Seal the Deal

Team 2

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SEAL THE DEAL

INTRODUCTION
Seal the Deal is a true SoLoMo website that aims to provide all the enticing local product, services and events deals at one place. It will consist of a mash up of data from various different retail firms and local businesses. Businesses can register with the site to advertise their deals. There is a social component which enables users to share other deals and give reviews. The location and mobility aspects will enable users to be notified of new deals on their smartphones based on the area they are in and their preferences. User preferences are analyzed to enable customization. There is an inbuilt recommendation engine and sentiment analysis is performed on customer reviews. This website contains 10 APIs.

SYSTEM OBJECTIVES

Users Needs

• Seal the deal is a one stop shop for all enticing deals which promotes direct sales & ease of e-commerce activity and educates customers by supplying them with more information on products & services.

Target Audience

• Our target audience is everyone who purchases online. There is no specific age and demographics limitations.

System Functionality

• One Stop Shop for all the deals with novelty features like Calendar which groups all the events at one place.
• A forum where users can talk about the deals. A real time sentiment analysis is provided on the comments received from the forum.
## COMPETITOR ANALYSIS

### FOUR SQUARE

<table>
<thead>
<tr>
<th>Features of Foursquare</th>
<th>Why Seal the Deal is Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location based check-ins and can post data to twitter or Facebook</td>
<td>All features of foursquare plus a page specific to different users</td>
</tr>
<tr>
<td>7 million users and users can post reviews.</td>
<td>A calendar where a user can track his/her schedule and look at upcoming deals and events.</td>
</tr>
<tr>
<td>Recommendation system with Mobile Application present as well</td>
<td>Forums to discuss and unlock various deals Truly SoLoMo mobile app</td>
</tr>
</tbody>
</table>

### GROUPON

<table>
<thead>
<tr>
<th>Features of Groupon</th>
<th>Why Seal the Deal is Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>A user preference page depending on the tastes of the user and Deals for different products and services</td>
<td>All the features that Groupon provides plus forums where users can voice their concerns</td>
</tr>
<tr>
<td>Social media plugin to twitter and Facebook Users can post reviews and also have mobile application.</td>
<td>A calendar where a user can track his/her Schedule and look at upcoming deals and events.</td>
</tr>
</tbody>
</table>
FEATURES OF YELP | WHY SEAL THE DEAL IS BETTER
---|---
Provides reviews of local businesses and information | Calendar functionality showcasing upcoming deals and old deals which have taken place.
Focus of information is at restaurant level | Public forums which users can access and check to see what the present sentiments of a deal are.
Mobile application present as well and social plugins available for various social media sites.

BUSINESS CASE
Seal The Deal is ultimately a one-stop shop for all enticing deals that provides higher user interaction and participation. While there may be deal sites out there, Seal the Deal stands out because of its social component and as whole because it is completely SoLoMo. The User Forum enables users to share their deals and comment on existing deals enabling them to feel proactive in their local area. This benefits all parties involved as it enables local businesses to get recognized and gives power to the consumer.

Local businesses gain to benefit the most since Seal the Deal not only gives them visibility in the online sphere but does it at a much lower enrollment cost than other competitors. For an entry fee, they can fill in their profiles and start posting deals as soon as they are authorized. All local business deals can be rated by the users and the consumers can also provide reviews for these deals. Local businesses can also create event deals on our calendar to give out enticing event tickets/deals and to notify users when the events occur. This is one of the unique features of Seal the Deal website.

As far as the customers are concerned, subscription to our site is free. They can select their user preferences for the categories of deals they would like to see and those particular deals are displayed on the home page whenever they are logged in. They are able to avail from product, services and event deals on our website. They are provided with recommendations for the various deals based on other customers’ buying patterns. Customers can also see the results of
sentiment analysis for the deals present and can make wise buying choices. Additionally, the mobile app lets customers see all the enticing deals within 1.5 miles of their current location.

REVENUE MODEL
Since our website is a deals based site, revenue generation revolves around how many customers we can attract to the site and on how many local businesses register with the website. Here are the revenue models we considered for our website.

1) Affiliate Revenue Model
In this model, Merchants advertise and sell their products and services through partner-websites. Pay-for-performance model is based on commission. So when a user clicks on the link, he/she is directed to the merchant’s website. And if the user ends up buying something, then we earn commission. We have used this model for Amazon, Yelp, and Best Buy.

2) Transaction Fee Revenue Model
In this model, Transaction fees are charged on a percentage of the gross amount, each buy-sell transaction that the website intermediates. This model will be used for registered Local Business. The key here is to have a payment gateway on our website that will allow users to buy the deals of local businesses. And we earn a fee based on every transaction.

3) Advertising Revenue Model
In this model, fees are generated from advertisers in exchange for advertisements. This can apply to anyone who may want to specifically advertise on our website

NOVELTY

1. Email API
Email can be sent to the user for account verification and for password reset in order to increase the usability of the Seal the Deal web app. This was created with the Amazon Simple Email Service. This service can be plugged into different forms in the web application in order to send different emails. This can be expanded in the future to send specialized deals and newsletters to users who sign up to receive these. This is a necessary feature which is usually looked over.
2. Recommendation Engine

Our website recommends services and products based on user preferences and location. Our Recommendation system is proposed for both services and Products categories.

1. Service Category: Currently we have categorized services as Restaurants, Beauty & Salons, Hotel & Travel, Active Life, Home services.

2. Products: Computer and Accessories, Beauty products,

The recommendation algorithm has several parts

1. User personal preference discovery: The algorithm looks at the user preferences which has been recorded when the user, registers with the website.

Eg: If the user has recorded his/her preferences like Active Life and Restaurants with the website, then recommendation system will pick these attributes and then displays all the service advertisements related to Active Life and Restaurants to the user.

The recommendations which comes from user preferences would be displayed in the user preferences page “My Page” in the website.

“Favorite Deals” are the recommendations based on the user preferences and “Best Value” are the most high rated deals which also matches the location and user preference items.
2. User History discovery (Service similarity calculation): The algorithm looks at the users who has previously bought various services and products every time. Every transaction of the user is recorded and performed market basket analysis using Apriori algorithm.

Eg : If 10 users has used services like X, Y, Z from Restaurants in the history then, when user B buys X service , then recommends Y,Z to user B.

3. Location based preferences: Recommendation is also provided using the location of the user. When the user logs into the website, the location of the user is captured and all the deals with matches the user preferences and location are displayed on our “Home Page”.

The below deals are based on location and hence the name “Local Deals”
The recommendations based on the location can be seen by clicking on similar details of each deal.

If we see the above recommendations, we can clearly see that all the deals are of same location, as this the location based recommendation coupled with similarity function.
3. Sentiment Analysis
To determine the response and the sentiment of the users with respect to deals, sentiment analysis is performed. Sentiment analysis is built using a text mining algorithm. A huge set of dictionary of words is formulated and used during sentiment analysis.

Sentiment analysis is used in the website in “Forum” feature. The sentiment analysis is performed on the comments of the forum. The result of the sentiment analysis is displayed visually via charts. The count of positive, negative and neutral reviews are displayed.

Below are the comments, we have taken for sentiment analysis
4. Forum
User interaction (Social aspect) is very important for every web 3.0 application. This allows for the community to communicate their similar ideas and generate new content. This in turn encourages the users to return to Seal the Deal. This interaction can also be helpful in looking at what different users, and the community, think about different deals. This can be done with sentiment analysis. When users comment, specific keywords are looked at as either positive, negative, or neutral. This allows the different users see what the community thinks about the deal. This is effectively crowdsourcing a consensus on what deals are the best.

![What people think](image)

The forum can also allow for collaboration on specific aspects of certain deals such as specific tips a user may need when they use a deal (e.g. if a specific dish is particularly good at a restaurant). This helps with the crowdsourcing aspect of tips and overall consensus of what may be the best.

5. True SoLoMo
Ensuring that our mobile application is social, mobile, and has location based aspects is very important because all of these are necessary to ensure the use of web 3.0. The mobile aspect of our application includes a mobile web application and mobile enabled website. This allows for a user to use the application on the go wherever they may be. The next important feature is the location based option. This allows the user to find deals relevant to their current location. And the final aspect is the social portion. This is seen in Seal the Deal through the use of a forum and different social plugins such as Facebook.
6. Events

Features of this novelty are:

- A single consolidated point for the user to access different deals that will happen across the month.
- Ability to drill down by month, week and day.
- Users can plan their day and week by looking at different deals

Future plans also include integrating this with the Google calendar so that users are given notifications when a deal is open and when a deal expires.
7. Mobile App

The mobile app was built using Android SDK on an Eclipse platform. It is a simple app that displays all the enticing deals within 1.5 miles of the user’s location. The first step here is that the GPS location coordinates are calculated. Each deal entry’s address that exists in our database is converted to latitude/longitude coordinates and then compared with the user’s actual location. Only those deals whose distance is within 1.5 miles of the user are displayed.

Based on where the user is, the user will be able to the closest deals located around him/her, will all the details about the offers. This simple app can not only allow users to locate deals closest to them, but further enhances the visibility of the local business that have registered with the website. Google Maps API has been integrated to show the location and the route on the map.

SYSTEM DESIGN
Our website is hosted using Amazon EC2. Below technologies we used for building and hosting our application and Mobile App is built using Android SDK

Back end application built using below technologies

- MySQL database.
- Apache Web Server.
- Amazon RDS database.

Front end application built using below technologies

- JSON parsing of API’s using PHP.
- Laravel PHP framework for MVC applications.
- WEKA for Analytics
- Bootstrap template
API’S IMPLEMENTED
We have implemented 11 different APIs to enable the full functionality of our system. The APIs implemented and their purpose are summarized in Table 1.

Table 1.
Summary of APIs Used

<table>
<thead>
<tr>
<th>API</th>
<th>USE IN OUR SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook Login</td>
<td>Users can login using Facebook</td>
</tr>
<tr>
<td>Google Maps</td>
<td>Display Address locations of different Businesses</td>
</tr>
<tr>
<td>Facebook Like and Share</td>
<td>Users can share and like the deals on their Facebook page and also</td>
</tr>
</tbody>
</table>
Twitter Login Users can login using Twitter
Amazon E-mail API Sends an automated e-mail to the users to start the logon process
Yelp API Gets the Yelp review ratings and deals from the Yelp site
Sqoot API Gets deals from the Sqoot Website
Amazon Widgets Amazon deal of the day and product deals
Groupon API Gets the deals from the Groupon
Best Buy API Gets product deals from Best Buy

TEAM MEMBERS AND CONTRIBUTIONS
The development of Seal the Deal was a truly collaborative effort with each team member contributing significantly with their unique skills.

**Eric Gross** – Web Design and Development, integrated API’s with the frontend.
**Lakshmi Ramireddy** – Worked on Mobile application, Sqoot API, databases, Sentiment analysis.
**Madhulika Nagaraja** – Worked on Databases, Recommendation System, Sentiment analysis.
**Nickil Somanna** – Implemented Groupon, Best Buy, Amazon, Yelp API’s.

FUTURE EXTENSIONS
This application still needs some usability enhancements to make the web application ready for consumer use. These can be implemented with the use of JavaScript, CSS, and HTML. The first need is to improve the look and feel of both the web and mobile aspects of the website. This will make the site more user friendly. JavaScript to get the users current location would be a necessary implementation as well. Another need is to improve the analytics and preferences so a user can get specific hot deals and deals other users may like. Voting can be added to deals so the community can decide what deals may be the best for others. Expanding the database to allow for addition and deletion of deals and accounts also needs to be added.
REFERENCES
