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Top 43 Python Projects to Master Most Demanding Programming Language of 2021



The joy of coding Python should be in seeing short, concise, readable classes that express a lot of action in a small amount of clear code, not in reams of trivial code that bores the reader to death.

— Guido van Rossum

So, if you are a Python beginner or someone who wants to make a career in python, then working on some real-time Python projects is the best thing that you can do.

It will provide you practical experience & enhance your Python knowledge.

Let's start exploring the best Python project ideas.

For your help, some of the python projects with source code are provided.

Python Projects for Freshers

In this section, you will see the list of Beginner Python projects :

1. Hangman Game in Python

Python Project Idea: This Python project aims at developing a hangman game using Python.

To implement this module, you just require random and time modules of Python.

It requires no other external modules, Python functions and loops are sufficient to create this project.

2. Python Alarm Clock

Python Project: The main purpose of this Python project is to develop an alarm clock.

Datetime and Tkinter are some of the most useful libraries of Python that help us to build this project.

To set the alarm according to the requirements, a user-friendly interface is must.

3. Mad Libs Generator in Python

Project Idea: Mad Libs is an exciting and fun game especially for kids. The Python project generates stories randomly with few customizations.

The users are also able to input some words and after that the project will generate stories using your words.

4. Desktop Notifier Python App

Python Project Idea: This project aims at building a desktop notifier system that will notify you after every specific period of time.

The application runs on your system.

The development of these apps makes the use of libraries such as requests, notify2, etc.

5. Email Slicer Project in Python

This Python project provides a username and a domain name.

One can make customizations and can send this information to the user through a message

6. Python Number Guessing Project

Project Idea: This is one of the exciting Python projects which aims at developing a mini game.

In this program, the computer randomly chooses a number and then the users have to identify the same using the hint.

The score of the user gets reduced every time he/she gives the wrong answer and increases if the answer is right.

7. Python Language Translator

For the purpose of translating some text material or some words, paragraphs from one language to another, one can make use of a language translator.

This Python project translates text from one language to another language in real-time.

8. Website Blocker using Python

Python Project Idea: This interesting Python Project aims at developing an application that restricts a website from opening.

Such a program helps a user to protect themselves from fraudulent websites as well as other distractions like social media.

Python Project Source Code: [Website Blocker Project in Python](#)

9. Target practice Python Game

Target or shooting games are very popular these days which require strong aiming capabilities to target at an accurate position.

This project in Python for Beginners will help gamers to practice their shooting skills.

10. Python Contact Book

Python Project Idea: It is a command-line project where the developer's goal is to build a contact book application.

The users can make the use of such Python applications to save the contact details.

The users are also allowed to find the contact details, update or delete saved contacts.

11. Convert text to Speech project using Python

Text to Speech project converts your text into voices by taking the text as input and converting them into speech with a button click.

12. Rock Paper Scissors game in Python

It is one of the interesting games probably played by almost all of us.

With a few basic sets of rules, the game is played between two players.

On the basis of the player's pattern, the rules and conditions for who wins the game can be decided.

13. Creating Notepad using Python

This is a simple Python project that aims at developing a Text Editor (Notepad) in Python.

The prerequisites for building a Text editor Python project requires you to have a knowledge of Tkinter and basic concepts of Python.

Source Code: [Create Notepad in Python](#)

14. Python 2048 Game

2048 is an interesting and exciting mathematics puzzle game.

To build this Python project, the developer can make use of Tkinter and python.

Intermediate Level Python Projects with Code

1. Random Password Generator using Python

Having a strong password for our online accounts are important to protect them from hackers and frauds.

Also, it's a very tedious task to create a strong password.

This Intermediate level Python project is all about creating an app that randomly generates strong passwords that include characters, alphabets and digits.

2. Python Currency Converter Project

This is one of the most exciting Python Project which aims at developing a currency converter.

Practicing such a project will help you enhance your python skills and knowledge.

3. Countdown Clock and Timer Project in Python

Python Project Idea: An individual can use Python to develop a countdown timer desktop application in which a

user can set a timer.

After the time interval is over, the app will notify the user.

4. Python Message Encode and Decode Project

Encoding is necessary to secure your sensitive information.

The Python project aims at encoding and decoding messages using a common key.

One can make use of Tkinter and the base64 library to develop this project in Python.

5. Memory puzzle Python game

Project Idea: The memory puzzle game starts with displaying some tiles for a second and then they are covered.

Here the task of the user is to uncover the tiles and find similar tiles.

Once the tiles are matched, the score increases.

6. Calculator using Python

Using various libraries of python like Tkinter, a graphical user interface calculator can be built.

The objective of this project in Python is to build a calculator that includes various buttons to perform calculations and different operations.

Further features and functionalities for scientific calculations can also be put on.

7. Instagram Bot in Python

The instagram Bot is helpful to automate your basic activities such as following people, liking, commenting, etc with a low frequency as excessive may get you deactivated.

8. Python Snake Game

This is one of the most interesting games which I'm sure everyone has played before.

Using Python and its various attractive libraries, one can build the snake game.

9. Random Wikipedia article application using Python

Python Project Idea: This project aims at developing an application that provides a random wikipedia article.

After this, a question is placed in front of the user asking if he/she wants to read the article or not.

With a yes answer, the article is shown in full otherwise it looks for the next random article.

10. Slide puzzle game in Python

The task of the player in this game is to slide the tile one by one so that every tile can be set in the right place.

The game can be built using Python and its other functionalities.

11. Extract Text from Image using Python

The objective of this Intermediate project in Python is to extract text content from images using OpenCV and tesseract.

To implement this project, knowledge of Python, OpenCV, Tkinter, and Tesseract is required.

Source Code: [Python Extract Text from Image Project](#)

12. Python Automatic License Number Plate Recognition

Python Project Idea: Detecting the license number plate is the objective of this project.

OpenCV is used to identify number plates and to extract characters and digits from the number plates Python Pytesseract is used.

13. Tic Tac Toe Game using Python

Tic Tac Toe is one of the ancient games that can be played anywhere with just a pen and paper.

Knowledge of basic concepts of Python and pygame(a library of Python) is required.

Source Code: [Python Tic Tac Toe project](#)

14. Online College Admission Management System in Python

This Python project can be developed using Django, a Python-based open-source web framework.

The system will have various features such as Login and Sign up, detailed view of courses, delete or add courses, different access rights to users.

Source Code: [Python Project for Online College Admission Management System](#)

Advanced Level Python Projects with Source Code

1. Python Expense Tracker Project

Expense tracker is one of the most interesting applications and it is very useful.

It enables a user to keep a track of his/her expenses and even provide statistical analysis of their expenses

2. Face Mask detection using Python

Python Project Idea: The basis of this Python project is to develop a real-time system that is able to detect if a person on a webcam is wearing a mask or not.

To train the model, one can use Keras and OpenCV.

3. Chatbot in Python

A chatbot is actually a piece of software that has the ability to communicate and perform actions just as humans.

Chatbots are very popular nowadays in personal as well as professional lives.

It can be built using Python, Keras, NLTK, etc.

4. Bulk Image resize/file rename application in Python

There are situations when an individual needs to resize and rename bulk images.

For preprocessing of data, you need to build an application using Machine Learning and Python.

5. Library Management System Project in Python

Library Management System is an interesting Python project that can be built using Tkinter.

It provides functionalities such as issue book, return book, view book, etc.

6. Python Project on Speed Typing Test

The purpose of this Python project is to build such a program that can help a user to evaluate his/her typing speed.

Tkinter is useful to build a user interface in which a user types random sentences to test his/her typing speed, accuracy and words per minute.

Source Code: [Python Speed Typing Test Project](#)

7. File Manager Python Project

Project Idea: To manage and search all the files in your system as well as to copy-paste them to different locations, one can build a file manager project using Python.

Source Code: [Python File Manager Project](#)

8. Plagiarism checker using Python

To check plagiarism in any text material or documents, you can build an application using a natural processing

library with the google search API.

9. Music player in Python

It is also possible for an individual to develop a music player app by using Python.

By building an interactive interface, you can also search for various files in directories.

10. Content Aggregator in Python

Finding good and relevant content over the internet is a tough task as there are ample amounts of websites & content there.

Content Aggregator automatically searches for relevant content and popular websites.

11. Quiz Application using Python

It is an interesting Python project where the developers aim to build a standard quiz application.

A set of questions are provided to the users and allow them to answer the same.

The application then displays if an answer is correct or incorrect. And once the user finishes the test, the final score gets displayed.

The application also requires a database to store all the questions, answers, and scores of the users.

An option for appointing admins is also required. This enables the admin to create and update tests for the other users.

12. Handwritten Digit Recognition Project in Python

This Python project aims at developing a HandWritten Digit Recognition app using the MNIST dataset.

Along with this, the use of convolutional neural networks is also required.

13. Sliding Tile Puzzle using Python

Python Project Idea: The project aims at developing a sliding Tile game of multiple levels.

To start the game, the player needs to select a level which he/she wants to play.

The prerequisites to build this project are pygame, random, sys, and os modules.

14. Python Real-time Face Recognition Project

This Python project is all about recognizing the face in real-time.

To implement this interesting project, it is essential for you to have knowledge of Python and OpenCV.

Source Code: [Real-Time Face Recognition Project Using Python](#)

15. Colorize Black and White Images in Python

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Colorizing Black and White images with Python is the aim of this advance level python project.

In this project, black and white images work as an input and a colored image is produced as an output.

Source Code: [Colorize Black and White Images using Python](#)

Conclusion

The above discussed are some of the best Beginner Python projects, Intermediate Python Projects and Advanced Python projects.

We suggest you start with basic Python projects and then gradually move towards Python intermediate Projects and then Python advanced Projects.

These coding Python projects for practice will help you sharpen your Python skills and knowledge and you will feel more confident.

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