BACK-END WEB DEVELOPMENT

12 MONTH

Holberton

What Your Students Will Learn

Foundation of Software and Engineering

This foundational knowledge of how computers and programming languages work will allow your students to optimize and debug anything later on in their professional career. Students will also begin working with algorithms and data structures which are essential foundations for great Software Engineers - the type that the best companies hire.

In the first sprint of foundations, Students will work in C and Unix programming, graphical programming, data structures, assembly language, and algorithms as well as reverse engineering and security protocols.

From there, they are introduced to higher-level languages, increasingly advanced algorithms, space and time complexity, database management, and front-end programming. Using the latest technologies, they will begin to create a complete web application project that will span the rest of the foundation sprints.
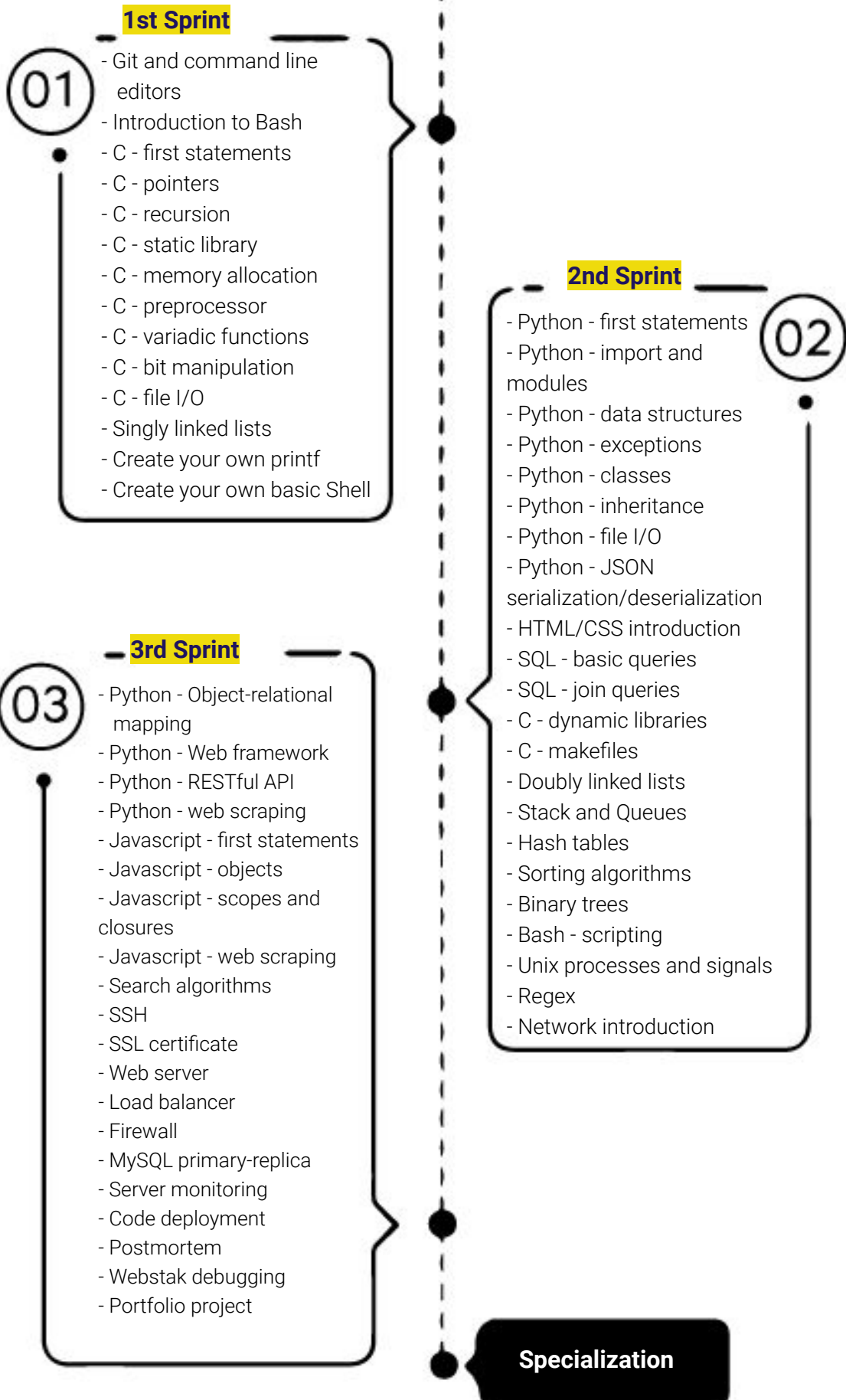
The final sprint of foundations emphasizes automation, scalability, and reliability, so that students are familiar with the infrastructure and best practices similar to those in tech powerhouses. Alongside a continuation in web development, they will also advance in algorithmic understanding, technical writing, debugging, and project management.

Examples of Projects

- Write printf function
- Web stack debugging
- Clone a marketplace
- Code a shell

BACK-END WEB DEVELOPMENT OVERVIEW

Foundation of Computer Science & Software Engineering

01

1st Sprint

- Git and command line editors
- Introduction to Bash
- C - first statements
- C - pointers
- C - recursion
- C - static library
- C - memory allocation
- C - preprocessor
- C - variadic functions
- C - bit manipulation
- C - file I/O
- Singly linked lists
- Create your own printf
- Create your own basic Shell

02

2nd Sprint

- Python - first statements
- Python - import and modules
- Python - data structures
- Python - exceptions
- Python - classes
- Python - inheritance
- Python - file I/O
- Python - JSON serialization/deserialization
- HTML/CSS introduction
- SQL - basic queries
- SQL - join queries
- C - dynamic libraries
- C - makefiles
- Doubly linked lists
- Stack and Queues
- Hash tables
- Sorting algorithms
- Binary trees
- Bash - scripting
- Unix processes and signals
- Regex
- Network introduction

03

3rd Sprint

- Python - Object-relational mapping
- Python - Web framework
- Python - RESTful API
- Python - web scraping
- Javascript - first statements
- Javascript - objects
- Javascript - scopes and closures
- Javascript - web scraping
- Search algorithms
- SSH
- SSL certificate
- Web server
- Load balancer
- Firewall
- MySQL primary-replica
- Server monitoring
- Code deployment
- Postmortem
- Webstak debugging
- Portfolio project

Specialization

12 MONTH PROGRAM

Specialization in Back-end Web Development

Breathe life into the Web

Back-end web development is where the magic happens on websites. Finding the perfect rental, sharing a photo from the cloud, and keeping people secure while using the web are all driven by back-end web developers.

This program is ideal for those who like building frameworks, working on complex projects, and the idea of making solutions that can help millions of people.

After the first three sprints of this program students will focus on key back-end concepts and technologies. This includes languages like Python and Javascript, and concepts like API pagination, caching algorithms, testing, authentication mechanisms, and background jobs.
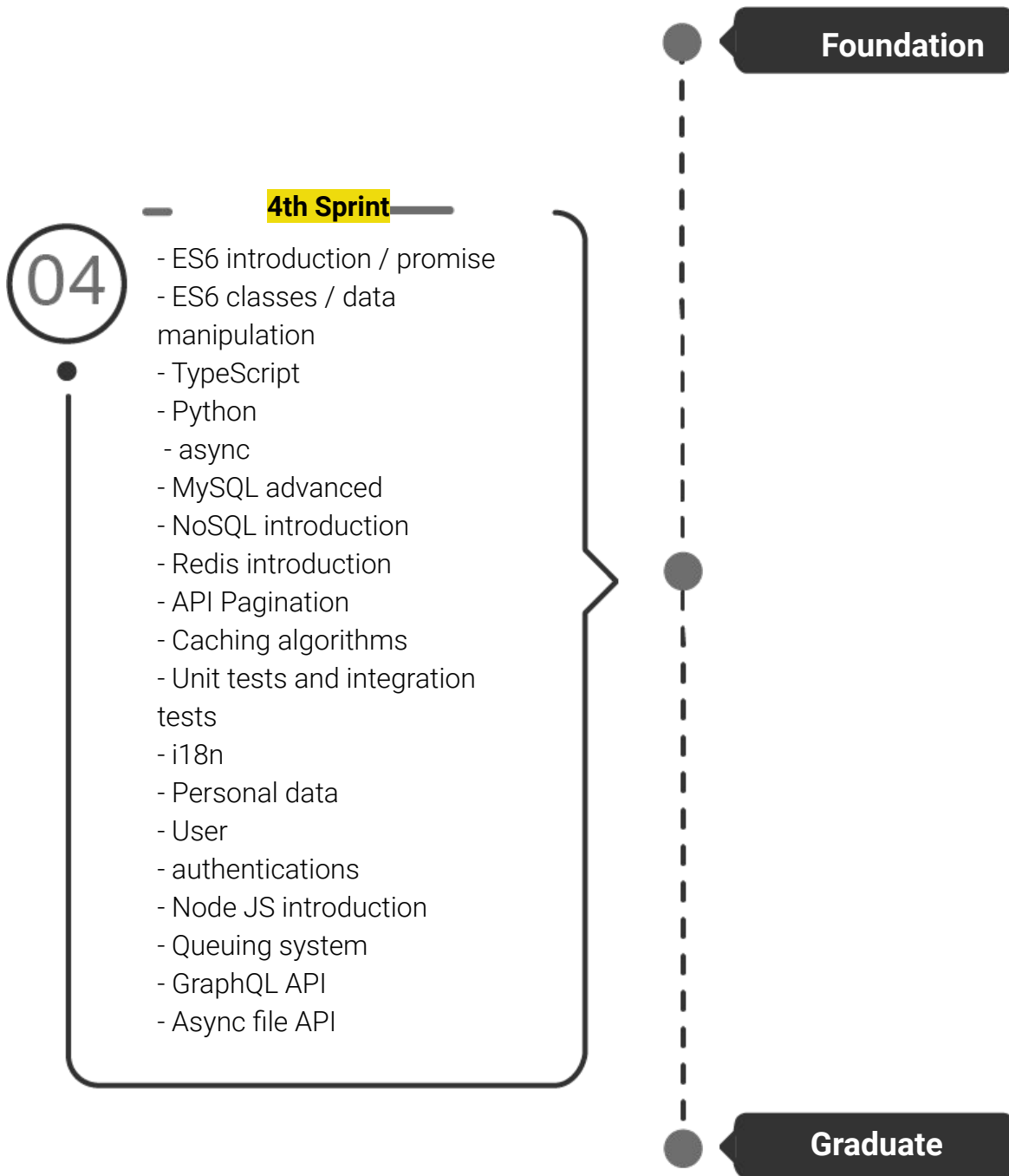
Students will learn how to architect and develop for platforms that are secure, optimized, stable and scalable.

Examples of Projects

- MySQL performance debugging
- Cache from scratch
- Authentication service
- Background jobs system
- Yellow pages in GraphQL
- Thumbnails on-demand

**Curriculum
Back-end Web Development**

Foundation

4th Sprint

04

- ES6 introduction / promise
- ES6 classes / data manipulation
- TypeScript
- Python
 - async
- MySQL advanced
- NoSQL introduction
- Redis introduction
- API Pagination
- Caching algorithms
- Unit tests and integration tests
- i18n
- Personal data
- User
- authentications
- Node JS introduction
- Queuing system
- GraphQL API
- Async file API

Graduate

Contact us

Connect with our team

Our projects-based programs are designed with your success in mind.

Along with Back-end Development, we offer emerging technology Specialization programs:

- Augmented Reality & Virtual Reality,
- Full-stack Web Development,
- Machine Learning,
- DevOps,
- Front-end Web Development,,
- Low Level and Algorithms
- And many more, depending on your needs.

All programs can be customized based on your needs; you specify the length, the pace, and the pedagogical goals. Let's get started

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