CS 411 Project: PC Builder

Zijian Pei, Zhanyu Feng, Zhexuan Yin, Jixuan Lu

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1 Project Description and Summary

Sometimes we note that shopping for a desktop directly from a computer manufacturing company costs more than buying accessories and assembling them. However, assembling a computer is not an easy task. One has to determine the compatibility between different parts of a desktop. Customers sometimes buy components that are not compatible with each other, unless they search Google before shopping. Apparently, that should take a lot of time, since there's no such website to allow compatibility checks among different computer accessories.

Meanwhile, one has to consider the budget and performance of the desktop. People who choose to DIY a desktop definitely want to maximize the performance of their computers on a limited budget. After realizing the demand for a PC Builder website, we plan to design a platform to help clients select computer accessories.

2 Usefulness

Based on our searches, we did find a similar website PCBuilder. However this website does not provide performance measurement and compatibility check features. We intend to create a function to measure the performance of the desktop.

Another difference between our website and the existing platform is that users can only find and select parts which are included on the existing website. We realize it is impossible to always keep the website up-to-date. In this case, if a user wants to choose a new product, nothing will be returned. To address this issue, we decide to provide an interface to ensure that users of our platform can add accessories that are not included in our database, and we will generate performance scores of the new instances based on the parameters entered by the users. We believe it is user's responsibility to guarantee the authenticity of the added data.

3 Realness

Our system will store CPU, motherboard, graphics card, memory, etc, as well as their different parameters. For example, we will store the brand names and architectures of CPU. We are planning to make these tables contain the necessary information to determine the compatibility of different types of accessories. For example, we will store "intel" and "amd" as architectures into CPU and motherboard tables. The SQL queries and the platform will return nothing if the client wants to choose an intel CPU with an AMD motherboard.

The data will be from the computer manufacturer's website, which is open-source and is guaranteed to be real. We plan to manually enter data into the database if the size of data is not large, otherwise, we will build a legal crawler to download the open-source information.

4 Functionality

We will create a user login platform, users will not be able to log in to our website and use the client's UI interface to build their computers unless they log in to our website. We will match user's account name and password to allow us to decline a login attempt

On our website, clients can search for the components they want. For example, if someone wants a 12th gen intel chip, he can enter the name of the product, and the platform will run a keyword search and return the information of the chips. After determining one accessory,

the platform will only return accessories that are compatible with the selected one if the client wants to move on to the next part. In the end, the platform will display a price summing up the price of all the accessories. Meanwhile, clients can click on the button "Calculate Performance" which will return the performance score of the customized computer.

Meanwhile, we understand that it's impossible to include all of the accessories users' want. Therefore, we will provide an interface for users to create an instance of the accessories they want that are not in our database. In the table corresponding to different types of accessories, we should have an attribute to indicate if a component is entered by users' or by us. The users can alter and delete data of the record they entered, and they are not allowed to change or remove data in our system.

We plan to design a separate interface for root users to delete, add, and change information of Some components. For example, if some CPUs are out-of-date, or no longer supported by majorities of computers, they will be removed from the database. and one can simply search for the name or the brand of that accessory and update that information.
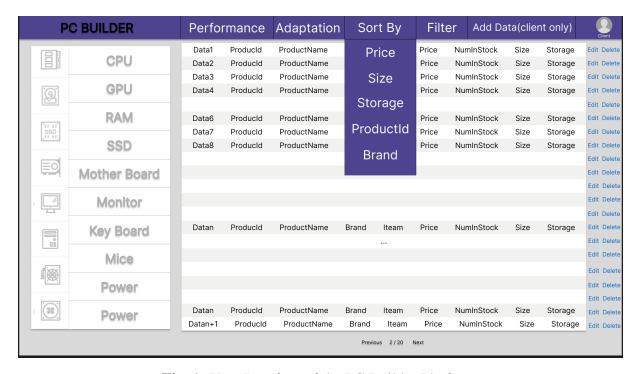
5 User Interface

Fig. 1. User Interface of the PC Builder Platform