Design and Implementation of Enterprise Marketing System Based on Django

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Abstract. With the development of Internet technology, various new marketing methods emerge in endlessly. If we can't adjust the marketing methods according to users' needs in time, it will be difficult to gain a foothold in the market competition. In view of the current critical situation of enterprise marketing development, this paper constructs an enterprise marketing system based on Django. This system uses computer equipment as a server and introduces Django framework into Pycharm to create an independent development environment. The overall development of the system is based on Linux operating system, and CentOS distribution is selected as the version. Python 3.6 is selected as the development language, and Nginx server is selected as the Web server. The overall design of the system is mainly MTV mode. The server chooses MySQL5.7 to complete the system database construction and support.

Keywords: marketing system, data management, Python, Django

1   Introduction

The development of the market determines the rise and fall of the economy, and the development of the times promotes the renewal of technology. With the development of science and technology, enterprises urgently need a new marketing method to improve sales performance and occupy the trade market. Therefore, network marketing came into being. Enterprise marketing takes network marketing as the main form, which is an extension of traditional marketing in the technical era, a new marketing theory born with virtual market, with strong practicality and technology, and an indispensable and important part of contemporary marketing. This marketing method is low in cost, and it combines digital electronic technology with actual business, which relieves the pressure of enterprise development to a certain extent and lays a data foundation for subsequent innovation. As far as the current development situation is concerned, there are still some problems in the development of network marketing. First of all, network marketing has no clearly defined marketing targets, which are difficult to resonate with consumers. Secondly, the network marketing is still in the development stage, the marketing perspective is relatively single, lacking innovative thinking. Finally, the influence of network marketing needs to be further explored.

Based on the above factors, this paper proposes to build an enterprise marketing system based on Django to improve the above problems. With the advantage of Internet, this paper closely links enterprise development with consumer demand, forming a closed-loop process of consumer-marketing platform-e-commerce platform-consumer, which promotes the balance between enterprise production and social demand, and promotes stable economic development.

2 Key technologies

2.1 Python

Python is a high-level scripting language that combines interpretive, compiler, interactive and object-oriented. Python language is derived from C language, and has followed most grammar habits of C language. It has core data types such as class, function, exception handling, including list and dictionary, and an extended system based on module. [1] The original design intention of Python language is to be concise and clear, to enhance the readability of the code, with relatively few keywords, simple structure, and clear definition of grammar, which makes it easier for users to learn and master quickly.

2.2 Django

Python has many development frameworks in developing Web server. At present, there are two commonly used frameworks, namely Django and FLASK. Django has more complete components than FLASK. Django is a free and open-source web framework. Its design pattern is different from other web frameworks in that it is based on MVC design pattern, but its internal URLconf takes the place of the controller and is responsible for receiving and forwarding user requests, so its internal actually follows MTV design pattern. Figure 1 shows the interactive flow chart of Django's MTV mode, which supports the development mode of front-end and back-end without separation. Django Web framework has a very practical automatic management interface, which allows developers to manage user data simply and flexibly.
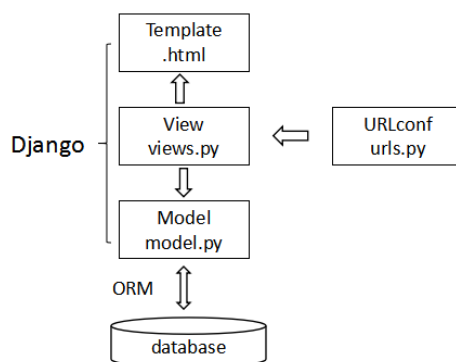

Fig. 1. Flow diagram of the MTV mode interaction in Django

2.3 Development process

The system requirements and the use requirements of the above key technologies determine the completion of the configuration and deployment of the development environment. The overall development of the system is based on Linux operating system, and CentOS distribution is selected as the version. The Web chooses Nginx server as the middle layer between the underlying data and external services, which can complete static files and handle business logic requests with its powerful functions and performance. At the same time, it can realize the functions of load balancing, buffering requests and responding. The overall design of the system

is based on MTV mode, and the database server chooses MySQL5.7 to complete the system database construction and support. Python 3.6 is chosen as the development language, and Django framework is introduced into Pycharm to create an independent development environment. To install Django, you need to install Python, pip and other scripting languages first. To install python under the operating system, first download the Python installation package from official website, install Python in the file directory, and then add the files to the environment variable path of the system. Open the cmd window, you can run Python and complete the subsequent build. [2] After the overall setup is completed, the system can be run. Through the introduction of the above key technical theories, the overall framework process of the system development is determined, and the feasibility of establishing the enterprise marketing system based on Django is clarified.

3   Functional implementation

3.1   Data access module

Under this module, users can integrate consumer's consumption behavior data at home. Most of consumers' purchase data in online stores are registered with paper forms, which is time-consuming and laborious to consult and difficult to store. Online shop consumer purchase data is stored in a large number of Excel tables, which is difficult to compare with store consumer purchase data. In this system, users can integrate the purchase data of consumers with the help of this module. The purchase data of offline stores need to be manually entered by users, while the purchase data of online stores can be directly stored in the library along with the consumption records. The system will automatically classify the consumption data according to the type and store it in the library. [3] When users want to find data, they only need to input keywords of consumption data, such as women's clothing in spring/summer 2022, men's clothing in autumn/winter 2021 and other words with strong directivity, so that they can access the data details. The data browsing code is shown in Figure 2.

```
function show - div(menu)
    { var Imgname;
    if(documnant. all. item(menu). style. display = 'none")
    { documnt.all.item(menu).style. display ='block" ;
    Imgname ="images/Img"+menu+"-gif
    D ocument. all. item("Img"+menu). src = Imgname;
else .
    { document.all.item(menu).style}display ='none ";
    Imgname =" images/Img"+menu+"-1. gif
    documuent. all. ietm("Img"+menu). src = Imgname; .
    < script language =" JavaScript">
    </ scripts
```

Fig. 2. Data browsing code

3.2   Data analysis module

Under this system, users can upload the integrated consumer purchase data to the analysis module, and then use echarts to chart the data. Users can choose chart types to make according

to their own needs, such as line chart, histogram and pie chart. These charts will be used as an analytical model of marketing schemes, such as which electronic products are the most popular among young consumers, and the differences between men's and women's physical qualities in purchasing fitness products. In order to ensure the accuracy of the data, this paper uses Naive Bayes algorithm to generate classification scatterplot, as shown in Figure 3. These data contents can be compared and analyzed with the most intuitive charts, and the obvious data comparison records can be used as the basis for later marketing strategy formulation. The system will also automatically generate sales data reports on a regular basis, mainly focusing on transaction data and traffic dat. Users can set the range value according to their needs for early warning, so as to discover the changes of consumption data indicators in time, and then formulate corresponding countermeasures to ensure the profitability of enterprises.
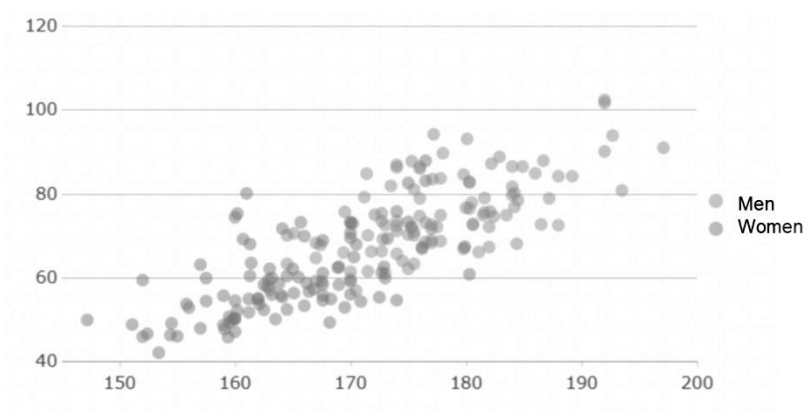
Fig. 3. Differences in physical fitness between men and women who buy fitness products

3.3 Data marketing module

After the user analyzes the data, the system can automatically generate corresponding marketing strategies according to different analysis data charts. If seasonal limited activities are launched in different periods, the goods in the activities will be immediately reduced by XX when they reach XX; digital products in the electronic venue can be selected for lucky prizes after buying a few items. Users can also draw up their own marketing plans with the help of the dynamic analysis function in the page, and carry out targeted marketing activities according to the shopping preferences of the target marketing groups. [5] For example, if the infant appliance special session is held for the mother and baby users, the users will enjoy the member discount price for their consumption in this venue. The marketing plan developed by the user can be searched in the user's personal space. After the end of the activity, the system will also send the activity experience survey report to the target customer groups in the form of email, so as to know the consumers' feelings in time and accumulate experience for subsequent activities.

4 Conclusion

At present, the form of market competition is becoming more and more severe. If an enterprise wants to be invincible in the torrent of market competition, it must take the consumer demand

as the main reference, effectively screen the customer groups, and implement the marketing plan to meet the consumer demand. In this paper, digital electronic technology and marketing system are organically integrated, and a large number of consumer data are effectively divided, which improves the marketing efficiency of enterprises, expands the marketing resources of enterprises, and brings higher profits to enterprises.

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