Coupout – A Restaurant Coupon System for Smart Phones

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Abstract

There are about one million restaurants in the US alone and each one needs to market their services. Coupons are a tried and true method for bringing in consumers, but they have historically low redemption rates. We propose to design and implement a coupon management system that leverage the Internet and mobile technology. It can cater to both restaurant owners and consumers. The system can serve as a mean for restaurant owners to publish coupons, as well as a portal for consumers to find restaurant deals. It is designed to be economical, useful, and accessible to both types of users, allowing restaurants to advertise to smartphone users, and eliminating the traditional coupon clipping and printing. This paper presents the design of the system, the results of the first prototype, and a comparison to similar products in the market.

Key Words: mobile application, iPhone, e-coupon, smart phone, GPS, restaurant.

1 Introduction

Coupons are a tested and proven marketing strategy for restaurants, or any type of business for that matter. They attract new and returning customers because people are constantly looking for ways to save money, especially in today's economy. However, offering coupons are expensive due to their low redemption rate. In 2008, there were more than 317 billion coupons distributed but only 2.6 billion or less than 1% redeemed[1]. To tackle this problem, we have developed Coupout, a simple, user-friendly and powerful coupon management system. Our main goal is to make coupon search and redemption more convenient for mobile users, and, thereby, help restaurants advertise to the large and growing mobile user base.

The Coupout web application consists of two interfaces. The first interface is accessible from a desktop browser and is intended for restaurant owners. It allows them to publish new coupons, modify or stop distribution of existing ones, and monitor their campaign performance by providing detailed reports. The second interface is a mobile web application targeted towards smartphone users. With it, they are able to search for local dining deals while on-the-go and simply show the offer in their cell phone to the restaurant cashier to avail the discount.

The remainder of this paper is organized as follows. Section 2 presents the motivation of this project. Section 3 gives an overview and design details about Coupout. Section 4 provides results

[1] Coupon Fast Facts, CouponInfoNow.com, (Accessed: April 20, 2012) http://www.promotionsinfonow.com/coupons/coupon-fast-facts.cfm

978-1-880843-86-4/ISCA SEDE/June 2012

and a comparison between Coupout and other two similar products, Groupon and Restaurant.com. Section 5 describes the future work. The paper is concluded in Section 6.

2 The Problem

Coupons are a tested and proven marketing tactic to attract new customers [3]. Traditional coupons have drawbacks: 1. They are expensive for businesses, 2. They have a low redemption rate, 3. For consumers, it is hard to find coupons, and 4. They are inconvenient to clip and while people collect coupons, they cannot find the one they are looking for when needed.

E-coupon or online coupon has addressed most of the issues mentioned above, for example, it is cost-effective, and easy to search. It works especially well with online stores. However, for a traditional restaurant business, users still have to print the coupon and take it to the restaurant to get the discount. Another challenge with this scenario is tracking. The e-coupon site can track views of a coupon, but it cannot track the number of printout of a coupon. It is even harder to track how many coupons have been redeemed [4, 7].

3 The Solution

Coupout, our proposed solution, is cost-effective for business; one pays for results. With Coupout, a coupon is easy to issue, track, change, or cancel. This is done in real-time, with no printing and no mailing of coupons.

For consumers, the advantage is that there are no expired coupons, no clipping, and have the right coupons at their fingertips anytime, all the time.

Our solution is focused on a mobile application, a technology that has raised challenges [2, 5, 6], that fortunately can be successfully addressed [2, 8, 9].

3.1 How Coupout Works

Coupout is developed using LAMP technology hosted on a Linux system with Apache HTTP Server, MySQL database and PHP scripting language [1], with two major components. The first component is an interface for Internet web browsers and is intended for restaurant owners. The second component is a mobile application for smartphones. This is for consumers to locate restaurant coupons in a user's location. The owner's platform is a subscription-based website. After a restaurant owner signs up, he or she can login to the system to manage his or her restaurant and coupon campaign. The tasks an owner can do with the management system include: update restaurant information, change business hours, change menu items, set up daily specials, upload photos, issue coupons, modify or terminate coupons, and monitor campaign performance. The consumer's component is implemented for mobile devices, like smartphones. Functions include login, registration, searching coupons based on a user's current GPS obtained from the device's GPS receiver, searching coupons by zip code, browse coupons by state, city, zip code and cuisine. Back end functions include tracking coupons usage.

3.2 The Site Map

The site map of the Coupout web application is shown in Figure 1.

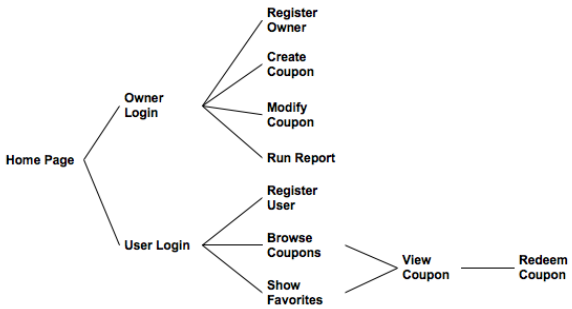

Figure 1: The site map

The site map depicts the main flow of the system. All users start at the home page, then owners and users log in using separate pages. If they do not have accounts, they must register before using the system. Once logged in, owners can create and

modify coupons, or run reports. The user, on the other hand, can browse for published coupons, view their favorite coupons, or view and redeem a selected coupon.

3.3 The Use Cases

The system's use case diagram, displaying the more important use cases of Coupout, is presented in Figure 2.

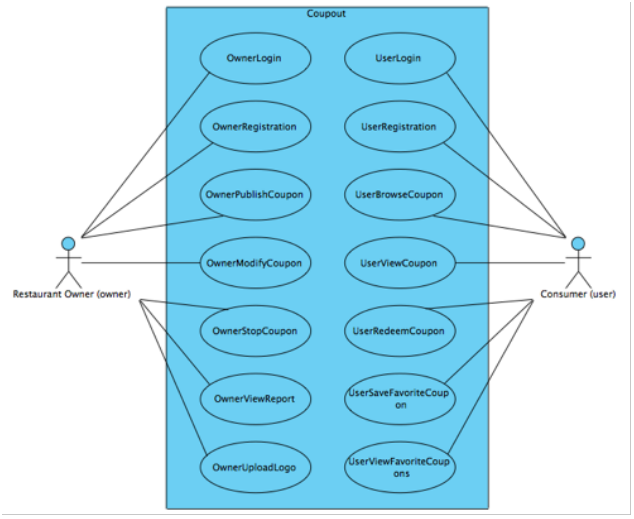

Figure 2: The use case diagram

3.4 The Components of Coupout

The component diagram of Coupout, shown in Figure 3, depicts a layered architectural pattern. The three layers are presentation, logic and data. The presentation layer is the web browser. The logic layer is the Copout web application. The data layer is the database. The logic layer has four main components, Owner, User, Coupon, and Account. The Coupon component provides the ability to manage and find coupons. The Account component provides the ability to manage user accounts.

3.5 Coupout's User Interface

The following screenshots of the application show the simple and easy-to-use interface of Coupout on an iPhone. Users can search coupons either by using their current GPS information, or by simply entering their zip code. They can also browse coupons based on city or cuisine. This easy search method allows users to bypass useless information and quickly find the coupons they are looking for.

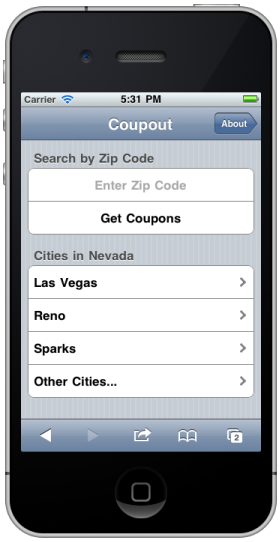

Figure 4: Coupout's search and browse interface

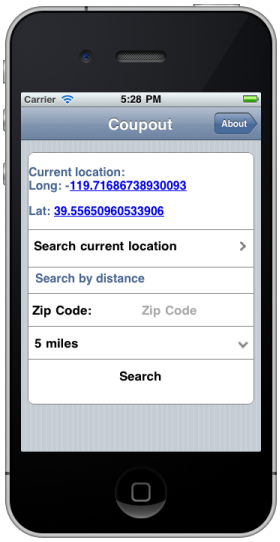

Figure 5: GPS or zip code based search

For instance, users can search or browse for coupons using the Coupout interface presented in Figure 4. Notably, users can search coupons either using their GPS location or using a zip code (this is displayed in Figure 5). A sample list of coupons found after a specific search is shown in Figure 6.

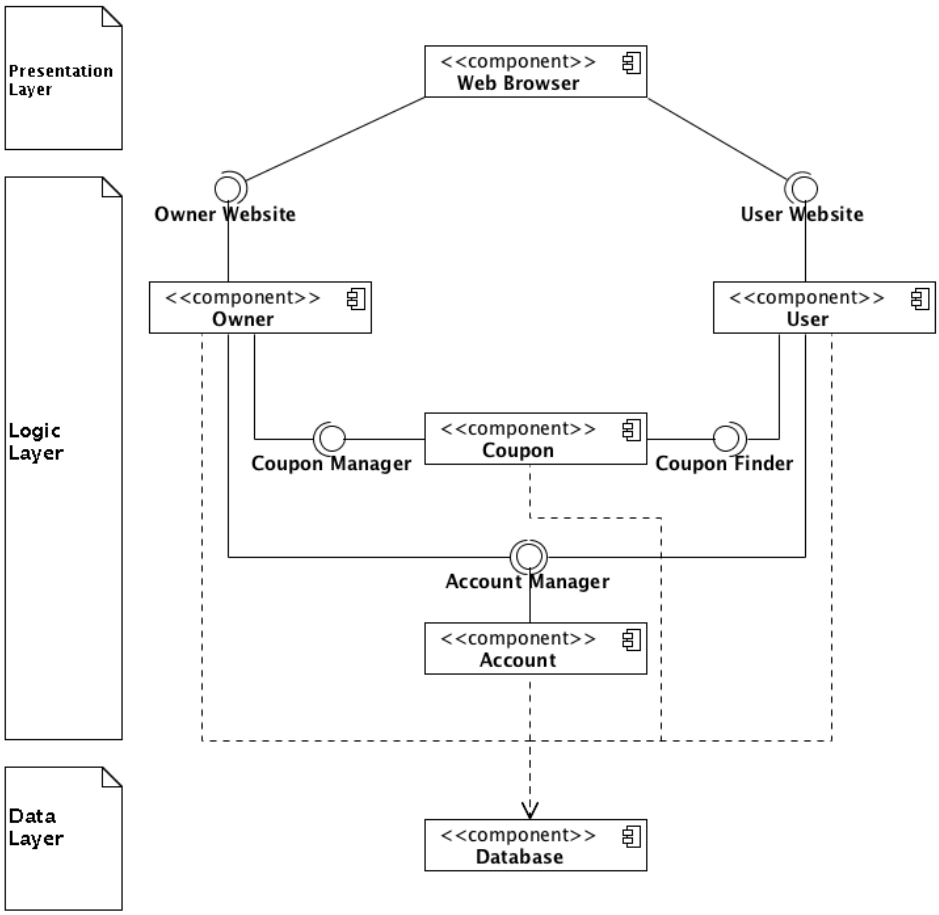

Figure 3: The component diagram of Coupout

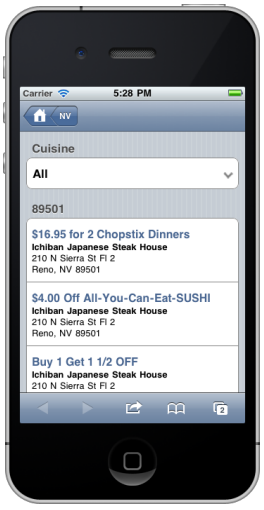

Figure 6: List of available coupons

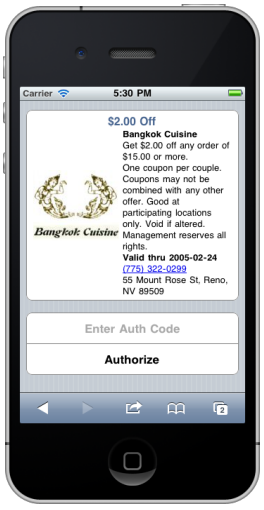

Figure 7: Coupon shown before authorization

When a coupon of interest is found it is displayed as presented in Figure 7, and is subject to authorization by the restaurant manager (the user presents their coupon to the manager for validation). Once the coupon is authorized, the user can present the coupon number allocated (as show in Figure 8) to the cashier at check out.

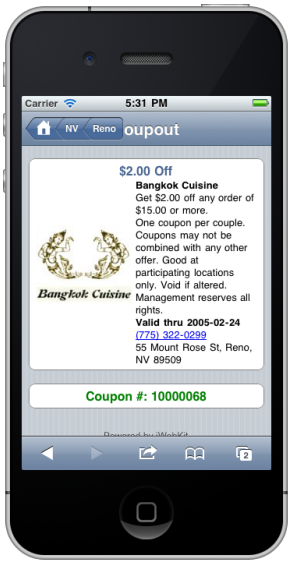

Figure 8: Coupon shown after authorization

4 Results and Comparisons

For this project, our team has implemented our application that can be run on an iPhone. It is a mobile web application and acts like a native iPhone app. After a user bookmarks the application and saves it on the home screen, it will run in full screen mode like a native iPhone app. On the current version of Coupout, users can register, login, and search coupon offers with different criteria. Presently, the search area is limited to the Nevada state only.

4.1 Similar services

4.1.1 Groupon

Groupon is a deal-of-the-day website that is localized to major geographic markets in the United States, Canada, Brazil, and the United Kingdom. Launched in November 2008, the first market for Groupon was Chicago, followed soon thereafter by Boston and New York City and Toronto [10]. As of September 31, 2011, Groupon serves more than 500 markets globally, and it delivers 650 daily deals world wide to 143 million registered users[2].

Everyday, Groupon sends one offer in each area to its member base. Users are able to purchase a product or service with a discounted price. This company is a new star in the online coupon industry.
The main advantages of their service include:

- After recent media exposure, Groupon is a recognized brand
- Groupon enjoys a large member base

Some of its current limitations include:

- Groupon offers only one coupon a day for an area
- Users have to pay before they get the service
- Participating businesses have to pay Groupon in advance
- The discount has to be significant to attract consumers

4.1.2 Restaurant.com

Restaurant.com sells discounted restaurant certificates, for example, a $25 certificates for $10. Restaurants don't pay for the service. Instead, they agree to accept certain number of certificates for free each month [11].

The main advantage of restaurant.com's approach is that there are no out-of-pocket cost for restaurants.

However, each restaurant certificate redeemed will likely be a loss for restaurants since restaurants do not get any percentage of the proceeds from the certificate sale. To offset that loss, restaurants add limitations to the certificate usage, for example, for a $25 certificate a customer must spend at least $50, which makes the offer less attractive. Also, consumers have to pay first to save money.

[2]Financial Post, financial-post.com.com, (Accessed: April 20, 2012) http://www.financial-post.com/ groupon-140-million-registered-users-from-overseas-business-to-75.html

4.1.3 Our solution – Coupout

Regarding the benefits of our solution, they are as follows. For restaurants; (i) there are no out-of-pocket costs, (ii) restaurants get paid by customers, (iii) restaurants can have multiple offers, and (iv) restaurants only pay for results. For consumers; (i) this service is completely free, (ii) users do not have to pay first, (iii) users have multiple offers from one restaurant or different restaurants, and (iv) it is convenient, since it is a mobile application, so one can use it when one needs it.

5 Further Work

This paper focused on the design and prototype development of the new strategy to improve experience of both restaurant owners and consumers. iPhone was chosen for the initial target platform, since it is the most popular and well-used smart phones in the market. The future development plans include broadening the availabilities in other common devices, such as, iPad, Blackberry, Windows Phone, and Android smartphones. In addition, integration with available restaurant review and rating services are part of our future plans. By combining Coupout with reviews and ratings, consumers can have detailed information together with discount options for restaurants in their surrounding area, and are able to compare options to find the best match for their desire.

6 Conclusions

In this paper, we described current situations with existing coupon usages and their limitations, and presented Coupout, a new mobile application platform for the online coupon system. Coupout introduces a marketing strategy that improves cost-effectiveness and user experience for both restaurant owners and consumers. Restaurant owners can publish discount coupons through the Internet with minimal cost, and consumers can find up-to-date information and use it right in their hands. We believe Coupout has the potential to become an easy-to-use and cost-effective coupon marketing system for restaurant businesses, which can create a win-win situation for both restaurants and consumers.

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