I wanted to share some things which I feel students who are starting into development should know.

This content here is not related to your course so it won't be included in your mid-terms or finals :)

It's just for learning purposes. I often see people get overwhelmed because there are so many things out there. So much to learn. It becomes overwhelming and I totally understand that. As I mentioned it before from the very first class, my target for you people is prepare you for your life after your graduation especially if you're entering the job market.

So here we go, I'll just share what I have learned.

There are many different job titles and they require different things / tools that you need to learn.

There is Front-end Developer, Back-end Developer, Web Designer, UI/UX Engineer, Mobile App Developer, iOS Developer, Android Developer, DevOps Engineer. There are many others but since we're only talking about starters entering the job market.

What tools/skills are needed for each?

Front-end Developer

HTML / CSS / JavaScript

Responsive Design

CSS Frameworks (Bootstrap, Material Design, Ant Design, TailWindCSS)

Learn CSS Grid and Flexbox

Design Systems

SCSS/SASS

Atleast one of these frameworks (Angular, React, Vue).

Git / Command Line basics

What is API ? How to use API? How to make GET/POST calls.

Debugging (mostly learning chrome dev tools)

If you want to get to a higher level, take a look at this (https://roadmap.sh/frontend). You don't need to learn everything on this. You can always learn these things on the job but the above ones are needed for entry level.

Back-end Developer

Have an idea how front-end frameworks work. How they will communicate to backends. Atleast one of these frameworks (Angular, React, Vue).

Learn atleast one of these backend languages (Python, Node.js, Java, C#)

I would strongly prefer **Node.js** (if you know JavaScript, you wouldn't need to learn another language). Node.js is very much in demand.

Now after picking up the language, you need to pick up a Framework. If you pick Python, take a look at Django/Flask. If you pick Node.js, use **Express.js framework**.

You need to know atleast 1 SQL Database (**postgres**/mysql/mariadb) and 1 NoSQL Database (**MongoDB**)

You need to know the 4 different types of NoSQL Databases and what actually are NoSQL databases. I have a lecture on this (https://github.com/alamgirqazi/IntroToNoSQL)

Git / Command Line basics

Debugging

What is API ? How to use API? How to create CRUD API.

Learn Authentication / Authorization. How to create/use tokens (JWT).

Here's a nice roadmap (https://roadmap.sh/backend).

Web Designer

Familiarity with Adobe Illustrator, Adobe Photoshop.

HTML/CSS/JavaScript

Use Apps like Invision / Zeplin

Familiarity with prototyping tools such as Balsamiq mockups.

UI / UX Developer

Understand HCI

Wireframing / mockups / prototypes

Balsamiq / Sketch / InVision / Proto.io / Figma / Framer X / Zeplin

Storybook.js

Mobile App Developer

This can be a varied role. Can be categorized into 3 different types. Hybrid Mobile Developer, iOS Developer, Android Developer.

For all these 3,

How to communicate App with http Backends / How to consume API

understand how to use Rest APIs

Navigations in Mobile Apps

How to use mobile native features

How to use external libaries

How to build / deploy apps

iOS Developer

Learn Swift Language.

Android Developer

Learn Java / Kotlin Language.

Hybrid Developer

Learn JavaScript Language or Dart Language (Flutter).

DevOps Engineer

One of the main jobs of a devops engineer is to manage your application in the cloud. This cloud can be Amazon Web Services (AWS), Google Cloud, Heroku, Rackspace, Digital Occean.

Experience with Linux is vital.

Good grip on command line. Good grip on Git.

Knowledge of Continuous Integration and Continuous Deployment.

Vim / Vi / Nano

Web Servers (Nginx / Apache)

Docker

CI / CD Tools (Jenkins / AWS Codepipeline / Google Cloud Build / Travis / Circle CI)

IAAS vs PAAS vs SAAS

Here's a very good roadmap (https://roadmap.sh/devops)

Full-Stack Engineer

Full stack engineers are a mixture of Front-end, Back-end and DevOps. They might not know all but understand how each of these three work.

Software Quality Assurance

Selenium, (Protractor for Angular)

Jmeter

Understand E2E, Unit Testing, Integration Testing

Mocha, Karma, Jasmine

Cypress

JavaScript Testing Library / React-testing-library / Jest

You don't have to know all. But knowing a few would be extremely valuable.

Valuable Skills to learn for future:

GraphQL

Golang

Docker, Kubernetes

Advanced Git

Different ways to upload / deploy your apps

AWS Cloud / Google Cloud

Continuous Integration / Continuous Deployment

E2E Testing / Unit Testing

Here's how I learned mostly

Now I'm gonna share from where I learned most of the stuff. You don't necessarily have to follow this but I think you can learn a lot from them.

I learned the most from this youtube channel Learncode.academy. This would be one of my favourite videos from the channel (https://www.youtube.com/watch?v=sBzRwzY7G-k&t=4s). I think every needs to see this. Other Tech Youtube channels I really like are Fireship, Traversy Media, Academind, Andrew Mead and techsith.

I mostly learned React and Node.js from Learncode.academy and Andrew Mead.

Angular I mostly learned from the documentation (https://angular.io/docs).

Again, you don't have to follow this same but you can take a look at this and find out what works best for you.

Some people learn better by reading, some learn better by watching. It's upto you.

My advice would be that official documentation is the best place to start learning. Otherwise, find a good video tutorial on youtube.

There are also other great learning resources such as Udemy, Plural Sight, Coursera.

I've also added another resource which I created some time ago. You can read it here webdev.pdf