

1. Project Title

PC Studio

2. Project Summary:

Our project aims to build a website that provides useful information, suggestions and a decent planning platform for users who wish to purchase(build) new computers and want to customize the features/components of the computer. It helps users customize their own PCs based on their specific needs. The website can make the computer customization process easy and straightforward. By inputting information like their preferences, users can receive personalized recommendations for computer components.

3. Description of an application of your choice.

The application would be that when a user wants to get a computer of their own, they do not want to just buy a whole built product from a certain brand so they can have more freedom and adjustment to their device's pieces. In fact this is a common need that lots of people talk about, there are forums that let people share their "building" experience and advices, yet there's no website or application that offers everything clear and easy, especially for those who don't know that much about tech brands, product series numbers, compatibility and so on. Imagine someone who doesn't know a lot about tech and want to customize their computer, they can lookup on google/reddit/youtube but probably would get confuse with all the brands, tech and serial numbers throw at their face: GTX, Core, Arc, RX, and so on...What does these mean and what they do exactly?

That's the problem our application wants to solve: we want to build an application that is easy to use and straightforward enough, providing clear information and comparison to help people, especially those not that familiar with the computer industry, customize their own computer devices. It provides the recommendations that satisfy the users' requirements with flexibility to choose various computer components. Users can provide their preferences to receive personalized sets of computer components. It also provides users with the platform to understand the computer components they are interested in with the detailed information. It helps users quickly search for the components they need by various filters. Furthermore, users can upload their own computer setups and share their experiences to the forums so that users can discuss and exchange ideas to better understand the components needed.

4. What would be a good creative component

Utilize APIs from e-commerce platforms like Amazon to retrieve current market prices of each product and its brands. Visually display the query search results for cross comparison purpose with interactables to redirect to the actual page for more details

5. Usefulness

The website can provide information of different computer devices(GPU, memory, CPU, etc), make it straightforward for the user by showing the price, brand, online retailer information, and perhaps brief description of the functionality, and users can compare across all these factors. It will also be able to offer suggestions, when users enter their budget and needs on functionality, it will generate suggested computer building plans for users to review based on their demand. Users can also see cross comparison of each component, and change or make their own plans based on that. Moreover, it provides forums where users can discuss and exchange their ideas or experience of customizing personal PCs.

Are there any similar websites/applications out there? If so, what are they, and how is yours different?

PcPartPicker, a web app helps users to select compatible products to customize their own PC devices. Although this application does help building PCs, it does not provide detailed description and requires a decent amount of understanding on the hardwares, also it does not provide straightforward cross comparison. Our design also has the unique function of using the user's budget to provide plans. Besides PcPartPicker, official websites of many computer companies also allow you to customize your PC to some degree, but usually the choices are limited to their own brands or a few series, also they don't provide details on comparison and easy-to-use planning tool to help users finalize their choice. Our website aims to reduce the barrier led by knowledge gap and have more audiences by allowing users to specify their demand as additional filters, cross compare selections, etc.

6. Realness.

We will be using databases from hardware manufacturers as well as a few github repos containing information of each kind of item. Since each dataset may be in a different format, scripts are likely involved for retrieval and compatibility matching. The processed database is expected to contain tables for each type of hardware with compatibility requirements for selections. Below are a portion of the raw datasets we will be using for our final database.

Intel CPU:

<https://github.com/toUpperCase78/intel-processors> - csv, deg = 16, card > 1000, all technical pieces of intel Processors

AMD Products:

<https://www.amd.com/en/products/specifications.html> - csv, deg >> 4, card >> 1000, all technical pieces of AMD products (CPU/GPU)

MotherBoard:

<https://motherboarddb.com/motherboards/?dt=table> - deg >> 4, card = 1753, all technical pieces of motherboard for PC

7. A detailed description of the functionality that your website offers.

The users can: view possible choices of product for each computer component that they can customize when building a computer, the information they can view include: brand, online retailer, price, serial number, release date, functionality, etc. They can compare across different brands, series, or same products sold by different retailers.

For users who want more straightforward results, they can provide a range of budgets and specify their needs(for example: basic, gaming, machine learning, etc), and the website would generate suggestions on possible computer building plans, with all this information included for each piece.

Users can also create their computer building plans, either by saving the suggested plans provided by the website, or by selecting individual components and putting them together, the website would be able to provide information about compatibility(whether the pieces they select are compatible with each other) and a brief description of the complete plan's functionality: will it be able to run AAA games? Run LLMs?

When there is a product released, discovered not included in our database, or determined inaccurate, users can manually request to insert/update/delete using our error report interactable by specifying the product with its necessary dependencies (to be compatible with other products)

Project work distribution

We will divide the team into frontend and backend development, 2 members focusing on the frontend and the other 2 members focusing on the backend.

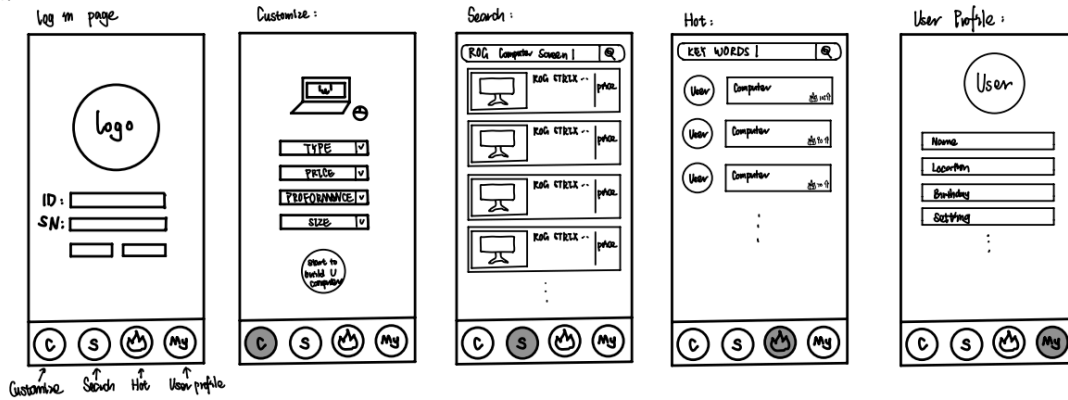
Frontend:

1. User interactables - Fan Jin(jinf2): This member will focus on developing the interactive elements of the user interface so that the interface includes the features like component search, filters, forums platform, and user profiles of the project
2. Web Server Maintenance - Yanxin Jiang(yanxinj2): This member will be responsible for establishing communication, bridge, between frontend and backend and authentication for different users.

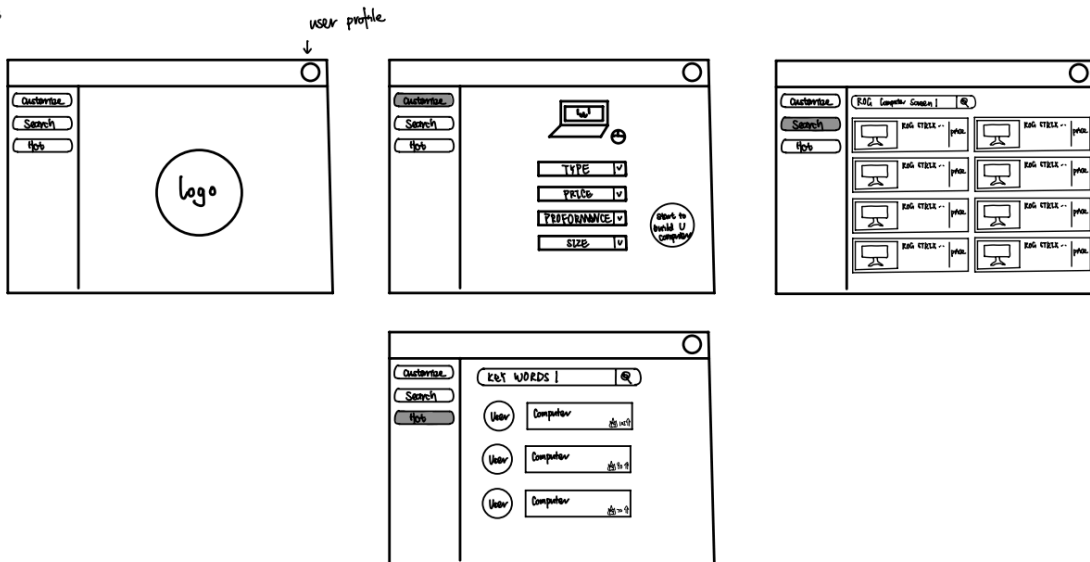
Backend:

1. Database Construction: Encheng Xie(encheng2): This team member will focus on constructing the desired database from the raw data. They will process the constructed database to support accurate querying and selection.
2. Backend Development: Tianze Yang(tianzey2): This member will be in charge of retrieving data and responding to queries by the frontend, also as the bridge ensuring the user receives results from our database.

Phone :



Web :



Login Page: Users can log in to their personal accounts by entering their user ID and password on the login page. This allows them to access their search or browsing history, or upload text content in the HOT section.

Customize: This feature is designed specifically for beginners, simplifying the process for users who are unfamiliar with computers or are overwhelmed by various choices. Users can input their preferred model, size, and other computer specifications, along with an estimated budget. Our software will then generate the most suitable computer configuration plan tailored to their needs, providing a simple and effective solution for customizing a computer. If users have some familiarity with computer hardware or specific component requirements, they can input these preferences to generate a tailored set of components.

Search: In this feature, users can search for the computer components they are interested in, like CPUs, graphics cards, motherboards, etc. The search results will display detailed information about the components, including specifications and prices, helping users quickly find the parts they need. Users can filter search results by brand, price, performance, or compatibility. The search result will include a brief description, an image of the product, key specifications, and price, which can help users better understand the computer components more efficiently.

Hot: In this section, users can upload their custom computer setups and share their experiences, including the components, the total cost, and performance reviews.. They can also engage with the community by discussing and exchanging ideas. Posts with more likes will move to the top, showcasing the most popular and trending builds. Additionally, there is a search function in this interface, allowing users to filter posts based on specific components they are interested in.