PYTHON 3 TUTORIAL

Language Tutorials, GUI Tutorials, and Projects for Electrical Engineers and Scientists

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Introduction

As a young electrical engineer, I designed electronic circuits using desktop computers and commercial circuit simulators such as EEsof, MicrowaveOffice, HP ADS, etc. I was curious how these circuit simulators were programmed.

Python is the language selected for this tutorial and projects. According to Tiobe Index Python is the most popular programming language as of Oct 2023 and continues to increase in popularity. It has been the language of the year 5 times since 2007. It has all the features and performance needed for Electrical Engineering circuit simulation.

This tutorial will focus on the language features and libraries needed to create a circuit simulator including the following topics:

- Python 3 Tutorial
  - GUI Tutorial using CustomTkinter

- Beginner Project
  - Scientific Calculator
    - Intermediate Projects
  - Shape Editor
  - Line Editor
- Advanced Projects
  - Diagram Editor to draw and manipulate shapes and lines on a GUI canvas
  - Digital Simulator for the design and simulation of digital circuits
  - Analog Simulator for the design and simulation of analog circuits
  - RF/Microwave Simulator for the design and simulation of RF/microwave circuit

The source code is available on GitHub at .