E-commerce CRM and Order Processing via SMS

Project Description

In the landscape of e-commerce companies, oftentimes the struggle comes in facilitating interactions between businesses and customers and incentivizing reorders. One of the prominent mechanisms for this communication has traditionally been e-mail. The struggle with e-mail in recent years has been the sheer quantity of e-mails that end users are receiving and sorting through on a daily basis. E-mail marketing has turned into a problem rather than a solution. A way to cut through the noise is communicating with customers via SMS, and the ability to process re-orders over text can be leveraged to make it easier for customers to reorder. This also presents an opportunity for companies to deliver their brand to customers in an extremely targeted way.

The goal of this project is thus to create a simple e-commerce store that funnels customers into an SMS CRM (customer relationship management) system that allows for two-way communication between customers and businesses. The e-commerce store will be the customer-facing component that allows them to learn about and purchase some hypothetical
product. The CRM will allow the business to talk to customers and do things such as make notes on customers, place new orders for them, edit their shipping information, etc.

The project itself will be a Node.js web-app using Express, with the e-commerce store using Stripe as the payment processing gateway, storing customers and orders in MongoDB tables, and using a Twilio number to allow for SMS communication between the business and the customers.

Businesses will probably have a dedicated communications team to reply to customer inquiries and process re-orders, so I will also be incorporating a notification system to alert companies when their customers are attempting to engage with them, most likely using a Slack channel to ping team members to alert them that they need to respond to a message.

In addition to all of this, the project will also utilize some of the technology on the cutting edge of the computer science field. Natural language processing has found many uses, one of which is the ability to discern the emotion associated with a message by using sentiment analysis. This can be used to automatically determine whether customer messages are positive or negative, and can provide an additional statistic to the company – what percentage of messages are positive. This metric is a good benchmark for determining whether a company is positively engaging with their customers. Another use of NLP is the ability to process keywords which can allow customers to take actions without company intervention, such as the ability to process re-orders automatically. This adds an additional layer of convenience for the end-user.
**Deliverables**

- Node.js web-app
  - Customer-facing website
    - Hypothetical product and company info
    - Checkout
      - Stripe
      - Store sessions to make it easier for customers to come back and complete orders
  - Company Dashboard
    - Pages to look through Customer and Order tables
    - Key performance indicators and metrics displayed to quantify company’s performance
    - SMS CRM
- SMS
  - Order Confirmation texts
  - Ability to order more over text
  - Full two-way communication between customer and company with the ability for company to ensure that messages have been delivered
- Natural Language Processing
  - Re-order functionality performed with Google’s Dialogflow API
  - Use sentiment analysis and create statistics correlated to customer’s text messages
- MongoDB Tables
  - Customer Table
  - Order Table
  - Store important metrics in both and write queries to display key performance indicators on dashboard

**Timeline**

1. Meet with Prof. Piskac to determine if the project is suitable
2. Write and submit proposal
3. Wireframe web-app and front-end of website and dashboard
4. Add checkout with Stripe payment processing to website
   a. Connect to Mongo tables
   b. Set up order confirmation texts with Twilio
5. Add all KPIs and necessary metrics to the dashboard
6. Build CRM and set up two-way communication with Twilio
   a. Add Slack notifications when customers text the Twilio number
   b. Add in re-order functionality
7. Add sentiment analysis to customer text messages
8. Add re-order NLP functionality