

2017 EDITION



# COMPLETE 8-WEEK CURRICULUM SYLLABUS

a journey to code your  
digital products and become  
a professional programmer

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# Education Program Syllabus

Make Impact with Your Code

In Impact Byte, we will shape you to be a full stack web developer who understands all aspects of the frontend, backend, project/product management, professional workflow, and even entrepreneurship. This way, you will be a top notch in demand professionals in various kind of tech companies.



You will learn in 2 months what you would have learned in 2-4 years in other places:

- Great software development setup and workflow
- Software engineering and database architecture
- Collaboration with Git and Github
- Technical workflow used in the most successful startups
- Market yourself as a developer
- Advice on building digital products
- Build several web applications, including your own personal and team products, a clone of a startup product, then your final team products before graduation



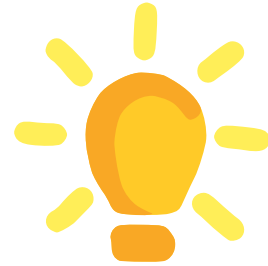
In here, participants with various backgrounds will be discussing every day, questioning our mentors, sharing tips, resources, source code, job offers, and news from their products. All the students will ultimately share the same technical background and apply industry best practices.



# Preparation

## Get ready to set your mind

Before we jump into the real deal, let's explore some bits of technical basics. Related to tools and languages in the web programming ecosystem. If you already have programming experience, take it as a recall of your understanding.



- Professional developer tools
- Your laptop is your important asset and development environment
- Use the best suitable web browsers and extensions
- Explore the language of the Web with HTML, CSS, and JavaScript
- Try professional code editor
- Try command line interface (CLI)

## Week 1

### Coding Basics with HTML, CSS, JavaScript

The first frontier to learn is all about the building blocks of website, including the essential ecosystem around it. HTML, CSS, and JavaScript will be your friends. Through technical lessons, you will also gain critical soft skills as a developer as well.



- Shape your developer mindset
- HTML basics
- Code and workflow
- Collaboration with Git and GitHub
- Plan your work efficiently
- Simple deployment of your website to the Internet
- Perfect developer setup
- Enhance your CLI terminal
- User Interface (UI)
- CSS basics and intermediate
- Semantic web
- Search Engine Optimization (SEO)
- CSS UI framework
- Responsive Web Design (RWD)
- Files/assets compression
- Site performance and optimization
- JavaScript basics
- JavaScript intermediate
- Regular expression (regex)



## Week 2

### JavaScript, jQuery, API, Node.js, and Express

Explore and play around with the vast world of JavaScript, both in frontend and backend with Node.js. Learn to build your own API to communicate between your apps. Even more, utilize your code as a reusable software library.



- More JavaScript
- jQuery basics and plugins
- HTTP and other protocols
- REST APIs and 3rd party integrations
- Node.js basics
- npm packages
- Web scraping
- Web app deployment platforms
  - Heroku, Netlify, Firebase, etc
- Express web framework
- Build your own REST API
- Testing methodologies and tools

## Week 3

### Database, Testing, and Programming Paradigms

Store your data in a well designed system and structure. Apply different kind of test methodologies to check your app's functionality and quality. To arrange your coding style, you'll write in different programming paradigms.



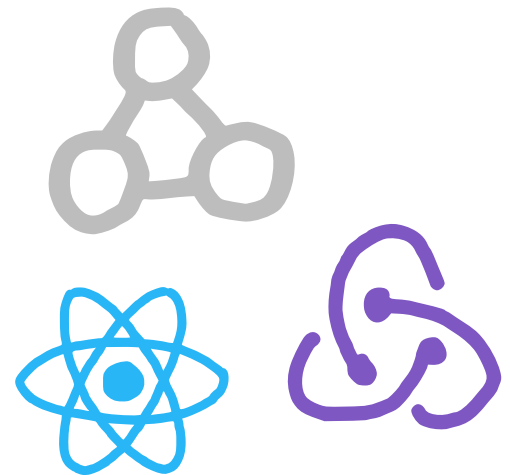
- Database, data modeling, entity diagram
- SQL and ORM: SQLite, MySQL, PostgreSQL
- NoSQL and ODM: Firebase, MongoDB, Redis
- Testing methodologies
- Test-Driven Development (TDD)
- Continuous Integration & Deployment (CI/CD)
- Programming Paradigms
  - Imperative vs declarative
  - Object-oriented programming (OOP)
  - Functional programming (FP)



## Week 4

### Software Engineering and Frontend with React

Architect your application with patterns to ease your entire app structure and development. Hype in with React as a reliable UI library. Scale it up with Redux to better manage data flow in your frontend.

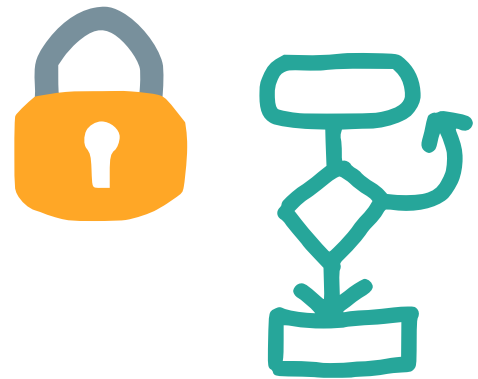


- Application architecture and system analysis
- Design patterns and procedures
- React.js basics
- Build system with Webpack
- Server side rendering (SSR) with Next.js
- D3.js for diagramming
- Flow static type checker- Redux concept and implementation

## Week 5

### Full Stack Web and Computer Science Essentials

Complete your full stack knowledge with the security of your application through various authentication and authorization techniques. Explore the web beyond just it is. Time to acquire some classic computer science materials and modern software development



- Web authentication and authorization
- Server platform
- Internet and cloud computing
- More web protocols
- Classic algorithms
- Classic data structures
- DevOps
- Extra optional features
  - Notifications
  - Payment processing
  - Communications with SMS and phone



## Week 6

### Build a Startup Product Clone

The time has come for you to take a larger scope of challenge. Create a full fledged startup product clone from scratch to finish.



- Build a startup product clone from scratch in 5 days
- Choose one of many products like Twitter, Facebook, Airbnb, Product Hunt, Google, Stack Overflow, etc
- Start from shaping the idea, mockup, UI, API, integrate the frontend and backend, deploy, and publish it on the Web
- Pair programming

## Week 7-8

### Your Own Final Team Product and Graduation

Complete your full stack knowledge with the security of your application with various authentication and authorization techniques. Explore the web beyond just it is. Time to



- Final team product development
- Learn optional advanced additional materials
  - Mobile development (Android/iOS) with React Native
  - Cloud platform like Google Cloud Platform (GCP) or Amazon Web Services (AWS)
  - Application Performance and Management (APM)
  - The next web API with GraphQL/Relay
  - More PaaS/SaaS to support your development
- Mock technical interview
- Complete your professional profile (Website, CV, Resume, LinkedIn)
- Final team presentation
- Graduation



# After Graduation

## Career and Entrepreneurship Support

Finally, you have graduated! The world welcome you to embark on new ventures you're aiming for. Be it a new job you get from our strategic networks, or new business you'd like to build.

- Alumni group for a lifetime
- Digital certification
- Apply for jobs in various companies
- Build a new business/startup ventures
- Enhance your current business with your new skills
- Connect to more people with our entrepreneurship network





# Typical Daily Agenda

## Morning

Breakfast, commuting, healthy exercise,  
all of your morning routines

### 09:00-10:30

Grab a coffee/tea, attend the morning course  
given by the mentors

### 10:30-12:00

Work on tasks with your fellows with the help of our mentors

### 12:00-13:00

Lunch with the provided meal, take a rest, and prayer

### 13:00-16:30

Continue to work on tasks

### 16:30-17:00

Mindfulness, time to relax and get some head space, and prayer  
or continue to work if you want

### 17:00-17:30

Result presentation and review tasks of the day altogether

### 17:30-19:00

Continue to work if you need

### 19:00-21:00

If available, join into events from developers, entrepreneurs,  
community meetups, technical workshops,  
or continue to work if you want

## Night

Time to go home and rest







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*Admission Process*

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