

Chapter 11

Applications of the Internet of Things and Machine Learning Using Python in Digital Marketing

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ABSTRACT

The internet of things (IoT) is a network of physical objects or “things” embedded with electronics, software, sensors, and network connectivity, which enables them to collect and exchange data. These objects can include everyday devices such as smart thermostats, home security systems, wearable fitness trackers, and even vehicles. However, IoT also raises concerns about privacy, security, and reliability, as the increasing number of connected devices creates new opportunities for cyber attacks and data breaches. As such, the development and deployment of IoT technology must be done in a responsible and secure manner. Through the use of sensors, it is now possible to collect, transmit, and transform data into knowledge. The marketing and sales sectors are capable of using data gathered through IoT to interact with customers on an individual basis. Python is an object oriented, scripted and interpreted language for both learning and real-world programming. Work in this chapter first introduces Python as a language, and gives summary about data science, machine learning, and IOT.

1 INTRODUCTION

1.1 Basic About Python in Digital Market

For general-purpose python is high-level programming language which became popular in the recent times. with this concern python allows programmer to write the code in fewer lines just like simple mathematical equation that is not possible with other languages. The main feature in Python programming is that it supports multiple programming prototypes. Python also provides a large set of extensive

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standard library which is extensible. The main lineament of Python are unproblematic and easy to understand, Freeware and open source, High level programming language, Platform independent, Portability, Dynamically typed, Both procedure oriented and Object oriented, Interpreted, Extensible, Embedded, Extensive Library. (Holzinger et al., 2014)

Python is a popular programming language used in the digital market for a variety of applications. Its popularity is due to its ease of use, flexibility, and versatility. Some basic applications of Python in the digital market include:

- **Web Development:** Python can be used to create web applications using frameworks such as Django and Flask.
- **Data Science:** Python has several libraries for data science such as NumPy, Pandas, and SciPy, making it a popular language for data analysis and visualization.
- **Machine Learning:** Python's simplicity and flexibility make it a popular choice for machine learning applications, with libraries such as TensorFlow and Scikit-Learn.
- **Automation:** Python can be used to automate tasks, such as web scraping, data extraction, and file management.
- **Game Development:** Python can be used for game development with libraries like Pygame and PyOpenGL.

What we want to include in our programs/ projects, a Python library is a reusable chunk of code. If you compare to languages like C++ or C, a Python libraries do not pertain to any specific context in Python. The python library contains built-in modules (written in C) and it provide access to system functionality such as file I/O that would otherwise be inaccessible to Python programmers, as well as modules written in Python that provide standardized solutions for many problems that occur in everyday programming.

In this article we are trying to give some basic idea about python in the field of Data science, IOT and Machine learning. Python is known to have acopiousness of libraries that aided with data analysis and scientific computing and informatics.

Overall, Python is a versatile and powerful programming language that is widely used in the digital market for a variety of applications, from web development and data science to automation and game development.

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