



# Flask Tutorial

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This **Flask tutorial** is the latest and comprehensive guide designed for beginners and professionals to learn **Python Web Framework Flaskone**, one of the most popular Python-based web frameworks. Whether you are a beginner or an experienced developer, this tutorial is specially designed to help you learn and master Flask and build your real-world web applications.

This Flask tutorial covers all the details of Flask, from basic concepts such as setup and installation to advanced concepts like user authentication, database integration, and deployment. In addition to this, we also provide you with a list of Flask with Python projects, FAQs, and interview questions for your future Interview.



Flask Tutorial

*Before you jump into this tutorial, it's recommended to have a hands-on experience with HTML and Python. If you are not well aware of these concepts, then we will suggest you go through our tutorials on [HTML](#) and [Python](#).*

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## Prerequisites for the Flask Tutorial

Before getting deep into this tutorial, we assume that you already have some experience on HTML and Python. And if you are not familiar with these concepts, we recommend checking out our brief tutorials on [HTML](#) and [Python](#) first.

## Flask Setup & Installation

Welcome to the Flask tutorials section! Here, we'll cover the essential elements you need to kickstart your journey in Flask. From installation and keywords to comments, variables, and indentation, we'll explore the foundational concepts that underpin Python with Flask development.

- [Introduction to Web Development using Flask](#)
- [Differences Between Django vs Flask](#)
- [Installation of Flask on Windows](#)

## Flask Quick Start

Welcome to Flask Quick Start – your go-to guide for mastering Flask development essentials in a snap! From crafting your inaugural application to fine-tuning HTTP methods, routes, and redirects, this concise yet comprehensive resource equips you with the skills needed to excel in Flask development.

- [Creating the first simple application](#)
- [Run a Flask Application](#)
- [Flask Routes](#)
- [Flask Models](#)
- [Flask – HTTP Method](#)
- [Flask – Variable Rules](#)

- [Redirects and URL](#)
- [Redirect & Errors](#)
- [Change Port in Flask app](#)
- [Changing Host IP Address in Flask](#)

## Serve Templates and Static Files in Flask

Discover the essential techniques for serving templates and static files in Flask Web Framework with this comprehensive guide. From mastering Jinja2 templating and template inheritance to ensuring CSRF protection, uploading and managing files, and leveraging Flask Web Framework extensions like Flask-Mail and Flask WTF, this resource covers all you need to know to enhance your Flask web Framework applications.

- [Templates in Flask](#)
  - [CSRF Protection in Flask](#)
  - [Templating With Jinja2 in Flask](#)
  - [Template Inheritance in Flask](#)
  - [Placeholders in Jinja2 Template](#)
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  - [Upload Multiple files with Flask](#)
- [Flask – Message Flashing](#)
- [Flask WTF](#)
- [Flask-Mail](#)

## User Registration, Login, and Logout in Flask

Master user authentication in Flask Web Framework with this concise guide. Learn registration, login, and logout functionalities using Flask-Login, implement password hashing with Bcrypt, manage sessions, and explore role-based access control. Additionally, discover tips for displaying the current username and handling JSON responses effortlessly.

- [How To Add Authentication to Your App with Flask-Login](#)
- [Display Current Username in Flask](#)

- [Password Hashing with Bcrypt in Flask](#)
- [How to store username and password in Flask](#)
- [Flask – Role-Based Access Control](#)
- [Flask Sessions to server Logout](#)
- [Flask – JWT](#)
- [Flask Cookies](#)
- [Flask – JSON Response](#)

## Define and Access the Database in Flask

Delve into the world of database management in Flask with Python this guide. Explore powerful tools like Flask-SQLAlchemy for seamless integration with relational databases like SQLite and PostgreSQL. Learn to send data to MongoDB and execute raw SQL commands with Flask-SQLAlchemy.

- [Flask-SQLAlchemy](#)
- [Flask SQLite](#)
- [Sending Data from a Flask app to MongoDB Database](#)
- [Making a Flask app using a PostgreSQL Database](#)
- [Build a Web App using Flask and SQLite in Python](#)
- [Login and Registration Project Using Flask and MySQL](#)
- [Execute raw SQL in the Flask-SQLAlchemy](#)

## Flask Deployment and Error Handling

Delve into Flask with Python deployment and error handling, covering subdomain management, 404 error handling, deploying Flask apps on Heroku, and incorporating machine learning models seamlessly.

- [Subdomain in Flask](#)
- [Handling 404 Error in Flask](#)
- [Deploy Python Flask App on Heroku](#)
- [Deploy Machine Learning Model using Flask](#)

## Flask Projects

Explore a variety of Flask Web Framework projects, from a todo list app to sentiment analysis on Twitter, showcasing diverse functionalities such as

portfolio creation, MySQL integration, and interactive data visualization with graphs and charts.

- [Todo list app using Flask Python](#)
- [Single Page Portfolio Using Flask](#)
- [Profile Application using Python Flask and MySQL](#)
- [Wikipedia search app using Flask Framework – Python](#)
- [Twitter Sentiment Analysis WebApp Using Flask](#)
- [Create Cricket Score API using Web Scraping in Flask](#)
- [How to Add Graphs to Flask Apps](#)
  - [Add Scatter Chart in Flask](#)
  - [Show Data on Google Pie Chart using Python Flask](#)
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## Difference Between Flask and Django

Here in this section, we have create a comparison table of Flask and Django.

Feature	Flask	Django
Framework Type	Micro-framework (lightweight, minimal setup)	Full-stack framework (includes built-in features)
Flexibility	Highly flexible, allows customization	Less flexible but provides a lot of built-in tools
Development Speed	Slower for larger projects due to less automation	Faster for large projects with built-in solutions
Learning Curve	Easier for beginners due to simplicity	Steeper learning curve due to more complex features
Use Case	Best for small to medium web applications	Best for large, complex applications
Project Structure	Simple, user-defined structure	Follows a specific, organized project structure

Feature	Flask	Django
Built-in Features	Minimal, requires third-party libraries	Comes with built-in features like ORM, admin panel, and authentication
Scalability	Requires more manual work for scalability	High scalability with built-in tools for large projects
ORM Support	Optional (Flask-SQLAlchemy for database support)	Built-in ORM (Django ORM)
Template Engine	Jinja2	Django Template Language
Security Features	Requires manual implementation of many security features	Comes with built-in security features like CSRF protection, user authentication
URL Routing	Manual, more customizable	Automatic URL routing with pre-defined patterns

### Career Opportunities with Flask

Career Role	Salary (INR)	Salary (USD) (Approx.)
Entry-Level Flask Developer	₹3,00,000 – ₹5,00,000 per annum	\$3,600 – \$6,000 per annum
Mid-Level Flask Developer	₹5,00,000 – ₹9,00,000 per annum	\$6,000 – \$10,800 per annum
Senior Flask Developer	₹9,00,000 – ₹15,00,000 per annum	\$10,800 – \$18,000 per annum

Career Role	Salary (INR)	Salary (USD) (Approx.)
Lead Developer/Architect	₹15,00,000 – ₹25,00,000 per annum	\$18,000 – \$30,000 per annum

Must Read – [Top 40 Flask Interview Questions and Answers](#)

## What is WSGI?

*WSGI is an acronym for web server gateway interface which is a standard for Python web framework flask application development. It is considered the specification for the universal interface between the web server and web application.*

## What is Jinja2?

*Jinja2 is a web template engine that combines a template with a certain data source to render dynamic web pages. In Easy Language, It combines a template (the layout of the page) with data (the specific information you want to show) to create a dynamic web page.*

## Conclusion

This Flask tutorial is a complete guide designed to help both beginners and experienced developers learn and master Flask. It covers everything you need, from getting started with installation to building real-world web applications. You've also learned about user authentication, database connections, and even how to deploy your Flask projects. With practical projects, interview tips, and FAQs included, this tutorial provides everything you need to confidently use Flask to create dynamic web applications. Now you're ready to start building with Flask and take your web development skills

## Flask Tutorial – FAQs

## What is Flask?

*Flask is a web framework that allows developers to build lightweight web applications quickly and easily with Flask Libraries. It was developed by Armin Ronacher, leader of the International Group of Python Enthusiasts(POCCO). It is basically based on the WSGI toolkit and Jinja2 templating engine.*

## Should I learn HTML for Flask?

*Both are highly recommended in case you are learning to develop web applications.*

## Is Flask open source?

*Yes, Flask and Django both are Free Open Source, Python-based web frameworks that are used for building web applications.*

## How do I start a Flask project?

*Here's a simplified version of the steps to start a Flask project:*

- 1. Install Python.*
- 2. Install Flask by running "pip install flask" in the terminal or command prompt.*
- 3. Create a virtual environment by running "python -m venv myenv".*
- 4. Activate the virtual environment by running "myenv\Scripts\activate.bat" on Windows or "source*



*myenv/bin/activate" on macOS or Linux.*

- 5. Create a Flask app by importing Flask and creating a new instance of the Flask class.*
- 6. Define routes by decorating a function with "@app.route('/myurl')" and defining the function to return data or HTML.*
- 7. Run the app by running "flask run" in the terminal or command prompt.*

## What is the default port of Flask?

*By default, many Flask applications run on port 5000.*

## Which company uses Flask?

*There are many major companies employing Flask and that list includes Netflix, Reddit, Airbnb, Lyft, Mozilla, MIT, Uber, Red Hat, Rackspace, Mailgun, Patreon, Samsung, NGINX, 2market, B2W, and Sieve.*

## What is the salary of a Flask Developer in India?

*As per various resources, the average Salary of a Flask Developer was ranging between 9,00,000 INR – 11,00,000 INR depending upon the experience and skills.*

Looking to dive into the world of programming or sharpen your Python skills? Our [Master Python: Complete Beginner to Advanced Course](#) is your ultimate guide to becoming proficient in Python. This course covers everything you need to build a solid foundation from fundamental programming concepts to advanced techniques. With **hands-on projects**, real-world examples, and expert guidance, you'll gain the confidence to tackle complex **coding challenges**. Whether you're starting from scratch or aiming to enhance your skills, this course is the perfect fit. Enroll now and master Python, the language of the future!



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