

Development



Python Developer

Build powerful web applications using the popular programming language, Python, and the Django framework.



Nombre d'heures de formation :
800 heures



Mentor individuel



Durée de la formation en alternance :
24 mois*



Bachelor's-level diploma
**

*Vérifiez l'éligibilité du parcours en fonction de votre contrat d'alternance (professionnalisation ou apprentissage) auprès des conseillers pédagogiques via <http://oc.cm/contact>.

**Développeur concepteur logiciel - code NSF 326t - Bachelor's-level diploma - certification professionnelle enregistrée au Répertoire National des Certifications Professionnelles (RNCP) par décision de France compétences publiée le 15/10/2021

OPENCLASSROOMS

What do Python developers do?

Python developers are in charge of creating software using the Python programming language. They are generally focused on the back end of websites or applications, i.e., the architecture, unlike front-end developers, who manage the visual aspects.

A Python developer's role includes:

- **Designing** programs to function as clients need them to.
- Using **critical thinking** and **creativity** as you code.
- Identifying and implementing optimal **tools** for building or enhancing powerful, modular applications.
- Using **tests** to monitor applications and ensure the highest quality service.
- Providing technical and functional **documentation** of an application for clients and colleagues.
- **Staying up-to-date** with quickly evolving technologies - developers are lifelong learners!

Why complete this training?

The number of software developer jobs is projected to grow by over 20% from 2018 to 2028 due to unprecedented growth in the tech sector (source: [US BLS](#)). In particular, Python programming is one of the most in-demand skills in the current job market.

Here at OpenClassrooms, our mission is to make education accessible. [OpenClassrooms](#) is a global online education-to-employment platform, designed to teach the skills needed for the most in-demand jobs. We pinpoint the key skills needed to succeed in the job market and create world-class online programs to train our students on those skills.

That's why we've developed this 12-month bachelor-level diploma in Python development, which you can complete entirely online with the help of a dedicated mentor.

This training was designed and created by our learning design team in collaboration with a committee of Python experts. It consists of 13 projects of increasing complexity. Each project is based on a concrete scenario from the professional world and will allow you to acquire specific skills. Your mission: find solutions, produce professional deliverables, and present them convincingly to a mentor. You will be able to directly apply your experience to the workplace.

What you will learn

By completing this path, you will develop the following Python developer competencies:

- Set up your development environment using **virtual environments** and **PyCharm**.
- Create web applications using the **Django** and **Django REST** frameworks.
- Develop a secure **PostgreSQL** database.
- Enhance applications with **testing, debugging, and refactoring**.
- Use technologies like **GitHub, Postman, HTML, CSS, JavaScript, and CircleCI**.

...and much more!

At the end of this training, you will have a portfolio of professional projects and earn your European diploma for software development.

Salary of a Python developer

Software development can be a lucrative career as many opportunities become available the more you gain experience. Here are average salaries of Python developers in 2020:

| | Python developer salaries in the U.S. | Python developer salaries in the U.K. |
|-----------|---|--|
| Beginner | Junior: \$70,000 | £50,000 |
| 2-5 years | 2-5 years: \$100,000 | £65,000 |
| 5+ years | 5+ years: \$125,000 | £80,000 |
| Sources | Daxx , DevSkiller | CWJobs , Indeed , Reed |

Salaries vary greatly depending on your location and the location of your employer.

Career advancement

By following this training, you will be able to work as a *Python, Django, Web, or Back-End Developer*.

In the future, you will be able to evolve your career in different ways, including:

- Diversifying your technical skills to become a full-stack developer, i.e. covering both the back end and the front end.
- Specializing in a particular technology; you'll focus on the Django web framework in this training, and there are plenty of others, such as Big Data and DevOps.

- After a few years of experience collaborating with other developers, you may also choose a more managerial role, as a Lead Developer or a CTO.

Prerequisites

To be eligible to earn this path's diploma, candidates must demonstrate proof of one of the following prerequisites:

- an associate's degree, or equivalent, in computer science, web development, or software development
- **or** a high school/secondary school degree, vocational certificate, or equivalent, and at least 2 years of professional experience in IT, web development, or software development

All other candidates will need to go through a specific admissions process. These candidates must have:

- an associate's degree, or equivalent, in any subject and at least 1 year of professional experience in any field
- **or** a high school/secondary school degree, vocational certificate, or equivalent in any subject and 3 years of professional experience in any field
- **and** a completed placement test consisting of:
 - OpenClassrooms course completion certificates from [Build Your First Web Pages With HTML and CSS](#), [Think like a computer: the logic of programming](#), and [Manage Your Code Project With Git & Github](#)
 - a personal programming project, accompanied by a 10-minute recorded video that explains the project itself and the code behind it

For all candidates, the admissions process starts with a form to validate the aforementioned prerequisites, as well as the alignment between the candidate's professional goals and this path. Any necessary documents for the candidate's application will be collected via this form. If necessary, an individual interview with the candidate will also be organized.

- **Language:** You will need to provide a certificate not older than 2 years to demonstrate a minimum level of English B2.

Certificates accepted:

- English Diploma from a secondary institution (private or public) or an accredited higher learning institution
- Linguaskill minimum score: 160
- BULATS minimum score: 60
- TOEIC minimum score: 785

- IELTS minimum score: 6.5
- TOEFL iBT minimum score: 88
- Cambridge FCE / CAE / BEC HIGHER / BEC VANTAGE minimum score or grade: B or 160
- Certificate from a language center demonstrating a minimum level of B2 (including the number of training hours completed and the company signature or stamp)

Don't have one of these certificates? [Find out where to take an exam.](#)

- **Equipment:** Candidates must also have access to a computer (PC or Mac), headphones, a microphone, a webcam, and a good internet connection for mentoring sessions (3.2 Mbps upload and 1.8 Mbps for download). In addition, to master the skills on this path, you will need to:
 - Have at least 8 GB of RAM (16 GB is more comfortable) and 100 GB of storage space available on your computer.
 - Have administrator rights to your computer in order to install required programs.

Projet 1 - 8 heures

Take Ownership of Your Learning on the Python Developer Path

In our changing world, being skilled in learning is more important than ever. Become an active, autonomous learner to set yourself up for success.

Compétences cibles

- Prepare for your training

Cours associés



Learn How to Learn

 Facile  6 heures

Learning quickly and effectively is a key skill that can improve your learning capacity and help you take control of your personal and professional development.



Understanding the Web

 Facile  4 heures

Does the web interest you, but you aren't totally clear on how the whole thing works behind the scenes? Learn internet history, vocabulary, logistics, and more with this course!

Projet 2 - 60 heures

Use Python Basics for Market Analysis

You work as a marketing analyst at an online bookshop and want to survey your competition. Use Python to track your rivals' prices.

Compétences cibles

- Use version control with Git and GitHub
- Manage data using ETL (extract, transform, load)
- Apply the fundamentals of programming in Python

Cours associés



Learn the Command Line in Terminal

 Facile  4 heures

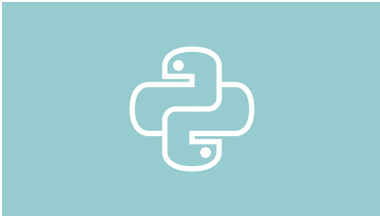
The command line in Terminal is where a lot of programming efficiency happens. Take this course to better communicate with your computer!



Learn Python Basics

 Facile  6 heures

Python is user-friendly for beginners and in high demand. Even the basics of data and program logic will empower you to write simple, powerful code. We'll practice a useful automation task called web scraping, an extract-transform-load process (ETL).



Set Up a Python Environment

 Facile  6 heures

Set up your Python local development environment using pip to install and manage your packages, virtualenv to create virtual environments for each of your projects, and PyCharm to leverage a range of integrated tools.



Manage Your Code Project With Git and GitHub

 Facile  6 heures

Install Git and GitHub and learn basic Git commands to manage your code and deploy your development projects.



Speak in Public

 Facile  6 heures

Mobilize good practices in public speaking! Discover how to create your content with the techniques of storytelling and mind mapping, how to rehearse effectively and how to master your performance.

Projet 3 - 60 heures

Design a Python Application Tailored to a Client's Needs

Your agency has a new client, an online mentoring service that would like to develop an application with Python. Interpret your client's needs and create a prototype.

Compétences cibles

- Model a technical solution for a client using domain models and wireframes
- Identify functional application requirements based on client needs
- Manage a code project using agile methodology

Cours associés



Write Agile Documentation: User Stories & Acceptance Tests

 Moyenne  10 heures

Learn to define user stories and acceptance tests and use the agile requirements format to store requirements on a wiki.



Create Simple Prototypes With Wireframes

 Moyenne  15 heures

Use wireframes to communicate how a website or app will work. Diagram user flows to make sure the steps are all in place.



Apply a Domain-Driven Design Approach to Development

 Facile  4 heures

Use DDD to communicate the technical architecture to the various stakeholders in your project, and learn functional modeling using UML use-case diagrams and class diagrams.

Projet 4 - 80 heures

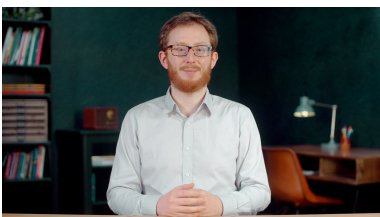
Develop a Software Program Using Python

The local chess club needs help. You are working as a freelancer, and they have asked you to write a new program to help them manage their events. Time to put your new skills in developing high-quality Python software to use!

Compétences cibles

- Use object-oriented programming to develop a Python program
- Write robust Python code using PEP 8
- Structure the code of a Python program using a design pattern

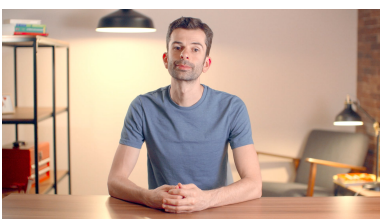
Cours associés



Learn Programming With Python

 Facile  12 heures

Are you a Python beginner? Take your basic coding skills to the next level with object-oriented programming. Practice using methods, classes, inheritance, and modules, and start coding your own applications!



Write Maintainable Python Code

 Facile  8 heures

Now that you've learned to program with Python, make your code clean, readable, easy to modify, and resistant to bugs by applying the PEP 8 style guide for Python, a few key design patterns (including MVC), and the SOLID principles.

Evaluate Your Python Language Skills

Complete this exercise to check your proficiency in the Python programming language before continuing on to your next project.

Compétences cibles

- For this project, you will apply previously validated skills to a technical test context.

Projet 6 - 40 heures

Develop a User Interface for a Python Web Application

As a developer at a streaming company, you have been entrusted with a new project: code the user interface of a Flask web application in HTML, CSS, and JS. It's a great opportunity to gain experience using an API!

Compétences cibles

- Develop a user interface using HTML, CSS, and JS
- Interact with an API

Cours associés



Build Your First Web Pages With HTML and CSS

 Facile  10 heures

Learn to create your first web pages using HTML and CSS, the two most important languages on the web. No coding experience required!



Create Web Page Layouts With CSS

 Facile  10 heures

Go beyond basic HTML and CSS skills and learn how to create great layouts using CSS layout techniques!



Produce Maintainable CSS With Sass

■ ■ ■ Moyenne ⌚ 15 heures

Learn to write clean, maintainable, and modular CSS code through the implementation of designed naming and file structures, such as BEM, and the use of Sass, a CSS precompiler.



Learn Programming With JavaScript

■ ■ ■ Facile ⌚ 15 heures

Build a strong foundation in web development by learning and practicing JavaScript, one of the major programming languages on the web. You'll even create a simple application!



Build Your Web Projects With REST APIs

■ ■ ■ Facile ⌚ 4 heures

Enhance your web projects with REST APIs by accessing data that can be integrated into your own applications. APIs will add a whole new dimension to your software!

Projet 7 - 60 heures

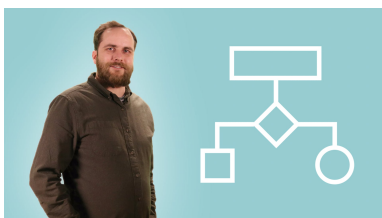
Solve Problems Using Algorithms in Python

You've joined a finance company and have been tasked with making investment programs more competitive. Design an algorithm in Python to maximize profits earned by client!


Compétences cibles

- Deconstruct a computational problem
- Develop an algorithm to solve a problem

Cours associés



Discover How to Build Programs With Algorithms

 Facile  6 heures

In this course, you'll learn the basics of algorithms—variables, functions, loops, and conditional structures—and discover the principles of recursion.

Evaluate Your Algorithmic Problem-Solving Skills in Python

Complete this exercise to check your proficiency using algorithms in Python before continuing on to your next project.

Compétences cibles

- For this project, you will apply previously validated skills to a technical test context.

Projet 9 - 105 heures

Develop a Web Application Using Django

You've just been hired as lead Python developer at a new startup. Use the powerful Django framework to make their digital product a reality!

Compétences cibles

- Develop a web application using Django
- Use server-side rendering in Django

Cours associés



Create a Web Application With Django

 Moyenne  12 heures

Discover Django, one of the most popular Python web frameworks. Build an app using MVT architecture, the Django Admin, and your own custom-built CRUD interface.



Intermediate Django

 Moyenne  12 heures

Take your Django web applications to the next level with authentication, modularity, and advanced functionalities of models, forms, templates, and the Django ORM.



Develop Your Creativity

Facile

8 heures

Creativity is a key skill when problem-solving. Develop your convergent and divergent thinking by building a toolkit of practical exercises to help you innovate at work and in job applications.

Projet 10 - 80 heures

Create a Secure RESTful API Using Django REST

Take your Django skills to the next level by building and documenting a RESTful API in compliance with OWASP and GDPR security standards.

Compétences cibles

- Create a RESTful API using Django REST
- Document an application
- Secure an API to comply with OWASP and GDPR standards

Cours associés




Secure Your Web Application With OWASP

 Moyenne  10 heures

To create a quality application, you must implement secure coding practices! Learn to apply the techniques of OWASP, an online community providing invaluable techniques and tools for reducing security risks in web development.



Write the Technical Documentation for Your Project

 Moyenne  6 heures

Produce clear and maintainable documentation for your project with naming conventions, README, API documentation tools, and a technical architecture document.

Projet 11 - 100 heures

Enhance a Python Web Application With Testing and Debugging

Improve an existing Flask application. Fix errors and add functionalities using test-driven development. But watch out! Get to know the app inside and out and stay on your toes, you may be faced with last minute requests!

Compétences cibles

- Debug the code in a Python application
- Implement a Python test suite
- Manage errors and exceptions in Python
- Set up a Python environment

Cours associés



Debug Your Python Project

▮ Moyenne ⌚ 8 heures

Discover methods for getting rid of bugs in Python programs and the Flask and Django frameworks!



Test Your Python Project

▮ Moyenne ⌚ 10 heures

How do you test a Python project? And what's the point of testing a project? Find out right now!

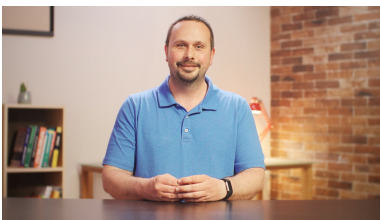
Develop a Secure Back-End Architecture Using Django ORM

Save your events management firm from a PR disaster by developing a secure backend API architecture. Use Django ORM and the Django REST framework to deliver customer relationship management (CRM) software.

Compétences cibles

- Design the architecture of a relational database using DDD
- Implement a secure database with Django ORM and PostgreSQL

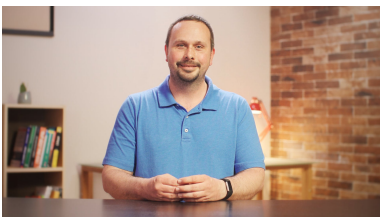
Cours associés



Design the Logical Model of Your Relational Database

 Facile  4 heures

Ready to store your application's data? Let's cover the basics of SQL and design the structure of your first relational database with an Entity Relationship Diagram (ERD).



Implement a Relational Database with SQL

 Facile  4 heures

Ready to put your database modeling skills to use? Design and build a physical relational database with Structured Query Language (SQL) and learn the tools to manipulate your table data.

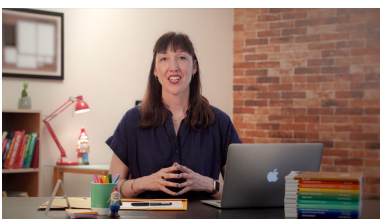
Scale a Django Application Using Modular Architecture

Your new employer relies on a monolithic, unscalable Django website. It's up to you to improve its architecture and deployment, and to set up a system for monitoring the code!


Compétences cibles

- Deploy an application
- Manage code production using CI/CD methodology
- Apply a modular architecture in a Python application
- Set up a code monitoring system using Sentry
- Refactor an application to reduce technical debt

Cours associés



Prepare Your Portfolio and Case Studies

 Moyenne  6 heures

Make your work stand out from the competition by creating an eye-catching portfolio with beautifully designed case studies. Don't forget to consider your entire online presence!