



THE ULTIMATE
PYTHON
PROJECTS HANDBOOK



Beginner Level

Calculator Application

Build a basic calculator application that can perform arithmetic operations like addition, subtraction, multiplication, and division.



References:

[https://www.geeksforgeeks.org/make-simple-calculator-using-python/amp/](https://www.geeksforgeeks.org/make-simple-calculator-using-python/)

<https://www.digitalocean.com/community/tutorials/how-to-make-a-calculator-program-in-python-3>

Hangman Game

It's a fun and interactive project that involves guessing a word by suggesting letters and drawing a part of the hangman for every incorrect guess.



References:

<https://www.pythonforbeginners.com/code-snippets-source-code/game-hangman>

<https://inventwithpython.com/invent4thed/chapter8.html>

Weather App

Develop a program that fetches weather data from an API and displays it to the user based on their location input.



References:

<https://www.geeksforgeeks.org/get-live-weather-desktop-notifications-using-python/amp/>

https://github.com/ibelgin/Weather_Finder_Python

<https://www.makeuseof.com/python-live-weather-data/>



Random Password Generator

Create a Python script that generates secure random passwords with a specified length. Users can customize the password by choosing options like including digits, special characters, and uppercase letters.



References:

<https://www.geeksforgeeks.org/create-a-random-password-generator-using-python/>

<https://www.analyticsvidhya.com/blog/2022/06/secure-password-generator-using-python/>

Basic Web Scraper

Write a script that scrapes data from a website and saves it to a file, such as fetching the latest news headlines.



References:

<https://realpython.com/beautiful-soup-web-scraping-pandas-sqlite/>

<https://www.freecodecamp.org/news/how-to-scrape-websites-with-python-2/>

Intermediate Level

Personal Blog Website

Build a web application for creating and managing a personal blog, including features like user authentication and CRUD operations for blog posts.



References:

<https://www.askpython.com/python-modules/flask/flask-crud-application>

<https://github.com/YashMarmat/Blog-App-django-v3>

<https://medium.com/@dennisivy/flask-restful-crud-api-c13c7d82c6e5>

Simple E-commerce System

Develop a basic e-commerce system with product listings, shopping cart functionality, and a checkout process.



References:

<https://www.geeksforgeeks.org/e-commerce-website-using-django/>

https://www.youtube.com/watch?v=YZvRrlldjf1Y&ab_channel=freeCodeCamp.org

Music Recommendation App

Build a music recommendation system that suggests songs or playlists to users using machine learning algorithms.



References:

<https://dev.to/kuvambhardwaj/how-i-built-a-song-recommendation-system-with-python-scikit-learn-pandas-11ok>

<https://www.geeksforgeeks.org/music-recommendation-system-using-machine-learning/>

<https://thecleverprogrammer.com/2023/07/31/music-recommendation-system-using-python/>

Object Detection

Implement object detection using Python and libraries like OpenCV or MediaPipe. You can create a system that identifies and locates objects in images or videos.



References:

https://developers.google.com/mediapipe/solutions/vision/object_detector/python

<https://www.datacamp.com/tutorial/text-analytics-beginners-nltk>

<https://huggingface.co/blog/sentiment-analysis-python>

Sentiment Analysis

Develop a basic e-commerce system with product listings, shopping cart functionality, and a checkout process.



References:

<https://www.geeksforgeeks.org/e-commerce-website-using-django/>

https://www.youtube.com/watch?v=YZvRldjf1Y&ab_channel=freeCodeCamp.org

Advanced Level

Gesture Recognition Application

Implement hand gesture recognition using TensorFlow, OpenCV, or MediaPipe. This project can be used for applications like sign language translation, virtual reality control, or interactive gaming.



References:

https://developers.google.com/mediapipe/solutions/vision/gesture_recognizer/python

https://www.youtube.com/watch?v=pDXdIXlaCco&ab_channel=NicholasRenotte

<https://techvidvan.com/tutorials/hand-gesture-recognition-tensorflow-opencv/>

Discord Bot

Develop a Discord bot that can perform various tasks within the Discord platform, such as moderating servers, providing information, or running fun and interactive commands.



References:

<https://realpython.com/how-to-make-a-discord-bot-python/>

<https://github.com/topics/python-discord-bot>

https://www.youtube.com/watch?v=SPTfmiYiuok&ab_channel=freeCodeCamp.org

Automation Scripts

Write automation scripts to perform repetitive tasks, such as data extraction and manipulation, system maintenance, or cloud resource management.



References:

https://www.youtube.com/watch?v=PXMJ6FS7llk&ab_channel=freeCodeCamp.org

<https://www.freecodecamp.org/news/python-automation-scripts/>

<https://automatetheboringstuff.com/>



AI Flappy Bird

Train an AI model to play the popular game Flappy Bird.



References:

https://www.youtube.com/watch?v=MMxFDaIOHsE&t=91s&ab_channel=TechWithTim

<https://medium.com/analytics-vidhya/how-i-built-an-ai-to-play-flappy-bird-81b672b66521>

AI-Powered Chatbot

Build a chatbot using natural language processing and machine learning to handle user queries and provide relevant responses.



References:

<https://www.analyticsvidhya.com/blog/2021/10/complete-guide-to-build-your-ai-chatbot-with-nlp-in-python/>

https://www.youtube.com/watch?v=1lwddP0KUEg&ab_channel=NeuralNine

<https://www.techwithtim.net/tutorials/ai-chatbot>



Each project is designed to enhance your understanding and proficiency in Python.

So, make sure to practice these projects, and enhance your understanding!



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