

**SIX WEEK SUMMER TRAINING REPORT**

**ON**

**FULL STACK WEB DEVELOPMENT**

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**SPLEN TECHNOLOGIES & EDUCATION PRIVATE LIMITED**

**School Of Computer Science & Engineering**

**Lovely Professional University, Phagwara**

(June-July, 2019)

**DECLARATION**

I hereby declare that I have completed my six weeks of summer training at **upGrad.com** from **27-05-2019** to **15-07-2019** under the guidance of **Palash Tripathi**. I declare that I have worked with full dedication during these six weeks of training and my learning outcomes fulfill the requirements of training for the award of the degree of **B.Tech**, Lovely Professional University, Phagwara.

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**ACKNOWLEDGMENT**

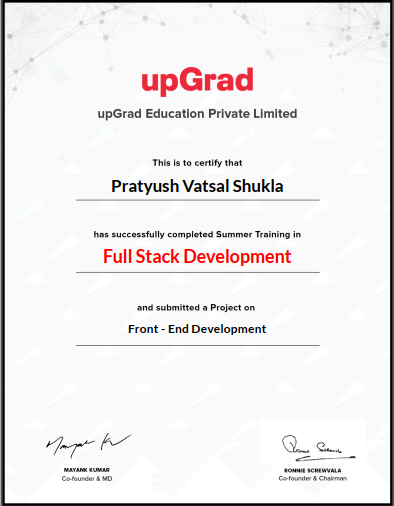
It is a matter of great satisfaction and pleasure to present this report on **Front End Web Development** Training in **upGrad.com**. I take this opportunity to owe my thanks to all those involved in my training.

I put on my sincere thanks to my college, LOVELY PROFESIONAL UNIVERSITY, PHAGWARA, for giving me such an opportunity. I am extremely grateful to **Mr Palash Tripathi**, for the encouragement, discussions and critical assessment of the training.

I express my gratitude towards the staff of Splen Tech & Pvt. Ltd, those who have helped me directly or indirectly in completing the training.

PRATYUSH VATSAL SHUKLA

**TRAINING CERTIFICATE**



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**INTRODUCTION**

Web development has become one of the most innovative and important areas of the IT industry. The advancements in the realm of dynamic content have enabled us to buy and sell products on the Internet, share our daily lives (for better or worse) with all of our friends, and create complex International banking and trading websites. It was not long ago when the idea of dynamically storing and providing content through the Internet was an unrealistic concept – certainly in terms of modern usage at least. Primarily through the advancement of databases like MySQL and server-side programming languages like Perl, Ruby, and most significantly PHP, dynamic and responsive websites have become standard and are expected by consumers. The amount of knowledge and skill-set diversity that a modern web developer must have is significant, though the process is much more manageable than it seems at first glance. Let’s take a look at what a dynamic website actually is from a technology standpoint and then investigate what role each of these technologies play.

This article aims to demonstrate the principles, concepts, and technologies surrounding full-stack web development. Instruction on each of the technologies presented (Apache, HTML, CSS, MySQL, PHP, and JavaScript) is beyond the scope of this article, though some examples will be provided. It is also worth noting that there are other languages that can be used to achieve similar results. For instance, Django is a powerful Python framework that can also create dynamic websites. The reason these technologies were chosen is that they are the standard in the industry and the most commonly used in professional development. For example, at the time this article was written 83.1% of websites are built on a PHP backend [1]. Most frontend development occurs in CSS and JavaScript with a library like JQuery or a framework like React. JQuery is a common JavaScript API and will be the JavaScript library of focus for this article.

**BACK-END**

**The Web Server**

The “back-end” of a website refers to the server, server-side scripts, databases, and machine configuration settings. When people speak of a “server” they are often using the word to refer to a type of physical machine, but this is not correct usage of the word. A “server” is actually a software concept – not a hardware one. There are machines that have been optimized to perform well while running server applications, but the “server” itself is software. There are many web servers in use today with the open source application Apache being the most popular [1]. Another popular open source web server application is NGINX, but Apache will be covered in this article.

**Server-Side Scripting Languages**

There are many popular back end scripting languages like Perl, Ruby, and PHP that help to provide dynamic content to websites. One of the most popular in the industry is PHP and will be the back-end scripting language this article will cover as it is used on 83.1% of web servers as of the writing of this article [2].

**Databases & Data Storage**

Another key component to the back-end is the storage and retrieval of data. There are markup style formats like XML and JSON that allow you to store and organize data in text files. With the correct functions in PHP you can access the data in those text files much like you would records in a database, however, databases are much more efficient when frequent requests for large amounts of data will be necessary.

Because databases are optimized for frequent data storage and access, they are the preferred method for providing dynamic web content. Databases also have the advantage of having many encryption and access control features that make them more secure for storing sensitive information. The Structured Query Language (SQL) is also incredibly powerful when leveraging the built-in functions. The database that will be covered in this article is MySQL, though PostgreSQL is another popular open source alternative.

**FRONT-END**

The “front-end” of a website refers to the technology involved in the visual rendering of data in the client’s web browser. There are many elements that come together to make this happen including, but not necessarily limited to:

* HTML (Hypertext Markup Language)
* DOM (Document Object Model)
* CSS (Cascading Style Sheets)
* JavaScript/JQuery (or other client-side API/Framework)
* Mobile Device Design Optimization

**HTML**

The primary purpose of HTML in a web document is to structure the data into something that the

**CSS**

Cascading Style Sheets are an extremely powerful and effective tool for adding client-side styling and functionality like image rollovers, once only accomplished using JavaScript. This can be very useful as some users do not enable JavaScript in their browsers by default.

**JavaScript/JQuery/Client-Side API**

JavaScript is a client-side scripting language that enables developers to deliver a “rich” user experience. This “rich” experience is based on many elements aside from client-side scripting, such as clear and easy navigation, but the term has become hitched to the concept of dynamic mouse-over effects, smooth transitions, and AJAX interaction. JQuery is a powerful JavaScript API library that allows you to create complex JavaScript effects with very little effort and will be chosen for this article.

**SOME IMPORTANT FACTS ABOUT FULL STACK WEB DEVELOPMENT**

**FACT 1: The origin of full stack development goes as far as June 03, 2008.**

**Randy Schmidt,**the managing director of the Burns & McDonnell Terminals and Pipelines group, was the first to use the term full stack web developer describing **Jason Tremblay**, **Geoffrey Grosenbach**, and **Tom Preston-Werner**. He described a full stack developer as someone that does design, markup, styling, behavior, and programming. Since then, **various programmers** used the term full stack developer and gave their own definition.

**FACT 2: Full stack development includes knowledge in front-end and back-end development.**

A full stack developer is a person who is comfortable working in the front-end and back-end side of web development. It does not mean you have mastered everything about web development; it means that you can work on both the front-end and back-end, with minimal assistance. It’s no wonder that employers look for full stack developers. Finding a job in the tech industry can be easy if you have the skill requirement. The more skill you have, the more valuable you become.

**Fact 3: There are 710 coding languages around the world. –Wikipedia**

Surprisingly, we have lots of programming languages in existence, both those in current use and obsolete ones. Knowing more than one programming language is better, but without an in-depth understanding of their concepts and application, it’s useless. Therefore, you should know the languages that will be required for your stack.  
  
To master the concepts of full stack development, you need to understand its technical foundations and complex frameworks. Spending more time to explore different programming languages can hone your skills, speed up your learning progress and solidify your reputation. We cannot conclude that if you spend ten years of your life studying full stack development, you’ll become a proficient full stack developer afterward. In reality, you can achieve the status if you absorb all you’ve learned, apply them impeccably and create your mark in the web industry through excellent works and contributions. Remember, time, focus, willingness to learn and perseverance matters.

In 2016, **Michael Choi**, **CEO of Coding Dojo and CEO and Founder of Village88, Inc.** shared some astounding things he has witnessed over the years when it comes to a **developer’s learning progression**.

1. It’s not possible to tell whether someone is going to end up being a great developer from the start.  
2. Anyone can learn how to code, although don’t expect linear progress.

Regardless of the student’s level of aptitude starting out, the success to master one or multiple programming languages depends on oneself. In **Coding Dojo**, we believe that anyone can learn to code at their own pace with the right teachers, attitude, and learning environment.

**Fact 4: The term “web development” was popularized by Tim O’Reilly andDale Dougherty in late 2004.**

**It was initially coined by Darcy DiNucci in 1999.** Around 1990-2000s, **full stack development was synonymous with web development**. This was due to user interfaces being simple and easy to make, developers around this era know how to work on both backend and frontend projects. Now, web development and full stack development have their own definition:

* **Web Development-** a process associated with technology and website development for internet (public network) and intranet (private network). It involves web design, coding, testing and writing markup processes, etc.
* **Full Stack Development-** a web development process that involves both the front-end and back-end parts of an application.

Web development is like a big tree with many branches, and each branch can bear fruit. In full stack development, those relationships are interconnected. Therefore, being a**three full-stack** developer gives you a wide range of job opportunities and experiences.

**Fact 5: There are 19 Kinds of Developers- Coderhood.**

You probably know only three kinds of developers: front-end developers, back-end developers,  and full stack developers. But actually, there are lots of developers with various specialization

**Fact 6: Today, there are over 23 million developers around the world, and by 2023 it would reach 27.7 million. –Evan Data Group**

There are many **reasons why the number of web developers keeps on increasing** worldwide: passion, interest/hobby, vocation, career advancement, career change, challenge, innovation and to complete the list—money. Forbes released an article about the 2,208 billionaires who worth more than $9.1 trillion collectively. Out of**2018’s Top 10 World’s Billionaires**, four are tech giant CEOs/founders namely**#1Jeff Bezos**, **#2** **Bill Gates,** **#5 Mark Zuckerberg**, and **10# Larry Ellison**. Their success in the tech industry inspires many people; to learn programming languages, to invest money and time on web development and to create new things out of codes.

**Fact 7: Full stack development is one of the most in-demand jobs in the past years.**

Of course, the tech industry isn’t the only one growing, the demand for jobs such as; web developers, software engineers, and full stack developers also increases. In fact, full stack developer ranked second—last year’s top one—in Indeed’s report for **Best Jobs of 2018**.

**Fact 8: A Full stack developer salary is as high as its demand in the job market.**

Full stack development salary is as high as its demand. Indeed’s report included the average salary of a full stack developer, which is an average of $111,640 per year. Glassdoor’s report says tech jobs such as front-end software developers’ average salary are **$88,680 per year**, and back-end software developers’ average salary is **$70,676 per year**.

**Fact 9: A Full stack developer has many advantages.**

Front-end and Back-end development are two essential skills in the tech industry, and to know both of them would give you a bigger advantage in your career. You might ask, “why should I need to learn back-end development when I already have a successful career in front-end development?” or vice versa.

Here are some of the advantages and benefits of a full stack developer:

* **Employability and Easy Switching**
* **Higher Salary**
* **Easy to Upgrade**

Instead of hiring multiple developers, some companies prefer developers who can multitask. There’s a saying, “two is better than one.” So when you know both front-end and back-end, there’s a higher chance and more opportunity to land a job in the tech industry. And based on the project requirement, you can easily switch between back-end and front-end development.

As stated in the Indeed report above, the salary of a full stack developer is higher compared to a front-end developer, and back-end developer. In addition, the more languages you know, the easier for you to learn new ones that can upgrade your skill sets—which will give you more employment opportunities.

The growth of the tech industry is unstoppable, that’s why the more you know, the more you can contribute to its changes and growth. Not to mention, you have more opportunities to help create a better future—not just for the tech industry, but also for the people around you.

**TECHNOLOGY LEARNT: Front End Development (**Till Date**)**

**Front-end web development** is the practice of converting data to graphical interface for user to view and interact with data through digital interaction using HTML, CSS and JavaScript.

### **Hyper Text Markup Language (HTML)**

Hyper Text Markup Language (HTML) is the backbone of any website development process, without which a web page doesn't exist. Hypertext means that text has links, termed hyperlinks, embedded in it. When a user clicks on a word or a phrase that has a hyperlink, it will bring another web-page. A markup language indicates text can be turned into images, tables, links, and other representations. It is the HTML code that provides an overall framework of how the site will look. HTML was developed by Tim Berners-Lee. The latest version of HTML is called HTML5 and was published on October 28, 2014 by the W3 recommendation. This version contains new and efficient ways of handling elements such as video and audio files.

### **Cascading Style Sheets (CSS)**

Cascading Style Sheets (CSS) controls the presentation aspect of the site and allows your site to have its own unique look. It does this by maintaining style sheets which sit on top of other style rules and are triggered based on other inputs, such as device screen size and resolution.

### **JavaScript**

JavaScript is an event-based imperative programming language (as opposed to HTML's declarative language model) that is used to transform a static HTML page into a dynamic interface. JavaScript code can use the [Document Object Model] (DOM), provided by the HTML standard, to manipulate a web page in response to events, like user input.

Using a technique called AJAX, JavaScript code can also actively retrieve content from the web (independent of the original HTML page retrieval), and also react to server-side events as well, adding a truly dynamic nature to the web page experience.

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**REASONS FOR CHOOSING THE TECHNOLOGY**

Full Stack Developers are in the limelight because of the numerous benefits they deliver. They comprehend and solve glitches across several streams of web and app development.  Companies are now rigorously hiring Full Stack Developers, who can build the complete app from the scratch, without any discontinuation in the process.  
Let’s look at some of the fascinating facts about the emerging field of Full Stack Development.

## ****Huge Demand For Full Stack Developers****

Tech businesses these days know the value of Full Stack Developers. They treat them as an invaluable asset for their business. Thus, Full Stack Development is swiftly gaining popularity as it’s becoming a much sought-after technical role for many organizations.  
Full Stack Developers are in high demand owing to their diverse coding skills. Organizations prefer to invest in one Full Stack Developer, rather than hire two or three engineers to do the same job. For those who are looking for a competitive, as well as a lucrative job, Full Stack Development is a smart and ideal career choice. Here are a few facts that’d help, all those whose are passionate towards development to make the right career choice, in the vast ocean of development.

## ****Lucrative Remuneration****

The gross annual income for a Full Stack Developer is between $62.1K and $105K. This sums up to an average take-home pay of $76,063 per year. With right skills and appropriate encouragement, a proficient Full Stack Developer can command a market value as lofty as $121K a year.

## ****Growth Prospects****

The U.S. Bureau of Labor Statistics anticipates that jobs in Full Stack Development will rise from 135,000 to more than 853,000 by 2024. Further, to substantiate the argument, a recent report by Indeed,  quotes that job as a Full Stack Developer Ranks No. 2 as per their scores. A huge opportunity for the aspirants is the number of vacant jobs to be filled. It is forecasted that there are 1.4 million unfilled jobs for Full Stack developers in the USA.

## ****Diversified Job Opportunities****

Full Stack Developers work seamlessly across all layers of software. They are “broader picture” developers who are aware of the server side as well as the client side’s user experience. In fact, they are a balanced amalgamation of front-end and back-end skills.  
Full Stack Developers handle everything from Frontend Development to Backend Development to Backend Server Management, as a part of their job role and responsibilities. Thus, organizations are employing full stack developers to grow and expand their digital assets.

## ****Easy To Learn****

There are renowned online platforms delivering world-class, market-relevant Full Stack Web Development courses. The accessibility to online resources is an added benefit to all those who seek to gain knowledge in this domain. Also, to earn a job one does not need a degree from a prestigious university, it’s the skills that will earn you a job.  
With the right attitude and experience, you could be well on your way to becoming an adept Full Stack Web Developer. Aspirants with knowledge about HTML5, JavaScript, JQuery, Node.js, MySQL, MongoDB CouchDB, and others are in high demand.

## ****Flexibility****

A recent report about the  IT development community, says by 2030, most IT professionals will work from home with super-fast data connectivity. Employees will contribute by implementing a flexible work schedule with a high-trust management policy. The R&D department enjoys the benefit of workforce flexibility. This awards many benefits for both the employee and the organization.

## ****Get Hired By Best Employers****

Those who aspire to work for tech tycoons must spare a few minutes to look for companies that hire Full Stack Developers. Also, find out the remunerations they are proposed. Here are a few leading companies that employ Full Stack Developers: Apple ($193K), General Assembly ($128K), Coding Dojo ($87K), When I Work ($81K), Freelance.com among others.  
Full Stack Development is undoubtedly a promising career option. The field has the potential for continued growth in the years to come.

**ADVANTAGES OF CHOOSING FULL STACK DEVELOPMENT AS A CAREER**

### **One of the Most Sought-after Jobs**

Web development is becoming one of the most in-demand jobs. It ranked 8 in the report of  U.S. News & World Report for Best Technology Jobs in 2018. Because of today’s technology, hospitals and clinics, hotel, resorts, restaurant, and many others have their own websites.

Websites are becoming so popular; they can even be called a “need” in almost every company and business. If you browse the internet, you’ll literally see millions of different websites, all over the world.

### **High-paying Job**

When choosing a career path or switching to another, salary is not the only significant factor, but most of us undeniably consider it as well. With thoughts like, “Would it help me pay my bills?” or “Is it enough to provide for my family?”

Web developers’ salary is definitely not cheap. In a Glassdoor report, the average salary of a web developer is $93,402 per year which makes it one of the most lucrative jobs in the market.

### **Be the boss of yourself**

Yes, you can be a freelance developer and be your own boss. You can have better salary rate negotiations for your skills and codes. You don’t have to be tied down to just a single company; instead, you can be a freelance developer, where you can work for various employers with your flexitime work schedule. And because you’re a freelance developer, you won’t have to deal with annoying officemates. The choice is all yours.

### **Improves Creativity**

As mentioned earlier, designing is part of the job of a web developer. And creativity is a vital skill for web development. You get to mold your own creativity and come up with different ideas. As time goes by, you will also learn from yourself by re-using your previous idea. And the limit? Only your imagination.

### **Have an Interesting and Fun Experience**

Most of us grew up being excited and thrilled about magic. When we watch magicians perform we always have the thought, “how did they do that?” But making something disappear or appear physically is not the only magic in this world.

Programming is like magic on computers, websites, and software. You can make texts appear or disappear, create a clickable button and even drag pictures wherever you want on the screen. It all depends on however you want software or a website to work. But the magic on computers isn’t the only thing that makes web development a fun and exciting work. It is the thought that you are creating something to make people’s lives easier and more enjoyable

Depending on what you are working on, whether you are making a website for a hospital, a school, or a business, you are making it easier for users.  You help them find or contact a hospital or a doctor immediately, make students have effortless access to their grades or help a startup company grow, you are contributing something to other people’s lives while enjoying the thrill of coding.

### **Become a better problem-solver**

Problem-solving is one of the most important skills a developer should have. As you think of the logic of certain codes and face bugs, it sharpens your mind and improves your way of thinking or how you approach different kinds of complex problems.

You’ll know your limits, and you’ll be more challenged to exceed your capabilities and enhance your innate talents

**Learning Outcomes :**

At the end of the first half of the course ie . the front end development , I am able to develop an interactive user interface through html and css , making the website dynamic using the javaScript.Also, I made a blogging website dummy using the HTML5 , CSS3 and JAVASCRIPT efficiently.