

STEP BY STEP GUIDE

How To Become

*Web Developer, Data Scientist,
Web Designer & Game Developer*

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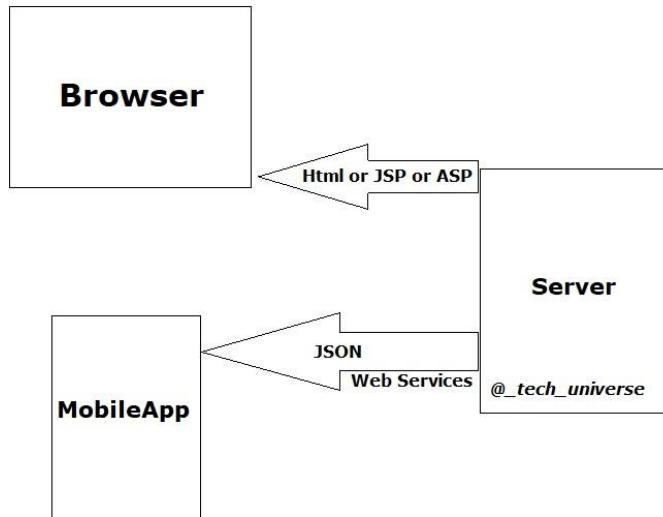
Introduction

This guide is meant for all those who either want to become a web developer, or a data scientist, or a game developer or a web designer respectively. This guide includes the stepwise approach for achieving all of the listed goals. If you want to achieve any of the listed goals, make sure you are consistent in following each step.

Steps to become a Web Developer

Before we indulge into the steps required to become a web developer, let's try to understand what being a web developer is and what is the role of a web developer.

A web application or a mobile application (which requires a server), is basically composed of two parts. One is the front-end part which is what the user sees and it either runs on a web browser or it is just a mobile application and the second one is the back-end part which runs on the server. You can look at it below diagrammatically.



Web developer: Web developer is the one who specifically deals with the server-side programming. If we talk about the jobs for web developer, they are in abundant. Have you heard of the companies like Amazon, Google, Facebook, Flipkart, AliBaba.com, and so on? All of them deal with the web applications and mobile applications. So, all of these companies require web developers, web designers, mobile developers etc. Web developers are required everywhere. Sometimes, some companies do not call them web developers rather they call them software engineers. The only thing which makes software engineer superior to web developer is knowledge of algorithms, analysis of algorithms, OS, mathematics (although some do not care about it).

Now, the final thing is how to become a web developer stepwise. There are a lot of technologies involved in this. You just need to master one stack of techies. So, let's talk about those various technologies involved in becoming a web developer.

Mantra: In case of become a web developer, you must know 1 general purpose language and its framework and some way to connect with the database. You can use this mantra for becoming a web developer in any tech stack. Below is the overview of the tech stack required.

1 general purpose language + its Framework

- Java + Spring + someway to connect with database/file-system
- Java + JSF + someway to connect with database/file-system
- Python + Django + someway to connect with database/file-system
- Ruby + Rails + someway to connect with database/file-system
- C# + .NET + someway to connect with database/file-system
- PHP + CodeIgniter + someway to connect with database/file-system
- Likewise, you can find more.

Below is the given set of technologies required to become a web developer. Only one of them is required. I will not be writing about all, but you will get the idea about how to deal with other stuff.

Note: Since this just includes the backend portion. If you want to make a good front end side as well. Just after you finish selecting & learning any of the below tech stacks, learn how to use web design templates.

- **JAVA BASED:** If working with Java is your cup of tea, then you can choose any of the following. Not all are required. Just choose one.
 - Servlets & JSP + any database (MySQL or DB2 or PLSQL etc.) + a server (Tomcat or Glassfish or JBoss etc.). This one is the very basic and you can easily build a web application using these. For server, there is no need to be the master of these. Basic knowledge of servers would suffice in the beginning. There is one thing to note about JSP is, it is a front-end technology which includes Basic HTML + special tags to manipulate & display data. To deal with the database, you should be knowing JDBC. You must know SQL as well.
 - **Tutorials:**
 - Basic Java:
 - <https://www.youtube.com/playlist?list=PL9DF6E4B45C36D411>
 - Advanced Java
 - <https://www.javatpoint.com/collections-in-java>
 - <https://www.javatpoint.com/java-jdbc>
 - <https://www.javatpoint.com/java-io>
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg

- Servlets & JSP
 - <https://www.youtube.com/playlist?list=PLE0F6C1917A427E96>
- JavaScript:
 - <https://www.youtube.com/playlist?list=PLsyeobzWxl7qtP8Lo9TReqUMkiOp446cV>

OR

- Spring framework + Spring MVC + JDBC + Database (to deal with it, you can use JDBC or Hibernate) + an application server (like tomcat). Spring framework is the most popular framework used in java world. This is one of the highest paid technology in java world. I prefer this.
 - Tutorials:
 - Basic Java:
 - <https://www.youtube.com/playlist?list=PL9DF6E4B45C36D411>
 - Advanced Java
 - <https://www.javatpoint.com/collections-in-java>
 - <https://www.javatpoint.com/java-jdbc>
 - <https://www.javatpoint.com/java-io>
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg
 - Servlets & JSP
 - <https://www.youtube.com/playlist?list=PLE0F6C1917A427E96>
 - JavaScript:
 - <https://www.youtube.com/playlist?list=PLsyeobzWxl7qtP8Lo9TReqUMkiOp446cV>
 - Spring Framework
 - <https://www.youtube.com/playlist?list=PLC97BDEFDCD1D169D7>
 - Spring MVC
 - <https://www.oreilly.com/library/view/spring-mvc-for/9781492036043/>
 - OR
 - <https://www.youtube.com/playlist?list=PLBgMUB7xGcO31B2gBmy1igpZn6LK78-CJ>

- Hibernate
 - <https://www.youtube.com/playlist?list=PL4AFF701184976B25>

OR

- **JSF – Primefaces**
 - Personally, I do not prefer this, but if you are willing to do this, here we go then.
 - Basic Java:
 - <https://www.youtube.com/playlist?list=PL9DF6E4B45C36D411>
 - Advanced Java
 - <https://www.javatpoint.com/collections-in-java>
 - <https://www.javatpoint.com/java-jdbc>
 - <https://www.javatpoint.com/java-io>
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdr5Su_Stg
 - JSF
 - <https://www.javatpoint.com/jsf-tutorial>
 - Primefaces
 - <https://www.javatpoint.com/primefaces-tutorial>
 - Main Tutorial
 - <https://www.youtube.com/playlist?list=PL73qvSDIAVhIVQX7d36glpQlxCIxEyR>
- **C# Based:** *Remember the mantra. Learn the language first, then go for the framework and then some way to connect with the database.* As we know C# is a general-purpose language. You can use C# to create Windows client applications, XML Web services, distributed components, client-server applications, database applications, and much, much more. C# programs run on the .NET Framework, an integral component of Windows that includes a virtual execution system called the common language runtime (CLR) and a unified set of class libraries.
 - Building Web applications using **ASP.NET**. Steps with tutorials
 - Learn C#
 - <https://www.javatpoint.com/c-sharp-tutorial>
 - OR
 - https://www.youtube.com/playlist?list=PLGLfVvz_LVvRX6xK1oiOreKci6ignjdSa

- Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg
- Learn ASP
 - <https://www.javatpoint.com/asp-net-tutorial>
 - OR
 - https://www.youtube.com/playlist?list=PL6n9fhu94yhXQS_p1i-HLIftB9Y7Vnxlo
- Build an application using this tutorial
 - https://www.youtube.com/playlist?list=PL_NVFNExoAxdf_NAE5kz8XAOPNvfc9w2d

OR

 - Building Web applications using **ASP.NET MVC** Steps with tutorials
 - Learn C#
 - <https://www.javatpoint.com/c-sharp-tutorial>
 - OR
 - https://www.youtube.com/playlist?list=PLGLfVvz_LVvRX6xK1oiOreKci6ignjdSa
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg
 - Build an application
 - <https://www.youtube.com/playlist?list=PL6n9fhu94yhVm6S8I2xd6nYz2ZORd7X2v>- **Python Based:** *Remember the mantra. Learn the language first, then go for the framework and then some way to connect with the database.* So, let's go for the steps
 - Building Web applications using **Django**. Steps with tutorials
 - Learn Python
 - <https://www.javatpoint.com/python-tutorial>
 - OR
 - <https://www.youtube.com/playlist?list=PLsyeobzWxl7poL9JTVyndKe62ieoN-MZ3> [This one has Django extra from 81'st tutorial]
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg
 - Build an application
 - <https://www.youtube.com/playlist?list=PL-osiE80TeTtoQCKZ03TU5fNfx2UY6U4p>

- **PHP Based:** Remember the mantra. Learn the language first, then go for the framework and then some way to connect with the database. So, let's go for the steps
 - Building Web applications using **CodeIgnitor** or **Laravel**. Steps with tutorials
 - Learn PHP
 - <https://www.javatpoint.com/php-tutorial> (intro, data types, control statements, PHP functions, PHP arrays, PHP Strings, PHP form, PHP include, State management, File, upload)
 - OR
 - <https://www.youtube.com/playlist?list=PL0eyrZgxdwhwBToawjm9faF1ixePexft->
 - Basics of HTML/CSS/JavaScript
 - https://www.youtube.com/watch?v=wrdR5Su_Stg
 - Build an application in **Code Ignitor**
 - https://www.youtube.com/playlist?list=PLiIGF-RfqbZQwpSO62ha_imR_848j_X
 - **OR**
 - Build an application in **Laravel** (**PHP's famous framework**)
 - <https://www.youtube.com/playlist?list=PL55RiY5tL51oloSGk5XdO2MGjPqc0BxGV>

Steps to become a Web Designer

Before we indulge into the steps required to become a web designer, let's try to understand what being a web designer is and what is the role of a web designer.

A web application or a mobile application (which requires a server), is basically composed of two parts. One is the front-end part which is what the user sees and it either runs on a web browser or it is just a mobile application and the second one is the back-end part which runs on the server. You can look at it in the diagram given on page 4.

To get a job as a web designer you do not always need any formal qualifications. Many web designers however do have experience in other design fields or have taken training in web design software either formally through college or through self-teaching. Some of the skills usually associated with web designers include:

- Good working knowledge of **one or more** of the following web designer packages:
Dream weaver, Photoshop, flash, etc.
- The ability to create front end using HTML, CSS, Javascript, jQuery, Bootstrap.
- **Step 1:** Learn the basics of HTML, CSS & Javascript from these links
 - <https://www.w3schools.com/html/>
 - No need to learn html forms, HTML5, Html graphics.
 - <https://www.w3schools.com/css/default.asp>
 - No need to learn CSS advanced. Our aim is to just get started.
These can be learnt in future.
 - <https://www.w3schools.com/js/default.asp>
- **Step 2:** This is one of the finest tutorials. I hope you better keep up with his pace.
 - https://www.youtube.com/playlist?list=PLoYCgNOIyGAB_8_iq1cL8MV_eun7cB6eNc
- **Step 3:** Learn Bootstrap
 - https://www.youtube.com/playlist?list=PL41IfR-6DnOovY0t3nBg8Zb6aqm_H70mR
- **Step 4:** Create a beautiful website in Bootstrap. Follow this his 1 hr 43 min tutorial carefully and make notes.
 - https://www.youtube.com/watch?v=V_IAhqLXT9A
- **Step 5:** Since web designers task isn't only designing web sites but also create beautiful items and sometimes edit some things. So, You better be prepared to learn Photoshop or any of its alternatives.
 - <https://www.youtube.com/playlist?list=PLYfCBK8IplO6v0QjCj-TSrFUXnRV0WxfE>

- **Note:** Remember you cannot become master in your first try. Keep implementing and making cool stuff. With time, you will be there.

Steps to become a Game Developer

Before we indulge into the steps required to become a Game Developer, let's try to understand what being a Game Developer is and what is its role.

To be clear here, game development is not a one man's task. It requires a lot of stuff like guys who will create the stuff for games, those will be knowing the game design and stuff related to architecture, those who will code and whose who will do other blah blah stuff. Although, one can become a game developer too and make games lonely. Like for example, I myself also build games but professionally, I am not a game developer. I am a software engineer with experience in java and java related techies. But What I did is, learnt a game engine namely **Unity**, while I was already knowing **C#**. For game designing stuff, I didn't/don't create the characters, environments, etc. myself. I use freebies which I get from the internet for free.

Game development field is an amazing field, where one game can make you millions of dollars if you did right things with the game. Look at the game namely Flappy Bird, which took its developer only 3 hours to build. I myself created it in an hour. But what was interesting about that game? The game got 50 million downloads and its developer made a lot of money where some predicted that He was making \$50,000 a day.

So, I will give you very basic steps and some tutorials and you are good to go. I will be taking Unity into consideration which is free for you to use until you make \$100,000 a month. If you make more than that in a month, you have to buy licensed Unity editor where you just have to pay \$75 a month. There are other engines available like Cry Engine, Unreal Engine, GoDot etc.

- **Making a Game in Unity:** *Remember the mantra. Learn the related language first (C#), then go for the engine.* So, let's go for the steps (I)
 - Learn C#
 - <https://www.javatpoint.com/c-sharp-tutorial>
 - OR
 - https://www.youtube.com/playlist?list=PLGLfVvz_LVvRX6xK1oiOreKci6ignjdSa
 - Learn Unity engine
 - <https://www.youtube.com/playlist?list=PLwhVruPHD9ryD2Q5AK1VY9sGwGI9vu0> [Only 11 are enough. Rest are C# based]
 - Learn more Unity
 - <https://www.youtube.com/playlist?list=PLPV2KyIb3jR4u6zeBY7WPj0KuFdmv84g>

- Make a 2d Game
 - https://www.youtube.com/playlist?list=PLGmYIROty-5YhzMWqgAIXIPRU2_tcz0I
- **Note:** After this, you will be ready to make games. Although, you still have to learn a lot. But what I have seen, that we learn only when we start implementing. For example, you started creating a game and now you have to store the score of a player. You don't know how to do it. So, what you will do is, go to the YouTube and type how to save data in unity. Ba Bham! You are done. You will get this beautiful tutorial from Fahir.
 - https://www.youtube.com/watch?v=zAhjm_-Y-SA
 - So, start making games and see where you get stuck and solve it, by looking online.

Steps to become a Data Scientist

Here we are. One of the lucrative jobs. To become a data scientist, is not tough, but you have to be pretty tough to make through its learning curve and using your brain in solving complex problems.

Without discussing anything, lets dig into becoming the data scientist. Before we look at the steps, let me introduce you to the data scientist role.

In the book, *Doing Data Science*, the authors describe the data scientist's duties this way: "*More generally, a data scientist is someone who knows how to extract meaning from and interpret data, which requires both tools and methods from statistics and machine learning, as well as being human. She spends a lot of time in the process of collecting, cleaning, and munging data, because data is never clean. This process requires persistence, statistics, and software engineering skills—skills that are also necessary for understanding biases in the data, and for debugging logging output from code.*

Once she gets the data into shape, a crucial part is exploratory data analysis, which combines visualization and data sense. She'll find patterns, build models, and algorithms—some with the intention of understanding product usage and the overall health of the product, and others to serve as prototypes that ultimately get baked back into the product. She may design experiments, and she is a critical part of data-driven decision making. She'll communicate with team members, engineers, and leadership in clear language and with data visualizations so that even if her colleagues are not immersed in the data themselves, they will understand the implications."

Source: O'Neil, C., and Schutt, R. *Doing Data Science*. First edition.

Now, let's move to the steps required.

Step1: Pick up **Python** First or **R** (let's stick to python, as it is one of the progressing languages in the world)

- Learn Python
 - <https://www.javatpoint.com/python-tutorial>
 - OR
 - <https://www.youtube.com/playlist?list=PLsyeobzWxl7poL9JTvyndKe62ieoN-MZ3> [This one has Django extra from 81'st tutorial. No need to learn that]
 - **Note:** This is not just learning python. Solve a lot of problems using python. By that I mean to say, try to become master in it. You can solve a ton of problems on various sites like hackerrank.com or hackerearth.com etc.

- **Step 2:** Learn some basic linear algebra and calculus
 - https://www.youtube.com/playlist?list=PLkk92zzyru5MAQs84qojsaDzeZ_g4WJ6
- **Step 3:** Statistics course for Data Science
 - <https://www.youtube.com/playlist?list=PLqzoL9-eJTNBZDG8jaNuhap1C9q6VHyVa>
- **Step 4:** Learn famous libraries of python.
 - Pandas, Numpy and Seaborn. Learning only one would suffice
 - <https://www.youtube.com/playlist?list=PLeo1K3hjS3uuASpe-1LjfG5f14Bnozjwy> (Pandas)
 - <https://www.youtube.com/playlist?list=PLS1QulWo1RIYWmvS03CzXh1MTSN9dbTnR> (Numpy)
 - https://www.youtube.com/playlist?list=PL998IXKj66MpNd0_XkEXwzTGPxY2jYM2d (Seaborn)
 - Now Practice and take some projects into consideration. After this, I wish you can say you are good with data processing with python.
- **Step 5:** Machine learning in Python
 - https://www.youtube.com/playlist?list=PLQVvaa0QuDfKTOs3Keq_kaG2P55YRn5v (This is one of the most popular)
 - OR
 - https://www.youtube.com/playlist?list=PL9ooVrP1hQOHUfd-g8GUpKI3hHOwM_9Dn
- **Step 6: SCIKIT Learn with Python**
 - <https://www.youtube.com/playlist?list=PL5-da3qGB5ICeMbQuqbbCOQWcS6OYBr5A>
- **Step 7:** Now, go and solve challenges here
 - <https://www.hackerrank.com/domains/ai?filters%5Bsubdomains%5D%5B%5D=machine-learning>
- **Note:** Your mind would be ready to play this data science game by now. You are a warrior now with heavy machines and weapons. Go to war and beat the hell out of this thing now.

About the Author

Tahir Hussain Mir, the admin of @_tech_universe page on Instagram. I am a software engineer who currently works in Singapore. In this tech world, I basically speak Java language, in the community of Spring developers. If You are a learner and want some help or if you are a recruiter or some senior level personality and think I can be a good fit into your developer community, you can contact me on my given Instagram page.