

# Python Builder Bootcamp

## 30 Days, 30 Real World Projects

Hands-On Python, Flask APIs, Generative AI Projects, and Capstone Guidance with Internship Opportunities

30 day intensive Python Bootcamp is a **hands-on, project-first journey** designed to take you from Python fundamentals to building full-fledged real-world applications one day at a time. Each day focuses on a **new project** that reinforces coding concepts through practical problem-solving, automation, APIs, data handling, and modern application development.

No boring theory just **real code, real problems, and real impact**.

### Mode of Learning

- **Format:** Live Online Meet (Links will be shared in whatsapp)
- **Assignments:** Shared on **Google Classroom** after each session
- **Communication:** Official communication and announcements via **WhatsApp group**
- **Certificate:** Participants will receive a **Course Completion Certificate**
- **Capstone Project:** Personalized guidance to build your own final project
- **Internship Opportunities:** Outstanding performers will be **recommended for internships** and open-source contributions

### What You'll Build

You'll create **30+ real-world Python projects** including

- File & web automation tools
- Data analysis utilities (like Expense Tracker, Grade System)
- Flask-based APIs and dashboards
- Generative AI applications using OpenAI
- Web scrapers and bots

- Desktop & GUI apps
- Task automation workflows

## What You'll Achieve

By the end of 30 days, you'll be able to

- **Write clean, structured Python code** using real-world patterns.
- **Automate everyday tasks** – file handling, emails, web scraping, and Excel.
- **Build Flask APIs and deploy them** for public use.
- **Apply AI and data processing tools** to create intelligent apps.
- **Design end-to-end systems** – from backend logic to visualization dashboards.
- **Think like a problem solver**, not just a programmer.

### Day 1 – Python Setup & Basics

- **Topics:** Python Installation, Variables, Input/Output, Operators, strings, conditionals
- Simple Calculator CLI - Get started with Python basics, environment setup, and understanding code flow. Set up your IDE (VS Code/PyCharm), virtual environment, and run your first scripts.

### Day 2 – Data Structures

- **Topics:** Lists, Tuples, Dictionaries, Sets, Iteration and basic algorithms
- Project: Grocery Bill Splitter

### Day 3 – Loops & Functions

- **Topics:** Loops, functions, parameters, return values
- Project: Number Guessing Game - Build a fun terminal-based guessing game where the computer picks a random number, and the user has to guess it with hints (“Too High” / “Too Low”).

### Day 4 – File Handling

- **Topics:** Reading and writing text, CSV, and JSON files. Error Handling, Try/Except
- Develop a Python application to log, categorize, and summarize your daily expenses. Users can add, edit, and view expense data, and see monthly totals.

### Day 5 – Object-Oriented Programming

- **Topics:** Classes, objects, inheritance, encapsulation
- Project: Student Grade System - Create a Python program that records students' marks, calculates grades automatically, and displays performance summaries. Optionally, store data in CSV for persistence.

## **Day 6 – Automating Files & Folders**

- **Topics:** OS module, shutil, pathlib
- Project: File Organizer - Create a Python script that automatically sorts files into folders based on file type (images, documents, videos, etc.).

## **Day 7 – Web Scraping**

- **Topics:** requests, BeautifulSoup, parsing HTML
- Project: News Scraper to CSV - Build a Python script that fetches the latest news headlines from websites (like BBC or TechCrunch), extracts titles and links, and saves them to a CSV file for later reference.

## **Day 8 – Excel & PDF Automation**

- **Topics:** Openpyxl, PyPDF2
- Project: Invoice Generator - Automate tasks like merging PDFs, reading Excel sheets, and creating summary reports.

## **Day 9 – Email & SMS Automation**

- **Topics:** smtp, Twilio API, scheduling tasks
- Project: Daily Email Report Bot - Send automated emails and SMS alerts, like daily reminders or updates, using third-party APIs.

## **Day 10 – GUI Automation**

- **Topics:** pyautogui, automating mouse and keyboard actions
- Project: Mouse & Keyboard Controller

## **Day 11 – Working with APIs**

- **Topics:** Requests, Handling JSON, API Keys
- Project: Weather Dashboard (OpenWeather API)

## **Day 12 – Data Handling & Visualization**

- **Topics:** Pandas, matplotlib, seaborn
- Project: COVID Trend Visualizer

## **Day 13 – SQLite Basics & CRUD**

- **Topics:** Sqlite3, CRUD operations, Queries
- Project: Book Tracker

## **Day 14 – Data Integration**

- **Topics:** Combining CSV + JSON + API data
- Project: Weather vs Air Quality Dashboard

## Day 15 – Command-Line Tools

- **Topics:** argparse, sys, logging
- Project: Command Line Utility (auto rename, backup). Build a command-line To-Do List that saves tasks and marks them complete.

## Day 16 – Flask Basics

**Topics:** Flask setup, routes, Jinja templates

Project: Portfolio Website

## Day 17 – REST APIs with Flask

- **Topics:** Flask RESTful, CRUD, Postman testing
- Project: Task Manager API

## Day 18 – Databases with Flask

- **Topics:** SQLAlchemy ORM, Flask Forms
- Project: Blog App with SQLite

## Day 19 – Authentication

- **Topics:** Flask Sessions, login/logout
- Project: User Login Portal

## Day 20 – Flask Deployment

- **Topics:** Render/Heroku/Railway deployment
- Project: Deploy Blog API

## Day 21 – Web Automation

- **Topics:** Selenium or Playwright
- Project: Auto Form Filler / Price Tracker

## Day 22 – Google Sheets & Notion API

- **Topics:** Working with Google Sheets & Notion API
- Project: Habit Tracker Bot

## Day 23 – Telegram/Discord Bots

- **Topics:** Bots on telegram, discord.py
- Project: Task Notifier Bot

## Day 24 - Email Scraping & Automation

- **Topics:** Parsing and cleaning emails automatically
- Project: Inbox Cleaner

## **Day 25 – OpenAI API Integration**

- **Topics:** GPT API, prompt engineering basics
- Project: AI Text Summarizer

## **Day 26 – Text-to-Image APIs**

- **Topics:** DALL.E, Stability API
- Project: AI Poster Generator

## **Day 27 – Speech Recognition & TTS**

- **Topics:** speech\_recognition, pyttsx3
- Project: Voice Assistant

## **Day 28 – LangChain + PDF Q&A Bot**

- **Topics:** LangChain, document loaders, embeddings
- Project: Chat with PDF app

## **Day 29 – AI-Powered Task Manager**

- **Topics:** Flask + AI + SQLite Integration
- Project: AI Task Manager

## **Day 30 – Smart Productivity Dashboard (Capstone)**

Combine Flask, Automation, APIs, AI - Smart Productivity Dashboard

Components

- Flask REST API
- AI summarization
- SQLite + Pandas
- Email alerts
- Daily automation schedule

## **BONUS MINI PROJECTS (Optional)**

- **Password Generator**
- **Blackjack Game**
- **Quiz App (OOP)**
- **Pomodoro Timer (Tkinter GUI)**
- **Snake Game**
- **Flashcard App**
- **Email Birthday Wisher**
- **Rain Alert SMS Bot**
- **Coffee Machine Simulator**

- Habit Tracker (Google Sheets)
- Currency Converter YouTube
- Downloader
- Desktop Reminder App
- Portfolio Contact Form
- REST Journal API