### **Complete Python with 60 Projects**

### Introduction

* **[Getting Started](https://www.programiz.com/python-programming/first-program)**
* **[Keywords and Identifiers](https://www.programiz.com/python-programming/keywords-identifier)**
* **[Statements & Comments](https://www.programiz.com/python-programming/statement-indentation-comments)**
* **[Python Variables](https://www.programiz.com/python-programming/variables-constants-literals)**
* **[Python Datatypes](https://www.programiz.com/python-programming/variables-datatypes)**
* **[Python Type Conversion](https://www.programiz.com/python-programming/type-conversion-and-casting)**
* **[Python I/O and import](https://www.programiz.com/python-programming/input-output-import)**
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* **[Python if...else](https://www.programiz.com/python-programming/if-elif-else)**
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* **[Python Functions](https://www.programiz.com/python-programming/function)**
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* **[Python Numbers](https://www.programiz.com/python-programming/numbers)**
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* **[Python Set](https://www.programiz.com/python-programming/set)**
* **[Python Dictionary](https://www.programiz.com/python-programming/dictionary)**

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* **[Python File Operation](https://www.programiz.com/python-programming/file-operation)**
* **[Python Directory](https://www.programiz.com/python-programming/directory)**
* **[Python Exception](https://www.programiz.com/python-programming/exceptions)**
* **[Python Exception Handling](https://www.programiz.com/python-programming/exception-handling)**
* **[Python User-defined Exception](https://www.programiz.com/python-programming/user-defined-exception)**

### Python Object & Class

* **[Python OOP](https://www.programiz.com/python-programming/object-oriented-programming)**
* **[Python Class](https://www.programiz.com/python-programming/class)**
* **[Python Inheritance](https://www.programiz.com/python-programming/inheritance)**
* **[Multiple Inheritance](https://www.programiz.com/python-programming/multiple-inheritance)**
* **[Operator Overloading](https://www.programiz.com/python-programming/operator-overloading)**

### Python Advanced Topics

* **[Python Iterator](https://www.programiz.com/python-programming/iterator)**
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* **[Python Closure](https://www.programiz.com/python-programming/closure)**
* **[Python Decorators](https://www.programiz.com/python-programming/decorator)**
* **[Python Property](https://www.programiz.com/python-programming/property)**
* **[Python RegEx](https://www.programiz.com/python-programming/regex)**
* **[Python Examples](https://www.programiz.com/python-programming/examples)**

### Python Date & Time

* **[Python datetime Module](https://www.programiz.com/python-programming/datetime)**
* **[Python datetime.strftime()](https://www.programiz.com/python-programming/datetime/strftime)**
* **[Python datetime.strptime()](https://www.programiz.com/python-programming/datetime/strptime)**
* **[Current date & time](https://www.programiz.com/python-programming/datetime/current-datetime)**
* **[Get current time](https://www.programiz.com/python-programming/datetime/current-time)**
* **[Timestamp to datetime](https://www.programiz.com/python-programming/datetime/timestamp-datetime)**
* **[Python time Module](https://www.programiz.com/python-programming/time)**
* **[Python time.sleep()](https://www.programiz.com/python-programming/time/sleep)**

## **About Python Programming**

* **Free and open-source - You can freely use and distribute Python, even for commercial use.**
* **Easy to learn - Python has a very simple and elegant syntax. It's much easier to read and write Python programs compared to other languages like C++, Java, C#.**
* **Portable - You can move Python programs from one platform to another, and run it without any changes.**

## **Why Learn Python?**

* **Python is easy to learn. Its syntax is easy and code is very readable.**
* **Python has a lot of applications. It's used for developing web applications, data science, rapid application development, and so on.**
* **Python allows you to write programs in fewer lines of code than most of the programming languages.**
* **The popularity of Python is growing rapidly. Now it's one of the most popular programming languages.**

**Python Example Programs**

**Introduction**

1. [Python Program to Print Hello world!](https://www.programiz.com/python-programming/examples/hello-world)
2. [Python Program to Add Two Numbers](https://www.programiz.com/python-programming/examples/add-number)
3. [Python Program to Find the Square Root](https://www.programiz.com/python-programming/examples/square-root)
4. [Python Program to Calculate the Area of a Triangle](https://www.programiz.com/python-programming/examples/area-triangle)
5. [Python Program to Solve Quadratic Equation](https://www.programiz.com/python-programming/examples/quadratic-roots)
6. [Python Program to Swap Two Variables](https://www.programiz.com/python-programming/examples/swap-variables)
7. [Python Program to Generate a Random Number](https://www.programiz.com/python-programming/examples/random-number)
8. [Python Program to Convert Kilometers to Miles](https://www.programiz.com/python-programming/examples/km-mile)
9. [Python Program to Convert Celsius To Fahrenheit](https://www.programiz.com/python-programming/examples/celsius-fahrenheit)
10. [Python Program to Print Output Without a Newline](https://www.programiz.com/python-programming/examples/print-without-newline)

**Decision making and loops**

1. [Python Program to Check if a Number is Positive, Negative or 0](https://www.programiz.com/python-programming/examples/positive-negative-zero)
2. [Python Program to Check if a Number is Odd or Even](https://www.programiz.com/python-programming/examples/odd-even)
3. [Python Program to Check Leap Year](https://www.programiz.com/python-programming/examples/leap-year)
4. [Python Program to Find the Largest Among Three Numbers](https://www.programiz.com/python-programming/examples/largest-number-three)
5. [Python Program to Check Prime Number](https://www.programiz.com/python-programming/examples/prime-number)
6. [Python Program to Print all Prime Numbers in an Interval](https://www.programiz.com/python-programming/examples/prime-number-intervals)
7. [Python Program to Find the Factorial of a Number](https://www.programiz.com/python-programming/examples/factorial)
8. [Python Program to Display the multiplication Table](https://www.programiz.com/python-programming/examples/multiplication-table)
9. [Python Program to Print the Fibonacci sequence](https://www.programiz.com/python-programming/examples/fibonacci-sequence)
10. [Python Program to Check Armstrong Number](https://www.programiz.com/python-programming/examples/armstrong-number)
11. [Python Program to Find Armstrong Number in an Interval](https://www.programiz.com/python-programming/examples/armstrong-interval)
12. [Python Program to Find the Sum of Natural Numbers](https://www.programiz.com/python-programming/examples/sum-natural-number)
13. [Python Program to Create Pyramid Patterns](https://www.programiz.com/python-programming/examples/pyramid-patterns)
14. [Python Program to Iterate Over Dictionaries Using for Loop](https://www.programiz.com/python-programming/examples/iterate-for-dictionary)
15. [Python Program to Reverse a Number](https://www.programiz.com/python-programming/examples/reverse-a-number)
16. [Python Program to Compute the Power of a Number](https://www.programiz.com/python-programming/examples/power)

**Functions**

1. [Python Program To Display Powers of 2 Using Anonymous Function](https://www.programiz.com/python-programming/examples/power-anonymous)
2. [Python Program to Find Numbers Divisible by Another Number](https://www.programiz.com/python-programming/examples/number-divisible)
3. [Python Program to Convert Decimal to Binary, Octal and Hexadecimal](https://www.programiz.com/python-programming/examples/conversion-binary-octal-hexadecimal)
4. [Python Program to Find ASCII Value of Character](https://www.programiz.com/python-programming/examples/ascii-character)
5. [Python Program to Find HCF or GCD](https://www.programiz.com/python-programming/examples/hcf)
6. [Python Program to Find LCM](https://www.programiz.com/python-programming/examples/lcm)
7. [Python Program to Find the Factors of a Number](https://www.programiz.com/python-programming/examples/factor-number)
8. [Python Program to Make a Simple Calculator](https://www.programiz.com/python-programming/examples/calculator)
9. [Python Program to Shuffle Deck of Cards](https://www.programiz.com/python-programming/examples/shuffle-card)
10. [Python Program to Display Calendar](https://www.programiz.com/python-programming/examples/display-calendar)
11. [Python Program to Display Fibonacci Sequence Using Recursion](https://www.programiz.com/python-programming/examples/fibonacci-recursion)
12. [Python Program to Find Sum of Natural Numbers Using Recursion](https://www.programiz.com/python-programming/examples/natural-number-recursion)
13. [Python Program to Find Factorial of Number Using Recursion](https://www.programiz.com/python-programming/examples/factorial-recursion)
14. [Python Program to Convert Decimal to Binary Using Recursion](https://www.programiz.com/python-programming/examples/decimal-binary-recursion)
15. [Python Program to Return Multiple Values From a Function](https://www.programiz.com/python-programming/examples/multiple-return-values)

**Object Oriented**

1. [Python Program to Get the Class Name of an Instance](https://www.programiz.com/python-programming/examples/class-name)
2. [Python Program to Differentiate Between type() and isinstance()](https://www.programiz.com/python-programming/examples/type-vs-instance)

**Native DataTypes**

1. [Python Program to Add Two Matrices](https://www.programiz.com/python-programming/examples/add-matrix)
2. [Python Program to Transpose a Matrix](https://www.programiz.com/python-programming/examples/transpose-matrix)
3. [Python Program to Multiply Two Matrices](https://www.programiz.com/python-programming/examples/multiply-matrix)
4. [Python Program to Check Whether a String is Palindrome or Not](https://www.programiz.com/python-programming/examples/palindrome)
5. [Python Program to Remove Punctuations From a String](https://www.programiz.com/python-programming/examples/remove-punctuation)
6. [Python Program to Sort Words in Alphabetic Order](https://www.programiz.com/python-programming/examples/alphabetical-order)
7. [Python Program to Illustrate Different Set Operations](https://www.programiz.com/python-programming/examples/set-operation)
8. [Python Program to Count the Number of Each Vowel](https://www.programiz.com/python-programming/examples/count-vowel)
9. [Python Program to Merge Two Dictionaries](https://www.programiz.com/python-programming/examples/merge-dictionaries)
10. [Python Program to Access Index of a List Using for Loop](https://www.programiz.com/python-programming/examples/index-for-loop)
11. [Python Program to Make a Flattened List from Nested List](https://www.programiz.com/python-programming/examples/flatten-nested-list)
12. [List Slicing in Python](https://www.programiz.com/python-programming/examples/list-slicing)
13. [Python Program to Sort a Dictionary by Value](https://www.programiz.com/python-programming/examples/sort-dictionary-value)
14. [Python Program to Check If a List is Empty](https://www.programiz.com/python-programming/examples/check-empty-list)
15. [Python Program Concatenate Two Lists](https://www.programiz.com/python-programming/examples/concatenate-two-lists)
16. [Python Program to Check if a Key is Already Present in a Dictionary](https://www.programiz.com/python-programming/examples/key-in-dictionary)
17. [Python Program to Split a List Into Evenly Sized Chunks](https://www.programiz.com/python-programming/examples/list-chunks)
18. [Python Program to Parse a String to a Float or Int](https://www.programiz.com/python-programming/examples/string-to-float-or-int)
19. [Python Program to Print Colored Text to the Terminal](https://www.programiz.com/python-programming/examples/colored-terminal)
20. [Python Program to Convert String to Datetime](https://www.programiz.com/python-programming/examples/string-to-datetime)
21. [Python Program to Get the Last Element of the List](https://www.programiz.com/python-programming/examples/list-element-list)
22. [Python Program to Get a Substring of a String](https://www.programiz.com/python-programming/examples/substring-of-string)
23. [Python Program to Randomly Select an Element From the List](https://www.programiz.com/python-programming/examples/random-list-element)
24. [Python Program to Check If a String Is a Number (Float)](https://www.programiz.com/python-programming/examples/check-string-number)
25. [Python Program to Count the Occurrence of an Item in a List](https://www.programiz.com/python-programming/examples/occurrence-of-item)
26. [Python Program to Delete an Element From a Dictionary](https://www.programiz.com/python-programming/examples/delete-from-dictionary)
27. [Python Program to Create a Long Multiline String](https://www.programiz.com/python-programming/examples/multiline-string)
28. [Python Program to Convert Two Lists Into a Dictionary](https://www.programiz.com/python-programming/examples/list-to-dictionary)
29. [Python Program to Trim Whitespace From a String](https://www.programiz.com/python-programming/examples/trim-whitespace)
30. [Python Program to Differentiate Between del, remove, and pop on a List](https://www.programiz.com/python-programming/examples/del-remove-pop-on-list)
31. [Python Program to Iterate Through Two Lists in Parallel](https://www.programiz.com/python-programming/examples/iterate-two-lists-parallelly)
32. [Python Program to Count the Number of Digits Present In a Number](https://www.programiz.com/python-programming/examples/number-of-digits)
33. [Python Program to Check If Two Strings are Anagram](https://www.programiz.com/python-programming/examples/anagram)
34. [Python Program to Capitalize the First Character of a String](https://www.programiz.com/python-programming/examples/capitalise-first-character)
35. [Python Program to Compute all the Permutation of the String](https://www.programiz.com/python-programming/examples/permutation-of-string)
36. [Python Program to Count the Number of Occurrence of a Character in String](https://www.programiz.com/python-programming/examples/number-of-character)
37. [Python Program to Remove Duplicate Element From a List](https://www.programiz.com/python-programming/examples/remove-duplicate-from-list)

**Files**

1. [Python Program to Merge Mails](https://www.programiz.com/python-programming/examples/merge-mails)
2. [Python Program to Find the Size (Resolution) of a Image](https://www.programiz.com/python-programming/examples/resolution-image)
3. [Python Program to Find Hash of File](https://www.programiz.com/python-programming/examples/hash-file)
4. [Python Program to Safely Create a Nested Directory](https://www.programiz.com/python-programming/examples/create-nested-directories)
5. [Python Program to Catch Multiple Exceptions in One Line](https://www.programiz.com/python-programming/examples/catch-multiple-exceptions)
6. [Python Program To Copy a File](https://www.programiz.com/python-programming/examples/copy-file)
7. [Python Program Read a File Line by Line Into a List](https://www.programiz.com/python-programming/examples/read-line-by-line)
8. [Python Program to Append to a File](https://www.programiz.com/python-programming/examples/append-to-file)
9. [Python Program to Extract Extension From the File Name](https://www.programiz.com/python-programming/examples/extract-file-extension)
10. [Python Program to Get the File Name From the File Path](https://www.programiz.com/python-programming/examples/file-name-from-file-path)
11. [Python Program to Get Line Count of a File](https://www.programiz.com/python-programming/examples/line-count)
12. [Python Program to Find All File with .txt Extension Present Inside a Directory](https://www.programiz.com/python-programming/examples/find-txt-files)
13. [Python Program to Get File Creation and Modification Date](https://www.programiz.com/python-programming/examples/file-modification-date)
14. [Python Program to Get the Full Path of the Current Working Directory](https://www.programiz.com/python-programming/examples/current-working-directory)
15. [Python Program to Check the File Size](https://www.programiz.com/python-programming/examples/check-filesize)

**Advanced**

1. [Python Program to Measure the Elapsed Time in Python](https://www.programiz.com/python-programming/examples/elapsed-time)
2. [Python Program to Represent enum](https://www.programiz.com/python-programming/examples/represent-enum)
3. [Python Program to Create a Countdown Timer](https://www.programiz.com/python-programming/examples/countdown-timer)
4. [Python Program to Convert Bytes to a String](https://www.programiz.com/python-programming/examples/bytes-to-string)

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# **60 Python Projects with Source Code**

[**https://medium.com/coders-camp/60-python-projects-with-source-code-919cd8a6e512**](https://medium.com/coders-camp/60-python-projects-with-source-code-919cd8a6e512)

## **Python Projects For Beginners:**

If you’re a newbie to Python where you’ve just learned lists, tuples, dictionaries, and some basic Python modules like the random module, here are some Python projects with source code for beginners for you:

1. [**Create Acronyms using Python**](https://thecleverprogrammer.com/2021/01/13/acronyms-using-python/)
2. [**Alarm Clock with Python**](https://thecleverprogrammer.com/2021/01/13/alarm-clock-with-python/)
3. [**Email Slicer with Python**](https://thecleverprogrammer.com/2021/01/12/email-slicer-with-python/)
4. [**Story Generator with Python**](https://thecleverprogrammer.com/2021/01/11/story-generator-with-python/)
5. [**Generate Password with Python**](https://thecleverprogrammer.com/2021/01/11/python-program-to-generate-password/)
6. [**Play Rock, Paper, and Scissors with Python**](https://thecleverprogrammer.com/2021/01/10/rock-paper-and-scissors-game-with-python/)
7. [**Dice Roll Simulator**](https://thecleverprogrammer.com/2021/01/10/dice-roll-simulator-with-python/)
8. [**QR Code Generator**](https://thecleverprogrammer.com/2021/01/09/qr-codes-with-python/)
9. [**Animal Quiz Game**](https://thecleverprogrammer.com/2021/01/03/create-a-quiz-game-with-python/)
10. [**Print Coloured Text**](https://thecleverprogrammer.com/2020/12/23/print-colored-text-with-python/)
11. [**BMI Calculator**](https://thecleverprogrammer.com/2020/12/21/bmi-calculator-with-python/)
12. [**Fahrenheit to Celcius Converter**](https://thecleverprogrammer.com/2020/11/30/convert-fahrenheit-to-celsius-with-python/)
13. [**Taking Multiple User Inputs**](https://thecleverprogrammer.com/2021/01/08/multiple-inputs-with-python-using-while-loop/)
14. [**Convert Roman Numbers to Decimals**](https://thecleverprogrammer.com/2021/01/07/convert-roman-numbers-to-decimals-with-python/)

## **Advance Python Projects:**

If you have learned the fundamental Python libraries and some of the external libraries, you should now know how to install external libraries and work with them. So if you are at that level now, you can work on all the advanced Python projects with source code mentioned below:

1. [**Digital Clock GUI**](https://thecleverprogrammer.com/2021/01/09/digital-clock-with-python/)
2. [**Get Desktop Notifications with Python**](https://thecleverprogrammer.com/2021/01/07/desktop-notification-with-python/)
3. [**Use Your Phone Camera for Computer Vision**](https://thecleverprogrammer.com/2021/01/05/use-phone-camera-with-python/)
4. [**Music Player GUI**](https://thecleverprogrammer.com/2020/12/27/music-player-gui-with-python/)
5. [**Game of Life with Python**](https://thecleverprogrammer.com/2020/12/25/game-of-life-with-python/)
6. [**Extract Text from videos**](https://thecleverprogrammer.com/2020/12/25/extract-text-from-videos-using-python/)
7. [**Fidget Spinner Game**](https://thecleverprogrammer.com/2020/12/23/create-a-game-with-python/)
8. [**Spelling Correction with Python**](https://thecleverprogrammer.com/2020/12/18/spelling-correction-with-python/)
9. [**Create Amazing Graphics with Python**](https://thecleverprogrammer.com/2020/12/10/turtle-graphics-with-python/)
10. [**Monty Hall Simulator**](https://thecleverprogrammer.com/2020/12/09/monty-hall-problem-with-python/)
11. [**Video to Audio Converter**](https://thecleverprogrammer.com/2020/12/08/video-to-audio-converter-with-python/)
12. [**Tic Tac Toe GUI**](https://thecleverprogrammer.com/2020/12/06/tic-tac-toe-gui-with-python/)
13. [**Calculator GUI**](https://thecleverprogrammer.com/2020/12/05/calculator-gui-with-python/)
14. [**Number Guessing Game**](https://thecleverprogrammer.com/2020/12/04/number-guessing-game-with-python-and-c/)
15. [**Image Converter GUI**](https://thecleverprogrammer.com/2020/12/02/image-converter-gui-with-python/)
16. [**Weight Converter GUI**](https://thecleverprogrammer.com/2020/11/28/weight-converter-gui-with-python/)
17. [**Visualize a Chess Board with Python**](https://thecleverprogrammer.com/2020/11/27/chessboard-with-python/)
18. [**Age and Gender Detection**](https://thecleverprogrammer.com/2020/10/29/age-and-gender-detection-with-python/)
19. [**Bar Code and QR Code Reader**](https://thecleverprogrammer.com/2020/10/23/barcode-and-qr-code-reader-with-python/)
20. [**Create Audiobook with Python**](https://thecleverprogrammer.com/2020/10/22/create-an-audiobook-with-python/)
21. [**Face Detection**](https://thecleverprogrammer.com/2020/10/09/face-detection-with-python/)
22. [**Extract Text from PDF**](https://thecleverprogrammer.com/2020/10/06/extract-text-from-pdf-using-python/)
23. [**Card Game using DS and Algo**](https://thecleverprogrammer.com/2020/10/04/card-game-with-python/)
24. [**Web Scrapper with Python**](https://thecleverprogrammer.com/2020/10/01/web-scraper-with-python/)
25. [**Create a Pencil Sketch using Python**](https://thecleverprogrammer.com/2020/09/30/pencil-sketch-with-python/)
26. [**Text Editor GUI**](https://thecleverprogrammer.com/2020/09/25/text-editor-gui-with-python/)
27. [**Instagram Filters with Python**](https://thecleverprogrammer.com/2020/09/24/instagram-filters-with-python/)
28. [**Count Number of Rainy days in a year**](https://thecleverprogrammer.com/2020/09/18/count-rainy-days-with-python/)
29. [**Send Emails with Python**](https://thecleverprogrammer.com/2020/09/15/send-emails-with-python/)
30. [**Image Segmentation**](https://thecleverprogrammer.com/2020/09/01/image-segmentation-with-python/)
31. [**OTP Verification GUI**](https://thecleverprogrammer.com/2020/08/24/otp-verification-gui-with-python/)
32. [**Deploy a Chatbot**](https://thecleverprogrammer.com/2020/08/21/deploy-a-chatbot-with-python/)
33. [**Create a Telegram Bot**](https://thecleverprogrammer.com/2020/08/18/telegram-bot-with-python/)
34. [**Scraping Twitter without API**](https://thecleverprogrammer.com/2020/08/17/scraping-twitter-with-python/)
35. [**Text to Speech Converter**](https://thecleverprogrammer.com/2020/08/16/text-to-speech-with-python/)
36. [**Keyword Research with Python**](https://thecleverprogrammer.com/2020/08/14/keyword-research-with-python/)
37. [**Scrape Wikipedia**](https://thecleverprogrammer.com/2020/08/10/scrape-wikipedia-with-python/)
38. [**Web Scraping to create a CSV**](https://thecleverprogrammer.com/2020/08/08/web-scraping-to-create-csv/)
39. [**Scrape Instagram**](https://thecleverprogrammer.com/2020/07/30/scraping-instagram-with-python/)
40. [**Image Filtering**](https://thecleverprogrammer.com/2020/07/25/image-filtering-with-machine-learning/)
41. [**Audio Processing**](https://thecleverprogrammer.com/2020/07/22/audio-processing-with-python/)
42. [**Analog Clock with Python**](https://thecleverprogrammer.com/2020/05/19/analog-clock-with-python/)
43. [**Create a Simple Chatbot**](https://thecleverprogrammer.com/2020/05/17/build-your-own-chatbot-with-python/)
44. [**Clock APP with Python**](https://thecleverprogrammer.com/2020/05/10/python-clock-app-with-kivy/)
45. [**3D Graphs**](https://thecleverprogrammer.com/2020/05/02/3d-graphs-with-matplotlib/)
46. [**Calendar GUI**](https://thecleverprogrammer.com/2020/04/23/python-gui-app-for-calendar/)

===> Mallikarjun Reddy , R.