CS CAPSTONE TECH REVIEW

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ONLINE CASE DESIGNER

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Abstract

The whole article describes many technical details about how to complete the team's project. First, learn how to improve our product by using some existing 3D modeling software, and then quickly get the design prototype of our product by using UI design software like InVision.In the end, the paper discusses how to grab useful network data through some computer languages. This paper is divided into four parts: introduction, interaction modes, tools for generating the UI and data generation and capture. Through the analysis of my positioning in the team, the role of the article is to help me better complete the contribution in the team.

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1 Introduction

In this team, I was responsible for adjusting the UI design and user interaction content of the whole project. The main function of our product is to provide customers with satisfactory 3D models, so we pay special attention to the UI design of the product. Beautiful UI design and interaction will enhance the user's desire to use our products. Our ultimate goal is to design production tools that can provide detailed parameters for all types of users, and our products will save users as much time as possible in the process of using the products. Similarly, to make a correct model accurately, our project also attaches great importance to data capture. Improving the accuracy and speed of data capture is the way to improve the user experience.

2 Piece 1: Interaction modes

2.1 3D Slash

Our project is an operation service based on 3D modeling, so everyone, including users, needs to be familiar with the simple operation process of 3D modeling.3D Slash proves that 3D modeling is not only fun but also very productive.3D modeling can be a difficult process for people who are not in the design of the computer field, but 3D Slash will soon enable users to adapt to both online and offline use. Many interesting animations are designed in this software to attract more users, so this software is a good educational software to attract ordinary users' interest in 3D modeling. And 3D Slash has also released a virtual reality mode that allows users to view their designs on VR devices. This technology can more truly feel the fruits of the creator's labor. Also, the user can use the photos as the basis of the model and add layers as they are added, eventually converting the initial flat image into a 3d one. This makes the whole software seem easier to use.

2.2 Tinkercad

Thinkercad is a simple online 3D design tool for the general public. The conceptual design of this tool is very similar to our project. Tinkercad allows both professional and amateur designers to create 3D models of toys, prototypes, jewelry, etc. It is worth mentioning that this is a free, good user interface and a very short learning time to use the modeling tool. Although this software has never been listed as a professional application, it can play an important role in simple primary use. And for most first-time users, learning from the work of others is the best way. Tinkercad helps users share their work or access models and examples Shared by other volunteers. The biggest similarity between this tool and our project is that we are both online tools, so the portability of the two tools is much better than other modeling software. Although it is an online tool, the functionality of the tool is so rich that most beginning users will choose it as the learning software for learning to model.

2.3 Vectary

The function of Vectary is more complete than the above two, so it has a free trial plan, but after the planned time is up, it still needs the user to decide whether to continue to spend money to use it. Vectary has a lot of learning resources attached. Users can access these video resources for free to learn how to use the online tool more efficiently. It also provides interactive help so that the user knows exactly what it does each time. Users can save some steps in the design process by using one-click buttons to generate shapes or objects. Because it is an online tool, it can easily send files by

sharing a URL. Also as a sharing function, Vectary invites other members of the group to view and edit the current design project together. Finally, rendering is also integrated into the 3D tools, so users do not need to re-render the 3D model using other software.

3 Piece 2: Tools of generating the UI

3.1 Javascript

Javascript is an object-based and event-driven client-side scripting language with relative security. It is also a scripting language widely used for client-side Web development and is often used to add dynamic functions to HTML pages, such as responding to various user operations. Like other scripting languages, JavaScript is an interpreted language that provides a very convenient development process. To facilitate user operations, the language is interpreted line by line during program execution.JavaScript makes it easy for us to manipulate HTML objects and supports distributed computing. But the downside of the language is that JavaScript support varies from browser to browser. In other words, sometimes there will be a certain gap in the display effect, or even sometimes it will not show.

3.2 InVision

Simply put, InVision is a comprehensive UI design software that supports designing user interfaces for mobile applications and other similar interactive products. Prototyping is a key stage in the design process when creating a user interface for a web site. According to the survey, prototyping is the stage where testing can save time, effort and money. The advantage of the InVision tool is that it is very easy to apply to a prototype because uploading still images of the screen is not time-consuming and prototyping with them. Besides, InVision has good navigation and is very friendly to different types of users.

3.3 Sketch

Sketch's powerful and vibrant community conditions drive a lot of tracking. As a result, the software is constantly updated, plug-ins are added, and most of the content is free. Most users feel that Sketch has a short learning time. In other words, this software is very easy for users to experience the convenience of using this software. The sketch is designed specifically for UI designers, which simplifies the work of designers, shortens the process and saves valuable time. The symbols and preset templates of this software are very creative, and the design experience brought to users is different from other software. The highlight of this software is its resizing function, which can control the stretching, fixing, changing the size and buoyancy of elements. Plugins, which are updated every day, constantly provide designers with fresh concepts, so that designers can always get different creative ideas.

4 Piece 3: Data generation and capture

4.1 Python

Python is very suitable for the development of web crawler programming language, provides such as urllib, re, JSON, pyquery and other modules, but also has a lot of forming framework, such as Scrapy framework, PySpider crawler system, itself is very simple and convenient, so it is the first choice of web crawler programming language. Python's

interface to crawl web documents is cleaner; Compared to other dynamic scripting languages, Python's urllib2 package provides a more complete API for accessing web documents. Python has other advantages. It integrates well with most cloud and platform as a service provider.It brings unique advantages in ensuring large-scale performance in data science and machine learning when supporting parallel computing for multiple processes. You can also extend Python with modules written in C/C ++.

4.2 DocuPhase

To be able to extract data from different sites for comparison, and to use natural search results data for a more comprehensive analysis of other similar products.DocuPhase products reformat data extracted from scanned or digital documents into searchable and editable text using optical character recognition (OCR) techniques. In other words, the product can extract text-based information from digital images. The product's automation platform USES automated OCR to transform documents of any format and complexity into data available for the business.DocuPhase's advanced capture and identification tools make it easy to put documents and data into a user's document repository. Whether the file is emailed or entered digitally on the platform, it can be processed quickly and made available to people with access rights. The DocuPhase greatly simplifies the task of extracting and entering data, saving users a lot of effort when they need to automate data collection and synchronization.

4.3 Java

The Java language's syntax is very close to the C and C++ languages, making it easy for most programmers to learn and use.Java, on the other hand, has discarded the little-used, hard-to-understand, and confusing features of C++, such as operator overloading, multiple inheritance, and automatic casts. In particular, the Java language does not use Pointers, but references. It also provides automatic waste collection so that programmers don't have to worry about memory management.Java is commonly used in network environments, for which it provides a security mechanism against malicious code. In addition to the many security features of the Java language, Java has a security mechanism for classes downloaded over the network. One of the design goals of the Java language is to adapt to a dynamically changing environment. Classes needed by Java programs can be loaded dynamically into the runtime environment or over the network. This is also good for software upgrades. Besides, classes in Java have a runtime representation that allows runtime type checking. For exception handling, Java is also divided into checking exceptions, runtime exceptions, and errors. Through exception handling, the accuracy and speed of data can be increased more efficiently in the process of data capture.