Integrating MATLAB and Python

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Abstract

In this paper attempt has been made to develop a core relation between MATLAB and Python scientific software. Also, discussed compatibility of MATLAB with Python and Python with MATLAB in required challenges of development.

Keywords: MATLAB, Python, etc,

1. Introduction

1.1. Solution Architect Technology Landscape
1.2. MATLAB API (Application Program Interface)
1.3. Using MATLAB with Python
1.3.1. Calling Python from MATLAB
1.3.2. Calling MATLAB from Python
1.3.3. Packaging MATLAB programs for scalable development with Python
1.4. Price Trend predictor
1.5. Prediction Model Development
1.6. Desktop Deployment with MATLAB
1.7. Enterprise Challenges
1.8. Enterprise Deployment and Scalability of MATLAB

Summary: Using MATLAB with Python

1. INTRODUCTION

Matlab:- MATLAB is a programming software all around considered expressly for specialists in research and designing of new era like architectures, fashioners etc. The establishment of MATLAB is the MATLAB language, a cross sectional based language allowing the most typical verbalization of computational science.

An enormous number of analysts and architects in industry and the academic network use MATLAB. Additionally you can use MATLAB for an extent of usages, including significant learning and AI, and picture, video, signal getting ready and trades taking care of, control systems, test and estimation, computational record, and computational sciences.

Python:- Python is a prevalent programming language. It is utilized for: web advancement (server-side), programming improvement, arithmetic, framework scripting. It has linguistic structure that enables engineers to compose programs with fewer lines than some other programming languages. It runs on a mediator framework, implying that code can be executed when it is composed. This implies prototyping can be exceptionally brisk. The latest significant variant of Python will be Python 3. Python utilizes new lines to finish an order, rather than
other programming languages which regularly use semicolons or brackets. It is depends on space, also used of whitespace, to demonstrate scope; for example, the extent of circles, capacities and classes. Other programming dialects frequently utilize wavy sections for this reason.

### 1.1. Solution Architect Technology Landscape

In this section, we can collect the data by different sources. These sources are,

1. Data sources
2. Business system
3. Web/ Cloud

![Solution Architect Technology Landscape Diagram](image)

### 1.2. MATLAB API (Application Program Interface)

This interface is a library which enables you to write C program, Fortran program that associate with MATLAB interface. In this, incorporate options for calling schedules from MATLAB (dynamic connecting), calling MATLAB as a computational system, also includes for ridding the composing mat. Files.
1.3. Using MATLAB with Python

MATLAB have a three way to integrate with Python,

1. Calling Python from MATLAB
2. Calling MATLAB from Python
3. Packaging MATLAB programs for scalable deployment with Python

1.3.1. Calling Python from MATLAB

We can utilize languages functions and modules of Python inside MATLAB. MATLAB has equivalencies for a great part of the Python standard library, however not all.

1.3.2. Calling MATLAB from Python

MATLAB gives an adaptable, two-route combination with many programming languages, including Python. This enables various terms to arranged for work together and utilize different types of MATLAB algorithms, which is inside creator programmer and IT branch. That two-route combination between MATLAB and Python is called a Calling MATLAB from Python.
1.3.3. Packaging MATLAB Programs with Python for Scalable Deployment

Create algorithms and applications in MATLAB, and collect in one folder and offer them with only a single click. We can assemble Python files from MATLAB programs by utilizing MATLAB Compiler SDK™. These files can be coordinated with Python applications that, thus, can be imparted to work desktop clients or free of cost conveyed to web and IT sectors.

1.4. Price Trend Predictor

- **Goal:**
  - Software as a service: Cryptocurrency price forecaster

- **Approach:**
  - Use IT managed data import libraries
  - Rapidly build predictive models
  - Deploy analytics to enterprise using RESTful API
Current Setup

New Idea
1.5. Prediction Model Development
Testing The Model

Deploying The Model
1.6. Desktop Deployment with MATLAB

1.7. Enterprise Challenges
- Responding to new requirements
- Maintaining software version
- Supporting multiple use cases
- Get models into hands of decision makers faster

1.8. Enterprise Deployment and Scalability of MATLAB

Summary: Using MATLAB with Python

1. Calling IT-managed libraries in Python - MATLAB
2. Calling MATLAB’s predictive analytics from Python - MATLAB
3. Packaging MATLAB applications for scalable deployment with Python
   ❖ Desktop: MATLAB Compiler SDK
   ❖ Enterprise: MATLAB Production Server

References


“Every ending can be a new beginning”.