**Introduction**

Good afternoon, my name is Di Zhu and I hold a Master’s degree from UIUC in mechanical engineering. Now, I would like to change my career path form mechanical engineering to software engineering. Hence, I have taken online courses such as data structure and algorithm. I have also completed a 4 month full-stack developer training program. During the program, I learned how to build a web app in both front-end and back-end and also learned how to develop an Android Application.

**Why do i want to change my job?**

After graduation, I was trying to find a job related to my area which is Control. However, during the interviews, recruiters would ask me questions about embedded systems and whether or not I knew how to use C++. Since my university focused on control theory research, I didn’t learn how to use C++ and I also didn’t know too much about programming. Hence, I failed my interviews many times. As an International student, we have the unemployment period. Once that period is over we will be considered as illegally staying in the United States. So I accepted my current job even if it doesn’t exactly match with my major. At that time, I was thinking programming skills are essential for my career. Moreover, one day my girlfriend (who is a freelance retail consultant) asked me if I could build a website where she could post information about products to avoid answering the same questions from customers. Since I am an engineer, my nature is to build something and I realized programming skills are very important, I decided to take online classes to learn how to program and build a website. As I kept programming, I discovered a new passion and have a new vision for greater opportunities. My US work authorization is CPT.

**Job search and commendation project**

I developed an interactive web page with many functions such as register, login/logout, job search, and job recommendation. Once a user logs in, the site will search for jobs according to the user’s IP address or geographic coordinates. The job information will be fetched from Github Job API and will be stored in MySQL database on Amazon RDS. The web page will also provide personal job recommendations according to favorited job records of a user. The MonkeyLearn API will extract keywords from the job description. Based on these keywords, the content based recommendation algorithm is applied for job recommendations.

**NBA project**

This project was designed to create a dashboard to visualize the NBA player’s shoot data by using React, D3 and Ant Design. On the top of the dashboard, there is an auto-complete player search bar. If a user doesn’t type in the full name of a NBA player in the search bar, it will provide a suggestion list of players with their name and picture. Once users find their favorite player, the player’s profile will show on the left side of the dashboard and his shot data will be demonstrated on the right side in a shot chart. All of the players’ data will be fetched from [stats.nba.com](http://stats.nba.com/" \t "/Users/ninjabear/Documents\\x/_blank). Users can customize visualization on the shot chart by changing the shot themes and adjusting attempts filter.

**Online store project**

This project is to construct an online store using Spring framework and Spring MVC. A manager operator can post, remove, and manage products on the shopping website. As a customer, you can search for products and order them. Hibernate is utilized to provide support of database operations such as maintaining all of the users and product information. Spring security is applied to check user’s authentication and authorization during the login progress. Spring Web flow supports customers to finish the check-out process. At last, fulfillment system is implemented by using AWS Lambada and AWS step functions.

**DriveAssiet App**

Matrix is an Android Project which provides a general platform for drivers to share traffic condition events. Drivers are able to register their accounts and able to login. Drivers can upload events, watch events, check details, and give comments on Google Map interface. Matrix uses cutting-edge framework Firebase to establish flexible and maintainable backend service group. Additionally, this uses Toolbar ViewPager and NavigationView combination to build a user-friendly UI framework. Integrated Google Map allows users checking instant events at their convenience

**Why do i need to hire you**

I want to improve myself. Employers would like to hire the person who would like to change himself, improve himself, learn new things. Employer don’t want to hire the person who has the background but doesn’t want to work or learn new things. For myself, I would like to learn new things and improve myself.

I want to prove myself has the ability to do the software engineering job. I am lack of background of software engineer. I need to work hard to prove myself.

Sprite of sports, we keep fighting until the end of a game. We never given up.

**Interface vs abstract**

When will you use abstract class vs interface?

An abstract class is good if you think you will plan on using inheritance since it provides a common base class implementation to derived classes.

An abstract class is also good if you want to be able to declare non - public members. In an interface, all methods must be public

If you think yo will need to add methods in the future, then an abstract class is a better choice. Because if you add new method headings to an interface, then all the classes that already implement that interface will have to be changed to implement the new methods.

Interface are a good choice when you think that the API will not change for a while.

Interface are also good when you have something similar to multiple inheritance, since you can implement multiage interfaces.

-- Your code here!

create database if not exists db1;

-- show databases;

use db1;

create table student(id int, name varchar(32), age int, score double(4,1), birthday date, insert\_time timestamp);

create table stu like student;

alter table stu rename to person;

alter table person character set utf8;

alter table person add gender varchar(10);

alter table person change gender sex varchar(15);

alter table person modify sex varchar(10);

alter table person drop sex;

insert into student (id, name, age) values(1, "Di Zhu", 28);

insert into student values(2, "Janet", 30, 20.0, "1995-10-08", null);

select \* from student;

update student set age = 25, score = 70.0 where id = 2;

select \* from student;

-- drop table if exists stu;

desc person;

show tables;

show create table person;

HTML provides the basic structure of sites, which is enhanced and modified by other technologies like CSS and JavaScript.

CSS is used to control presentation, formatting, and layout.

JavaScript is used to control the behavior of different elements.

JavaScript can be used to modify website content and make it behave in different ways in response to a user's actions.

**Reference**

Please accept this reference as an expression of Di Zhu’s interest in the 2021 Software Development Engineer position at Amazon. I know Di is talented and a hardworking person. Even though his major is mechanical engineering, he has a strong background of algorithm and data structure. He has experience in developing websites. For example, in the job search and commendation and online store projects Di used HTML, CSS, JavaScript and React to design user interface. He utilized J2EE, Apache Tomcat Server, Spring framework, and Spring MVC to build the back-end logic of the web app such as handling HTTP requests and response with RESTful APIs, etc. He also applied MySQL database based on Amazon RDS in his projects by using JDBC and Hibernate. He developed an Android app which is a platform for drivers to share traffic condition events. This app uses framework Firebase to establish flexible and maintainable backend service group which uses the combination of Toolbar, ViewPager and NavigationView to build a user-friendly UI framework. Di connected the Integrated Google Map to allow users to check instant events at their convenience. Lastly, Di also has knowledge related to machine learning. He built a Neural Network and Convolutional Neural Network by using Python TensorFlow to classify wear stages of ultrasonic welding tool.