

Use of Data Mining For Integration of Different Food Ordering Websites

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Abstract: Multiple food ordering websites exist these days, this is rather confusing for the end user who has to go through the hassle of logging in on every site that he wishes to order from and also keeping a track of orders from these multiple websites is certainly not convenient. Hence a need to integrate all such websites into a common service is felt, such that it can communicate with individual sites and place orders on behalf of the user thus providing a easy to use and cross compatible platform process of scraping food menus from these websites. From designer's point of view these sites are all using different patterns as thus manually writing code for Extracting data from each of these sites is not a feasible idea. Again this is one of the major tasks to Provide a script to extract data from any site from a single Merchant. Existing systems are in a scattered form as they require Downloading a separate application or Login's that are different for every site. A common platform enables users to skip these extra steps and order using one common system for all different restaurants.

I. INTRODUCTION

Online Food ordering is now a widely used service. Having arrived just recently, it has gained popularity very fast & has quickly become a part of our routine. A lot of the restaurants nowadays aim towards a streamlined process for quick delivery of orders.

Its not a long ago that these orders were placed through telephone calls which seemed convenient but it required an actual confirmation as well as presence of menu with customer.

Needless to say due to such drawbacks online systems for managing all of this do exist currently however we aim towards automation into currently present Food ordering systems. We believe this approach will make current systems more user-friendly & provide seamless experience to its users across all websites.

Need for such a system is felt due to existence of multiple online Food merchants. Almost every restaurant has its own web portal for ordering online. Due to presence of these multiple websites it has become tedious for users to keep track of all such services and also remember their login credentials. This is where our platform shines, providing access to multiple sites at once.

Also due to multiple sites with all sorts of coding patterns & platforms there is a need for a single script to accomplish the

Thus main idea is Integration of all such websites into one single portal. It involves extracting data from all host sites and assembling them into an API. This API will serve as backend of an Application or Website that wishes to implement this system. API will consist of data from affiliated restaurants which includes their Food menus & Prices, Different Locations at which they are open as well as their timings when open or close.

Also the API should store this data in a structured manner because it will be used while querying actual sites when our Bot will order on behalf of the users. Thus we will process the entire order on our end just as actual website might have processed it. However only difference between our system and the original site is that our system will be compatible with multiple merchants rather than just one single merchant or food chain.

II. LITERATURE REVIEW

Implementation of Data mining for data extraction has been used in multiple systems before by researchers for different purposes.

Leo Rizky Julian & Friska Natalia have mentioned about use of web scraping for comparing websites used to built computers in their paper titled 'The Use Of Web Scraping In Computer Parts And Assembly Price Comparison'[v].

Another research by Jae-ho Shin, Gyoung-Don Joo, Chulyun Kim at Gachon University, Korea suggests use of Xpath for web crawling as in newer websites based on modern platforms like AJAX and Javascripts Traditional Web Crawling techniques fail[iii]. This has been mentioned in their paper titles 'Xpath based crawling method with crowdsourcing for targeted online market places'.

The use of data mining in e-commerce as applicable in Food related websites has been previously discussed by Yonghua Zhao & Hong Lin at 9th International Conference in their research 'Web Data Mining Applications in e-Commerce'[iv]. This paper suggests analyzing trends of customers & improving the design of online resources through pattern analysis & concepts like Web Content Mining, Structure Mining & Usage mining.

The research paper 'Study of Web Data Mining Based on XML'[ii] by Yanfei Zhao suggests use of Xml technology for convenient option for data mining by converting html into model of Xml.

III. REPORT ON EXISTING SYSTEMS

Currently certain systems exists that offer similar Integration of websites. However these systems miss out on one big feature that is dynamically updated menu. For example Zomato in India offers food ordering throughout the country thru their app, However their system relies on snapshots of Food Menu rather than a dynamically updated menu.

Drawbacks of that approach include the fact that updating of menu for rates or cancellation or addition of items in becomes difficult. Hence very often users face problem of outdated prices and Items. Also such static approach requires lots of manual efforts in constantly maintaining the menu. Also such an approach requires an affiliation with the restaurant which in most cases narrows down the number of listings that are possible as not all restaurants are willing to opt in. If such data can be made available to restaurant owners and users from already existing sites then it comes at no cost to owners of such a business.

Other existing systems such as McDonalds delivery or Pizza Hut lack in the fact that they do not provide any integration & only provide Food from a particular merchant which again hinders user's experience to choose from all sorts of merchants available and therefore is not recommended.

Thus it has been observed that existing systems offer incomplete or non-user-friendly experience & are also a cumber stone task to maintain, given the wide applications and numerous food chains available today. This brings us to conclusion that an Integrated approach is the way new system should be build up upon such that the process of updating, ordering & maintaining them should be as much automated as possible.

IV. PROPOSED SYSTEM

Our aim is to assemble all functionalities as described into a single Integration. This integration will comprise of all modules needed to achieve the required automation & will be compatible to use with our system. The term Integration refers to a complete module for a particular Provider/Merchant (i.e.) coding only once per merchant . The integration should be capable of handling all the different sites that the particular provider/merchant has to offer.

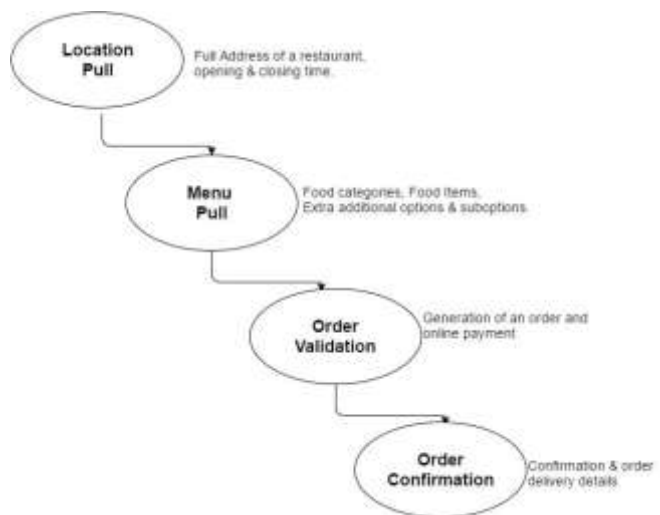
Every Integration will contain smaller modules responsible for activities like data scraping, order validation from host, confirmation of bill amounts etc. Due to vague nature of these smaller modules,

Integration should ensure proper functioning of each & every element and also its compatibility. In the end this proposed system will be feed into the API that will be used by Front end Application using exposed nodes.

We propose a simple system for backend, to achieve this required automation. Our system is based on Integrating all different food ordering sites into one single unit & enable users browse & order from all of these websites using the same credentials. Our system will include following parts to ensure end result.

- Site Analysis & Inspection.
- Selection of required Data.
- Storing Data into a structured API.
- Responding to requests on exposed endpoints & constant updating of API.
- Order Handling & Confirmation.
- Acknowledgment to User

Methodology to achieve proposed system can be broken down to four basic steps as shown in diagram.



V. I.ACKNOWLEDGMENT

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