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Frontend Engineering

Frontend Engineering, or Web Development, has been a popular career option since the inception of the world wide web. As of 2021, the employment rate of web developers is projected to go up by 8% by the end of 2029 (Bureau of Labor Statistics, 2021). Web developers work on creating the application logic users will see on their browsers. Whether it is the look or feel of a website, a frontend engineer works tirelessly to make sure it works well. On top of studying on my own time, CSUMB's online program will provide me with the necessary skills needed to work in a job as a web developer.

Since every business needs a website to display its business details, it is no surprise that frontend engineers will still be a valid career option in the near future. It is imperative that the performance of a website be kept up so that no user is left with a bad impression, resulting in loss of business. According to the Hosting Tribunal, there is a \$2.6 billion dollar loss every year due to slow loading websites (Hosting Tribunal, 2020). Thus, the need for professional frontend engineers will never be zero since it would be important to maintain healthy performance for a website to minimize any loss of potential revenue caused by a poorly engineered website. Additionally, a few of the major players in this industry are Google, Facebook, Amazon, Twitter, and Twitch. These companies rely on the usage of their websites to conduct their business. All of them started out as mainly just a website. As they continued to grow their businesses, their websites would also continue to grow, hence the need for more experienced frontend engineers. Each company also creates its own set of tools that would need to be managed by these web developers to keep them up to date. For example, Netflix created a tool called Spinnaker that seamlessly and quickly handles delivery of updates made on their applications . Furthermore,

frontend engineers will need to stay up to date with current trends of frontend technologies in order to keep the company website performant. One example of making choices of trends in frontend technologies is deciding which frontend framework to develop an application with, like ReactJS or VueJS.

One specific company that employs frontend engineers is Twitch. Twitch is a company that provides a live streaming service. Twitch has allowed up to a total of 3.8 million unique broadcasters to stream from its conception to February 2020. Furthermore, Twitch has been able to let an average of 1.44 million viewers watch concurrently as of March 2020 (Iqbal 2020).

Twitch has its main headquarters located in San Francisco with various other locations in cities like New York, NY, Berkeley, CA, and London, England. Twitch also employs up to 1146 people throughout all of its locations. It is important to have all these employees to keep their business running. Twitch has apps on the Google Play store and the Apple App Store and has their website which all are used by millions of people.

Twitch was first created as a personal streaming site for Justin Kan in 2007 (Iqbal 2020). Twitch started out as Justin.tv where Justin would Livestream his life to his fans before allowing other users to broadcast their own content on his website. Justin.tv saw huge success with streaming gaming content and was later rebranded as Twitch.tv in 2014 (Iqbal 2020). Later sometime in 2014, Amazon purchased Twitch.tv for almost \$1 billion. Twitch continues to grow until this day. With a userbase consisting mainly of males, Twitch boasts an estimated 2.1 billion hours viewed on their platform (Iqbal 2020).

Twitch can see most of its success come from its strong leadership. Twitch is led by a strong CEO named Emmett Shear. Emmett Shear has a Bachelor of Science in Computer Science which he earned from Yale University (Famous People, 2020). Shear started Justin.tv

along with other people and Justin Kan. Shear has been with Twitch since its inception. Additionally, Twitch's COO position is filled by Sara Clemens (Linkedin Bio, n.d.). Clemens earned a certificate of management from the Graduate School of Business and Policy of the Victoria University of Wellington. Sara Clemens has been serving as COO of Twitch for more than three years now. The leadership from these big players have helped Twitch grow its userbase and create a brand used by gamers.

Twitch continues to dominate the streaming landscape. With an average of 3.84 million monthly broadcasters, Twitch is able to provide unlimited content to viewers. The content consumed by the viewers ranges from Politics, Esports, gaming, or just regular talking between the broadcasters and their viewers in a category called Just Chatting. The coronavirus had helped push viewership numbers up on Twitch. One statistic had shown that Twitch viewership had grown by 31% in one month since the start of the pandemic. Twitch had also shown its competitiveness against giants like MSNBC and CNN by outpacing its concurrent viewership. Twitch showed an average of 1.4 million concurrent viewers as opposed to the 885,000 and 783,000 concurrent viewership for MSNBC and CNN, respectively (Iqbal 2020). It is clear why viewership would be up during the pandemic. More people are at home and able to put in time into watching live entertainment. More children are at home with more free time and since Twitch mainly offers gaming content to watch live, more children would be able to watch that gaming related content, resulting in increased viewership amongst the broadcasters on Twitch.

Additionally, Twitch has many revenue streams. One such source of revenue is from allowing viewers to subscribe to broadcasters on a monthly basis. What a twitch subscription offers a subscriber is an ad-free experience for the entire month. Additionally, broadcasters are able to provide custom emoticons for their subscribers to use in the chat. These emoticons are

customized to help the subscriber express themselves better with a personalized touch created by the broadcaster. Another perk that a subscriber receives is badges. Badges will allow a subscriber to show off their support for their favorite broadcaster. Whenever a subscriber chats in the chatbox, their support level will be shown off with their badge, including information about how long they have been subscribed for. Another revenue stream for Twitch would be in the form of their own currency called Bits. Twitch Bits allow a viewer to donate a certain amount of money to a broadcaster. This form of currency is built to keep the donations to a broadcaster safe from chargebacks since Twitch handles the transactions. Also, a common form of the revenue stream that Twitch utilizes is from ad-revenue. One way Twitch takes advantage of traffic is by buying licenses for streaming rights to esports events. League of Legends is one such esports event with 33 million views for its 2017 World Championship event (Fortney, 2019).

As with all large companies, Twitch is not without its faults. An array of reports of sexual harassment accusing many Twitch streamers had become the center of attention in June 2020. After a streamer by the name Jessica Richey compiled and posted allegations against at least 60 streamers, Twitch released a statement stating they will commit to punishing the harassers. Unfortunately, Twitch had consistently demonstrated in the past that they would not exactly take action. Many Twitch users expressed frustration with Twitch stating they need to actually take action now with the number of allegations being reported. For example, there was an instance of a streamer by the name of Syndicate that had allegations against him of illegal gambling schemes, but Twitch still currently has not banned him (Conditt, 2020).

It is not difficult to see from the history of Twitch that the efforts and hard work of engineers can affect the lives of millions of people, whether good or bad. Many people depend on Twitch's website for entertainment or for their own salary. Millions of people, not just

Twitch, depend on hardworking frontend engineers to develop a fast, reliable, and performant website and app to be able to conduct business at the scale needed to serve those millions of people, oftentimes at the same time. The frontend engineering career takes a lot of dedication and work, this is the career field I choose to work on.

Frontend engineering is a great career choice because of how much of an impact the work can have on people around the world. Also, frontend engineers don't typically work alone so that is a career for those who like to work with other people.

There are a few approaches to entering the frontend engineering career field. One way would be to receive an Associates Degree. The Bureau of Labor Statistics states that a typical Entry-level education for a web developer is by receiving an associate's degree, but in order to advance in the career, one would need a bachelor's degree. Additionally, frontend engineers would need to be skilled in frontend technologies like HTML, CSS, and JavaScript. The career landscape is also changing fast and so are the requirements for an entry-level role in frontend engineering. One would need additional knowledge in other frontend frameworks like React and Typescript in order to stay competitive in this ever-evolving career.

In order to stay ahead in this career, I plan on taking Udemy courses ranging from Cloud Computing to frontend. These courses will help me stay up to date with new trends in technology and will provide me with mental exercises to practice what I learn. These online courses will also serve as a great reference for future employers since I could print out the certificate of completion for each course. Additionally, I plan on taking Software Engineering courses from the CSUMB Online Computer Science Degree Completion program like CST 338: Software Design and CST 363: Database Management which will help me learn more about different aspects of software engineering. I also plan on working on coding problems on an online

platform LeetCode.com which provides additional resources for developers to practice their algorithms knowledge. Additionally, I plan on working on more side projects to fill out my portfolio with examples of my web development skills. One such side project I plan on working on is a chat application with support for live streaming, just like the service Twitch offers. My other side projects will help serve as proof of my skill in web technologies and show employers that I am able to complete projects.

Another aspect I will be working on will be mock interviews. I will practice interviewing by myself to get the feel of interviewing at Twitch. I also will interview at smaller companies to build up the experience needed to work at a larger company like Twitch. I can also apply for internships at Twitch which are offered year-round to students of all skill levels. This will serve as an opportunity to show them that I could be a great full-time employee and as a way for me to know whether I would like to work for them or not. Additionally, I can connect with CSUMB alumni who work with Twitch and chat with them about their experiences with Twitch and what tips they could give me to better my chances at working there at Twitch.

Frontend engineering is an exciting career with a solid history. It is shown that this career field will not slow down any time soon. Frontend engineers serve an important role in helping to create a business. The frontend engineers at Twitch continue to serve their purpose by tending to a site that delivers entertainment to millions of users. I would love to be a part of that engineering team. Being able to work with talented engineers who get to have their work seen by millions of users inspires me to work hard. I understand the paths I need to take in order to be a frontend engineer at Twitch. It will be a long and difficult road, filled with days of studying and typing at a computer, but It will be a fulfilling journey. It will be thanks to CSUMB and Udemy that I will be able to be prepared to work in an exciting career like Frontend Engineering.

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