. This allows for more flexibility in negotiating the promotional ideas. The promotion model we would have is quite similar to Yelp's check-in feature but far more robust and offering more value and incentive, which are two factors important for customer retention and loyalty. Additionally, adding rewards that create a sense of value for customers and don't harm the small businesses overall profits creates a "word-of

mouth" of effect which both promotes our application and promotes the small businesses. These small local businesses usually don't have a dedicated marketing team so word-of-mouth is absolutely of great value to them.

The threats to our business are the bigger companies in the market we are trying to enter. Yelp, and Groupon each have aspects of our model where Yelp provides both incentives and user reviews but does not have an intelligent formula for suggestions. Groupon on the other hand encourages the participation and sense of community in return for great deals, deal which are negotiated from the businesses they have relations with. With either company's existing connections to many businesses, it could be quite difficult for us to enter the market without some kind of reaction of conflict from these companies. There are more companies like this but Yelp and Groupon are the most notable and seem to be more prominent.

Business Model Canvas



The value propositions for our system includes providing local businesses with groups of people or individuals who are looking to participate in social events / activities, as well as creating a sense of unified excitement among groups of people regarding an event.

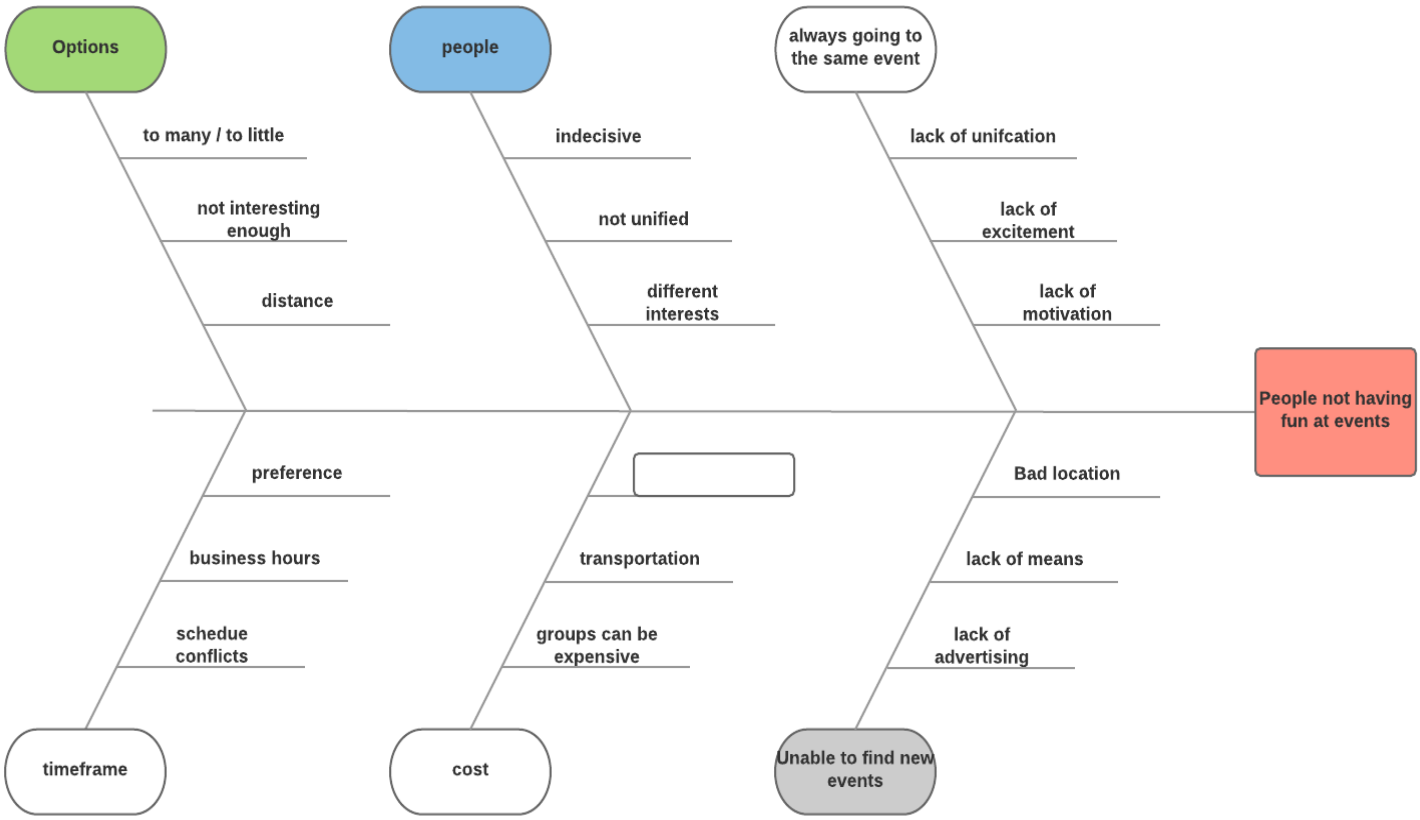
To have a positive relationship with the customer, we cannot make money by promoting specific companies. To seem fair and unbiased the selection of the place to go must be random. However, there could be a selection of places where discounts can be provided and from those discounts profit can be made.

Other forms of revenue could include selling information that is collected about customers to businesses. This information could be very valuable for business as it will provide information about customers and aggregated data from past events, as well as possible trends. Another form of revenue is placing ads on our system. However, this would not be an ideal way of generating revenue as ads can reduce the customer experience of using our system. Another problem with ads is that potential income will be low if used as the only means of revenue generation so it would have to be combined with another means of revenue.

To increase the likelihood of people going to the event the system could provide coupons. A point system to redeem for items that would appeal to each individual such as gift cards for restaurants that they frequent based on data gathered. Having notification reminders to increase anticipation for the event will also improve the probability of successful events.

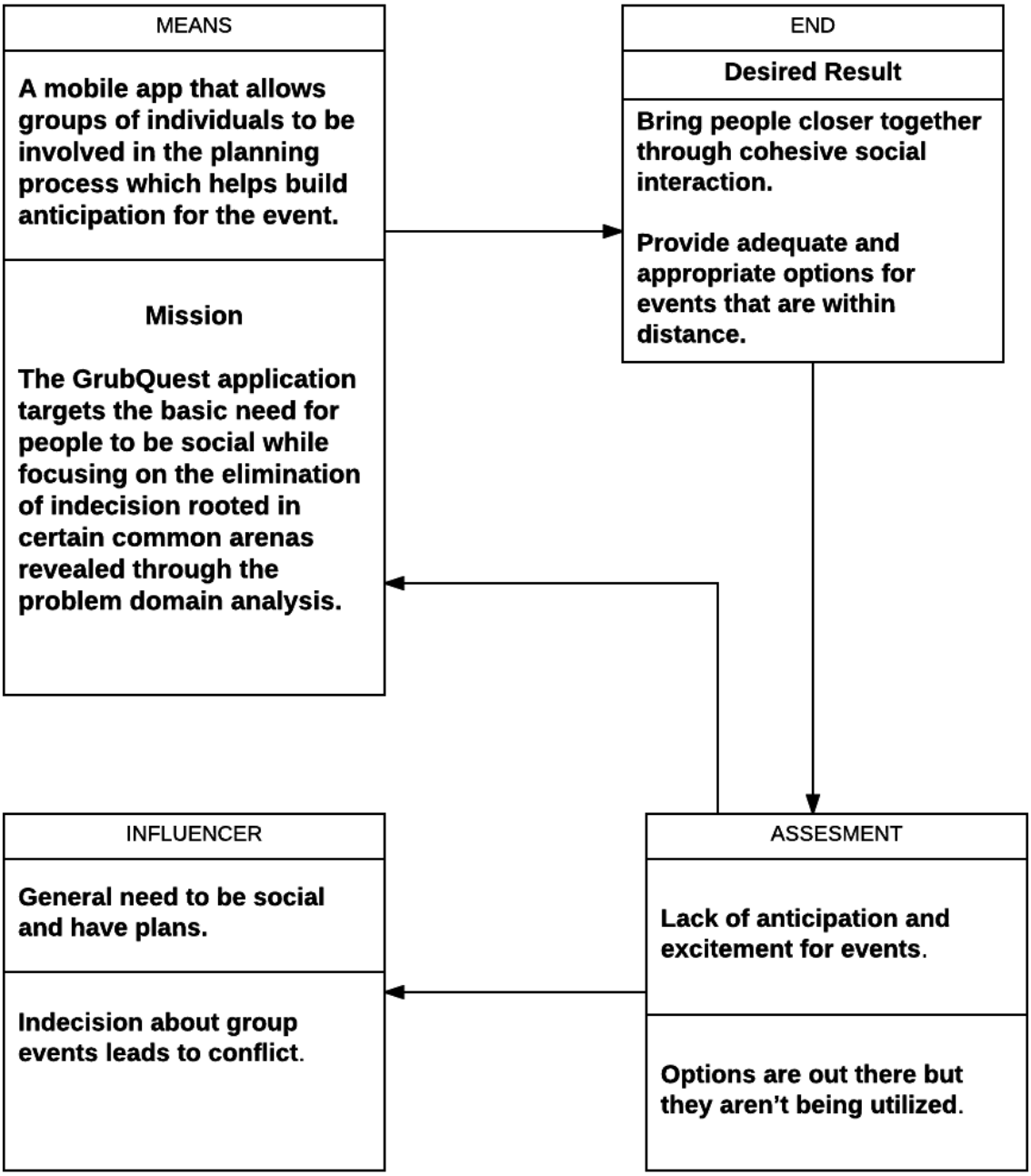
The cost structure of the system includes the cost of employees, hosting the system, hosting / holding the data and advertising. These costs could be alleviated in several ways. Advertising will be expensive, but we can get the small businesses to help promote as it will be mutually beneficially to do so. Hosting the system on an efficient platform such as Amazon Web Services will elevate some of the cost. Storing the data in DynamoDB will also reduce the cost.

Ishikawa



Through the Ishikawa diagram we illustrate the possible product design. As you can see we have a few main components that will incorporate features with it. For instance, in our diagram you can see options as a key component that will provide solutions to the illustrated features underneath it. These solutions include providing adequate and appropriate options for events that are within distance. As you can see from the previous example the items in each oval presented in the diagram act as the main aspects in our program. They are meant to provide main components that fix a certain issue attached to it. The purpose of this diagram is to provide an idea of what a project or model will require. In this case, we have provided main features with key components that it will accommodate. The Ishikawa is a crucial diagram to a project because it provides an illustration of what problems your product or service should solve. It is important because sometimes the components of a project are forgotten. In some cases they need to be clear, so this diagram provides a clear illustration of what needs to be included a project so that development is accurate.

Business Motivation Model



The Business Motivation Model referenced as the BMM going forward illustrates the driving forces behind the creation of GrubQuest. People have a general need to be social and interact with and within peer groups. The mission of GrubQuest targets that very concept with the intention of bringing people closer together and offering numerous opportunities for all involved to prosper. In addition to addressing the need to be social, the model is driven by the countless resources and opportunities being overlooked by both merchants and patrons alike. The

idea of fostering a healthy and thriving relationship among all participants helped to shape the initial vision, and thus enabled us to arrive to the BMM as presented.

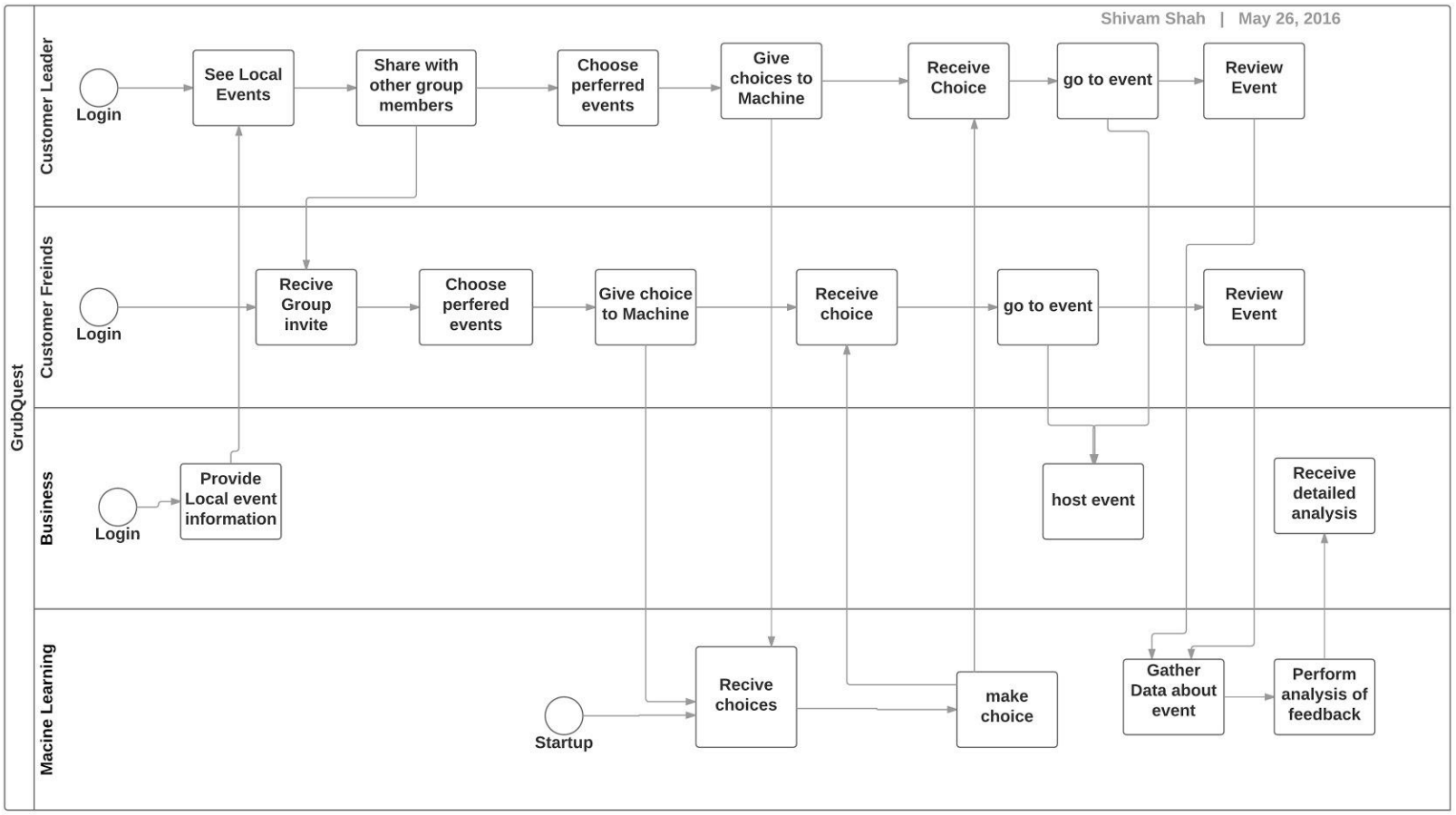
The assessment of the current environment is that there is a lack of anticipation and excitement for events. Options are out there but they aren't being utilized. Our mobile app should help increase excitement and anticipation by having mobile notifications reminding and building up anticipation for the event they have scheduled with their friends.

The influencers of our mobile app is the fact that there is a general need for humans to be social and make plans for events. Due to increasing amounts of indecision in group events, and this indecision leads to conflict there is a lack of groups that gather and do social activities together. This lack of groups doing social activities negatively affect local commerce. Our mobile app plans on creating move group events and increase local commerce.

The means would be though a mobile application that allows groups of individuals to be involved in the planning process which helps build anticipation for an event. As a group member would be more excited about an event that they personally are involved in planning. Instead of having members of the group begrudgingly go to the event, members will all try and make the event as fun as possible due to the fact that they had a hand in planning it.

The desired result is to bring people closer together though cohesive social interaction. Providing adequate and appropriate options for events that are within a local area will be the way our goal will be accomplished. This will increase local commerce and improve relationships among groups.

Business Process Model and Notation (BPMN)



The Business Process Model and Notation is a visual representation of what the actual flow of business processes are within the business. In our Business Process Model and Notation (BPMN) we were able to track the process for each of the four groups: the group leader, the other group members, the business and lastly the machine learning of the application.

First we have the group leader. This individual is the person who will be taking initiative for the group and start the actual process of making the group event and inviting friends to it. Once the event is shared the group can choose their preference of events which is handed down to the machine learning algorithms,

Which based on the given choices, can make an educated guess as to what sorts of events the group would like to partake in.

Secondly there is the friends who have been invited who would have a similar experience to the group leader in terms of choosing events, sending their choices out and actually attending

the event. These two groups, the leader and the participant, both have the advantage of seeing the event beforehand, having collaborative input, as well creating anticipation for the event.

On the other edge there is the business who gets to see the input from the customers on their events. The businesses provide their local event information to the customers and then proceed to host the event. After they receive feedback from the machine learning that's aggregated from the feedback given by the customers the businesses can make decisions on how to carry out future events after performing analysis and feedback.

And lastly is the machine learning which basically aggregates all of the choices and feedback from the customers based on the events that they decide to attend as well as their feedback from the ones that they do attend and allows the businesses to host better events as well as giving better suggestions to the customers.

IMPLEMENTATION

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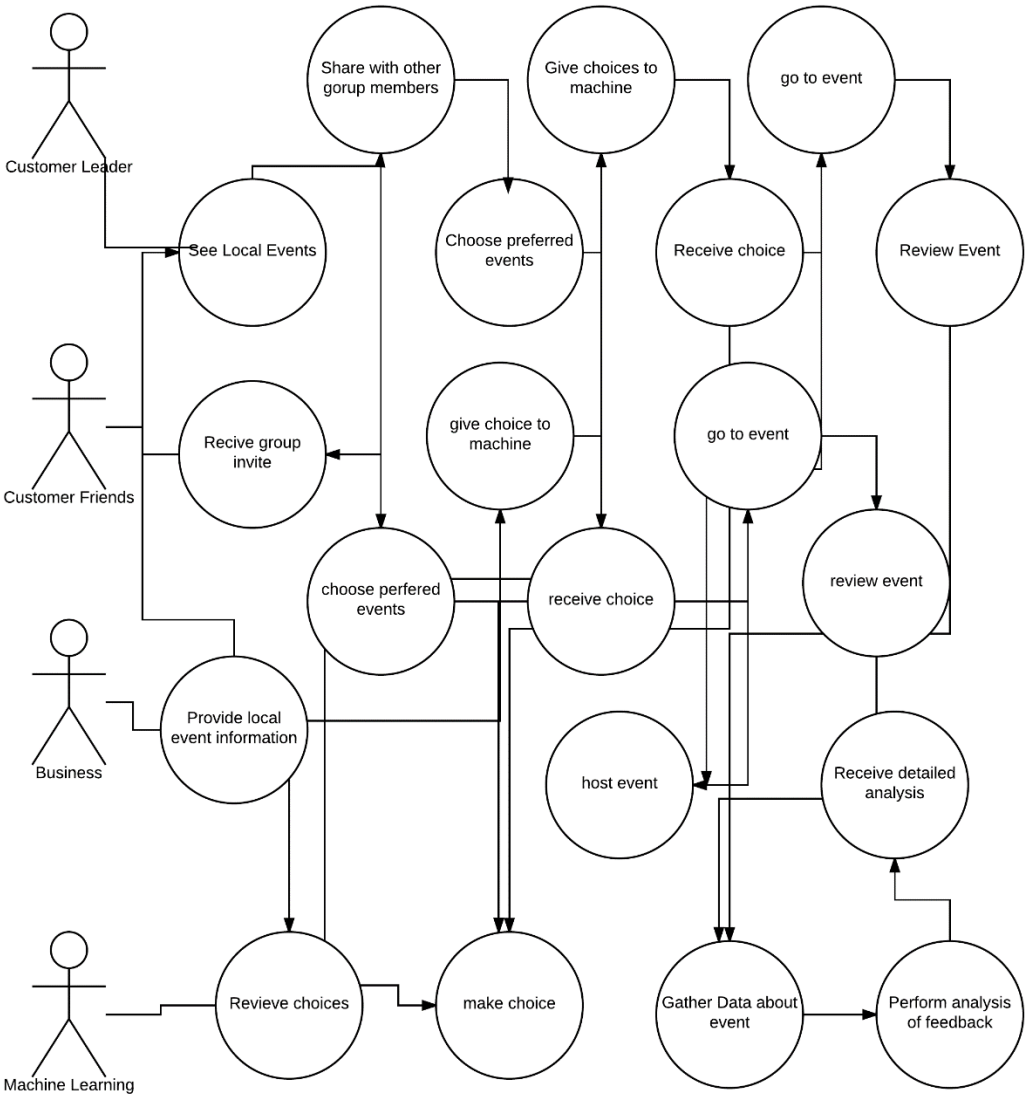
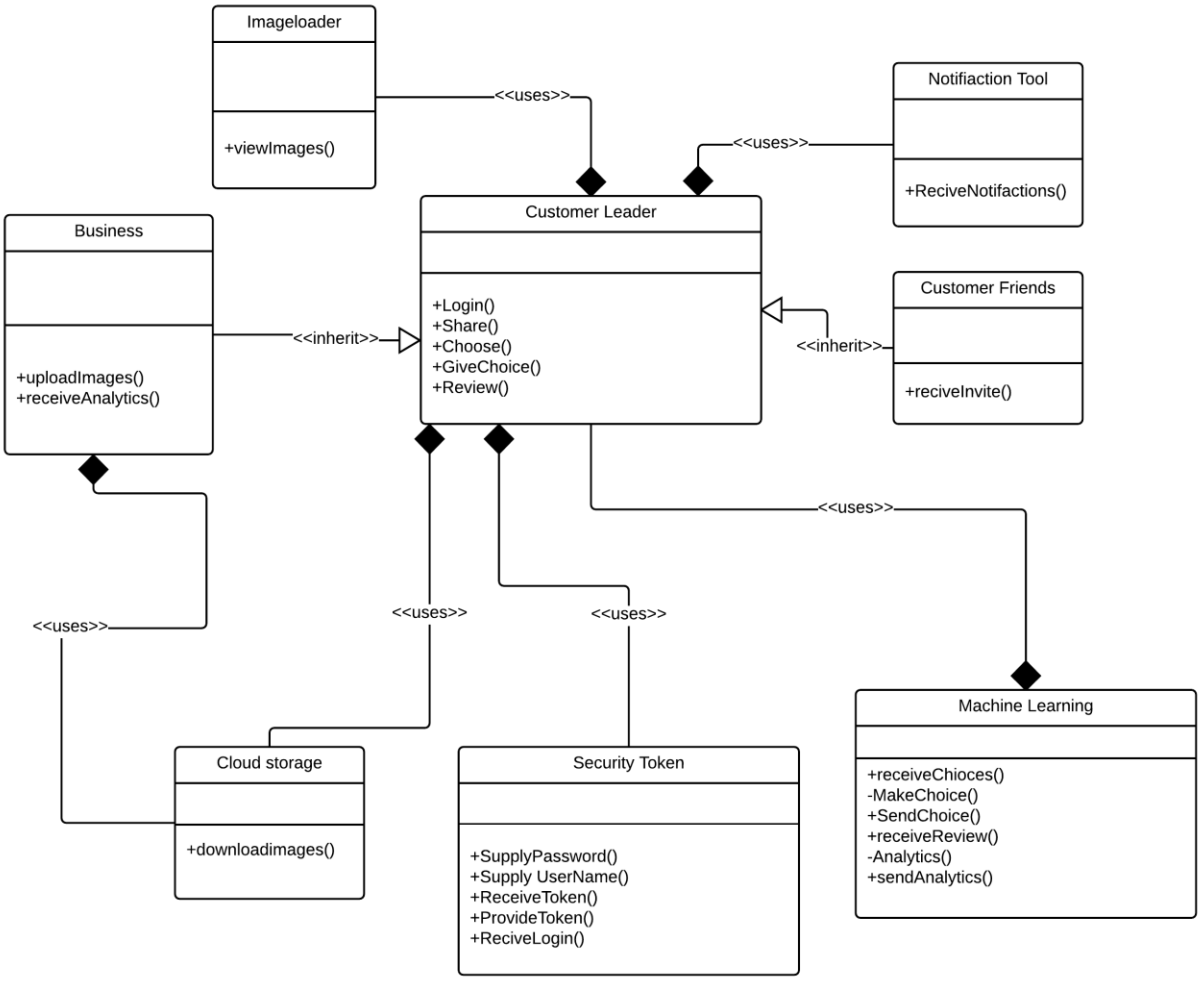
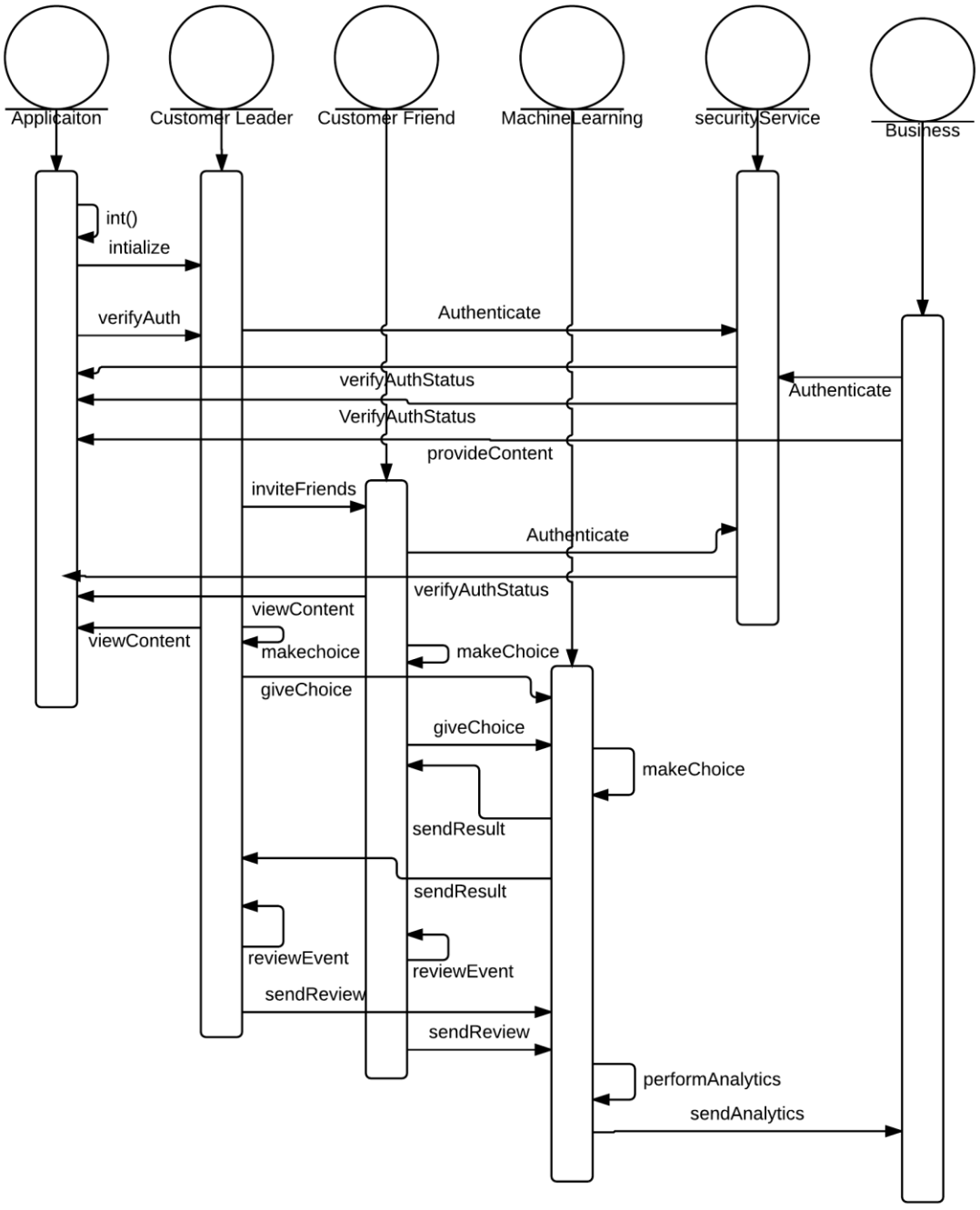
Use Case Diagram



Class Diagram



Sequence Diagram



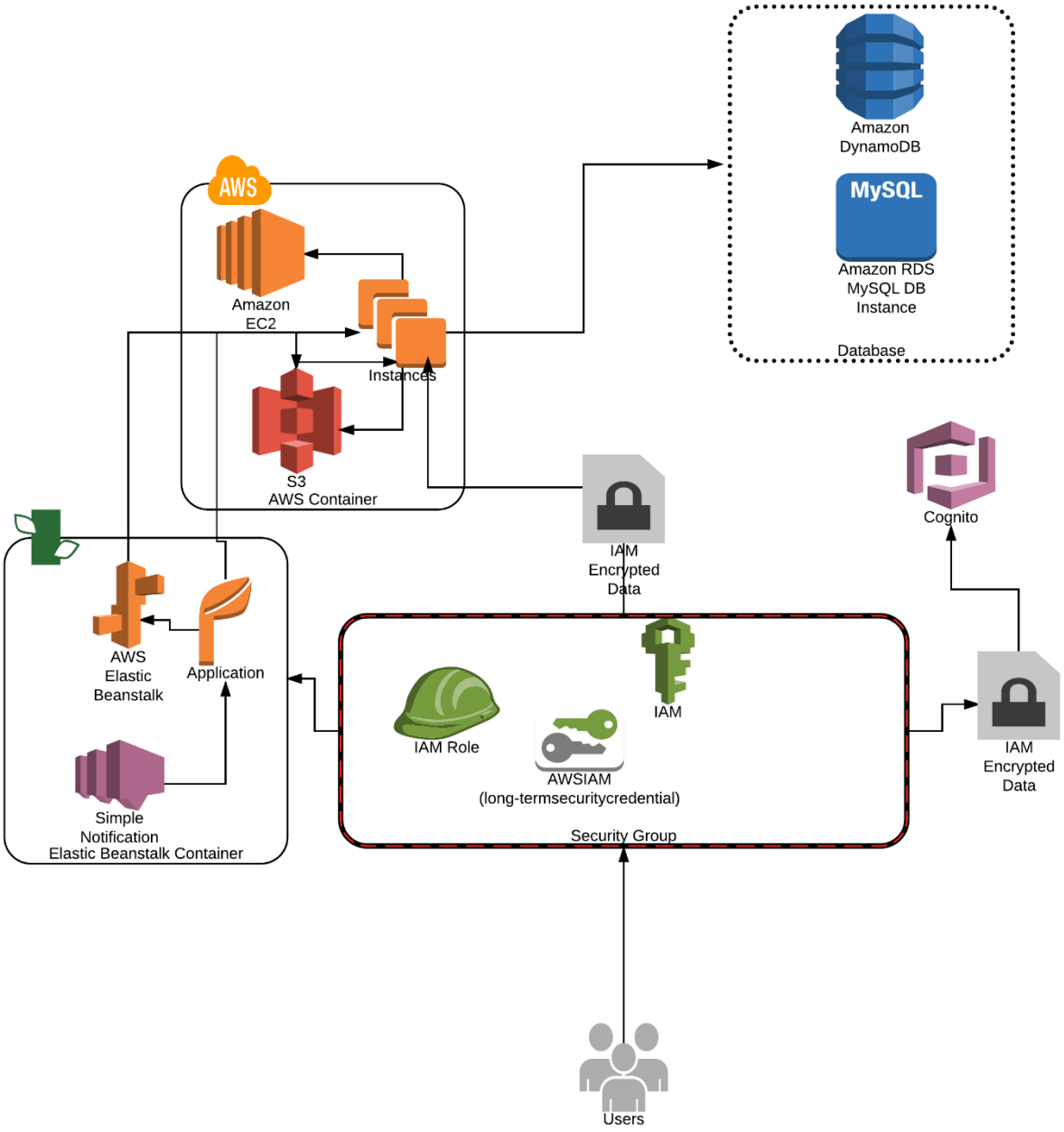
Work Breakdown Structure

This project will require 194 hours.

As this project is a Business Process Reenginering the best system development life cycle would be an agile approach.

	Task Name	Durration	Depenendency
1	Project Planing	40	
2	Create UML Diagrams	16	1
3	Create Customer Class	5	2
4	Create Customer Functions	19	3
4.1	Create login function	2	
4.2	Create view funciton	3	
4.3	Create Share function	2	
4.4	create receiveInvite function	2	
4.4	Create Choose function	3	
4.5	Create giveChoice function	2	
4.6	Create Receive function	1	
4.7	Create Review function	4	
5	Create Business Class	5	2
6	Create Business Functions	11	5
6.1	Create Login Function	1	
6.2	Create ProvideInfo function	8	
6.3	Create ReceiveAnalytics function	2	
7	Create Machine learning Class	5	2
8	Create Machine learning Functions	25	7
8.1	create ReciveChoices Funciton	1	
8.2	Create MakeChoice Function	4	
8.3	Create Analytics function	16	
8.4	Create sendAnalytics function	1	
8.5	Create SendNotifications function	3	
9	Create UI Wireframes	6	2
9.1	Create main Wireframe	2	
9.2	Create viewOptions Wireframe	2	
9.3	Create Results Wireframe	2	
10	Create UI	15	9
11	Perform Quality assurance	30	10,8,6,4
12	implementation	11	11
13	Follow Up bug fixes	6	12

Deployment Diagram



Cloud and Network

For our mobile application we will use amazon web services for our cloud and networking needs. There are many services that our application will require from the AWS framework. For instance, we will need all of the following: IAM, Cognito, S3, Amazon EC2, dynamoDB, Amazon RDS MySQL db, AWS elastic beanstalk, and simple notification.

We will need Amazon Cognito for user authentication. As it provides user sign-up, sign in, and data synchronization for mobile applications. Authentication can be used though provides such as Facebook, twitter, or amazon, or if we desired we could create our own.

We will use IAM to securely control our infrastructure. It will provide the security credentials for other services such as Dynamo DB and S3. IAMs ability to provide some users access to some things while blocking usage to others. This will provide access to business to upload pictures, text, menus etc., to S3, while users will only be able to view such content.

DynamoDB and the MYSQL databases will collect all of the user statistics and other big data that we will sell to business. Using querying tools we will be able to provide reports to businesses about their popularity bounce rate, image views, information gathered from reviews and sell this information to provide the profit for the company. This service will be where most the revenue is made.

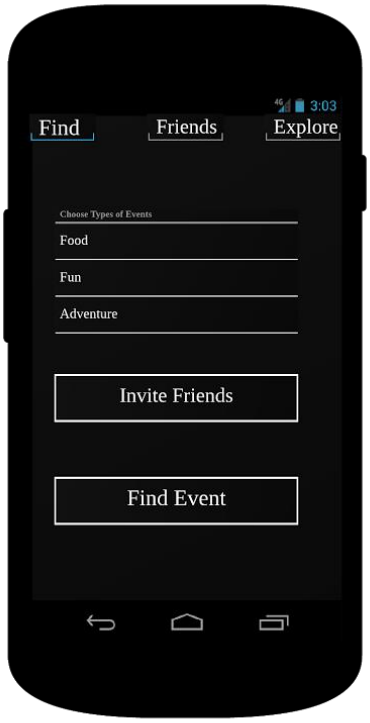
S3 will deliver all the storage needs for our application. It will store the pictures, text, menus that will be provided by the businesses owners. It will also store the written reviews by users. The website for the company will be stored and hosted there also. This will be secured using IAM.

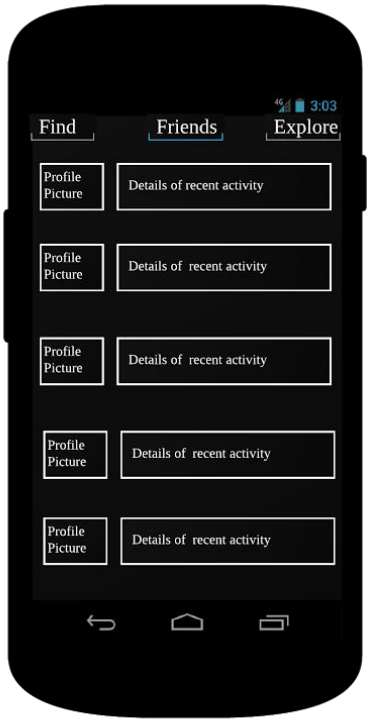
EC2 Amazons elastic computing cloud will provide the computing capacity that is required. It is fully scalable and gives access to new server instances in minutes if needed. As EC2 only charges for the capacity that is actually used hosting costs will be a fraction of what would normally be required for hosting severs privately.

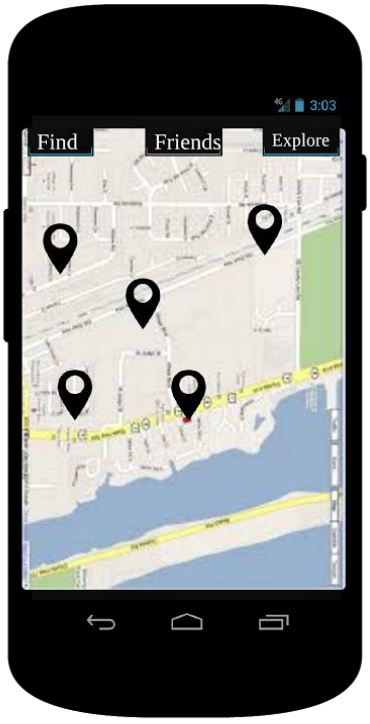
AWS elastic beanstalk will be used to deploy our applications as well as help with the scaling of them. As it scales with us the bigger our application grows we will not need to worry about the changes the infrastructure needs as AWS elastic beanstalk will handle this for us. Using this will still allow us to have full control of our resources.

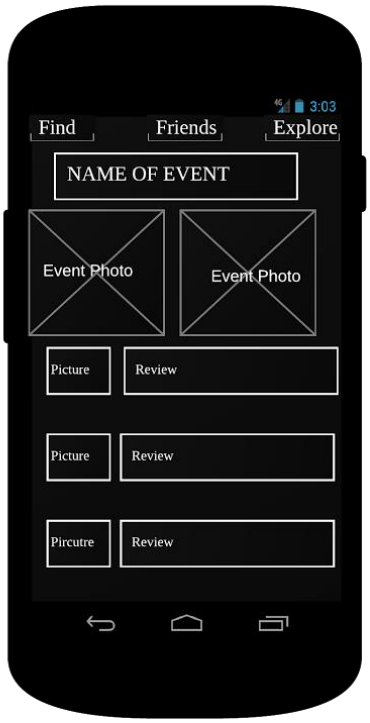
We will use Simple Notification Service to provide push messages to users. These push messages will serve as remembers to users about their planned event. These reminders will help build anticipation for the event. It can also provide email or SMS messages if a user wishes to receive their reminders that way as well.

User Interface









Here are the wireframes of the user interface of the application. There are 3 main sections:

1. Find
2. Friends
3. Explore

Under the find section, users can put in their preferences of what type of event they would like to find as well as the distance, price range, and probably the most important feature, is also to see what your friends have chosen and on which date. With this information the machine learning system will take the inputs and generate an event that would meet everyone's standards and requirement pertaining to the date, time, and type of event. Then the users can see if there are any additional coupons to be had with the event and after that the users can finalize the event and the group of people can have an event to go to.

Secondly, is a friends tab where the user can see what their friends have been attending which has a news feed type screen. This can also serve as inspiration for their own future events and also serves to see what others in the area have been up to.

Third, is the map tab which shows a visual representation of the local area as well as events that can be attended. This is a great feature because it can show types of events that you've liked before and similar ones along with the distance to them to make overall planning easier.

Overall, the UI/UX is geared towards finding events based on not only your own personal preferences but also the preferences of the people who you've added into your friend group creating a unified experience for everyone to share and have a good time doing so. The interface and experience also drives attention to the businesses by having them the focus of reviews they have to keep up stellar performance in order to drive customers to them. The businesses also have the opportunity to partner with us in order to create exclusive deals and offers geared towards groups of people.