

MAHAKALA INSTITUTE OF TECHNOLOGY AND RESEARCH

Department of Computer Science & Engineering

PYTHON LANGUAGE

Under Internship at Three M Software Private Limited

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TOOLS AND TECHNOLOGY USED

OVERVIEW OF TRAINING WORK UNDERTAKEN

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— Mahakala Institute of
Technology and Research

Python is a general-purpose, high-level programming language. It is one of the fastest growing and most popular languages used across industries for software development, AI, data science, and web applications.

Python was initially designed and developed by **Guido van Rossum** in **1991**. It emphasizes code readability and simplicity, making it easy to learn and powerful for professionals.

It is a **Dynamic** and **Interpreted (Bytecode-Compiled)** language – which means Python code is first converted into bytecode, an intermediate form that runs on the Python virtual machine.

Note: Bytecode acts as an intermediate language. The virtual machine converts this bytecode into machine code, which the hardware can then execute efficiently.

- To understand **Python syntax** and programming structure.
- To develop strong **programming logic** and problem-solving skills.
- To learn about **tools and technologies** used in Python development such as Flask, VS Code, and GitHub.
- To gain **hands-on experience** through mini projects and real-world exercises.
- To enhance understanding of **object-oriented programming** and modular coding practices.
- To strengthen **debugging and testing** techniques used in software development.
- To improve **teamwork, communication**, and collaboration on technical projects.

- To get familiar with **version control systems** like Git for efficient code management.
- To prepare for **industry-level coding standards** and real project deployment.

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OVERVIEW OF TRAINING WORK UNDERTAKEN

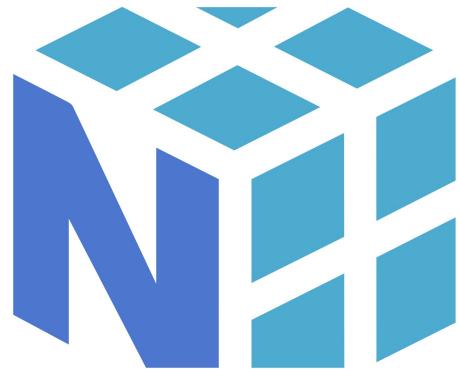
- **Python Basics:** Learned variables, data types, loops, and conditional statements.
- **Functions, Modules, and File Handling:** Created reusable functions, explored Python modules, and managed data files efficiently.
- **Working with NumPy and Pandas:** Performed data manipulation, cleaning, and numerical operations on datasets.
- **Data Visualization using Matplotlib:** Generated interactive charts and graphs to represent complex data visually.
- **Mini Project:** Developed small-scale applications such as a *Student Marks Analyzer* and a *Weather App* to apply the learned concepts in real-world scenarios.

DESCRIPTION & SCREENSHOTS FOR THE TOOLS LEARNT



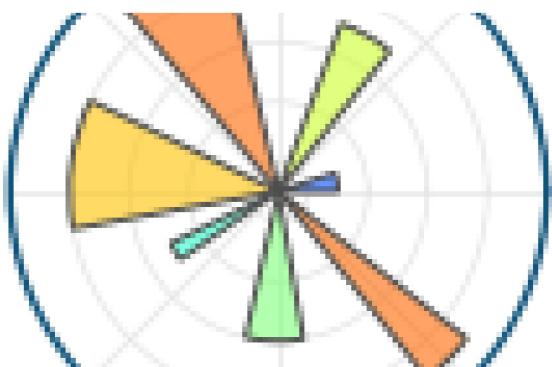
Visual Studio Code (IDE)

VS Code is a powerful code editor used for writing and debugging Python programs. It supports extensions, syntax highlighting, and integrated terminal for efficient workflow.



NumPy Library

NumPy is a fundamental Python library for numerical computing. It provides high-performance multidimensional arrays and functions for mathematical operations.



Pandas Library

Pandas is used for data manipulation and analysis. It allows easy handling of structured data through DataFrames, making data cleaning and transformation simple.

Matplotlib Library

Matplotlib is a data visualization library that helps in creating static, interactive, and animated plots and charts for better understanding of data patterns.

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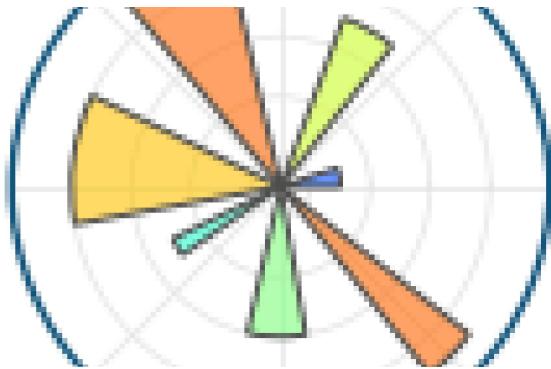


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PASSWORD GENERATOR PROGRAM

This mini project was developed using Python during internship training. The program generates strong, random passwords combining uppercase letters, lowercase letters, digits, and special characters for enhanced security.

Python Code:

```
import random
import string

def generate_password(length):
    characters = string.ascii_letters + string.digits + string.punctuation
    password = ''.join(random.choice(characters) for i in range(length))
    return password

print("Generated Password:", generate_password(12))
```

Program Output:

Example output when the program runs:

```
Generated Password: k@7bF#9t!p2R
```



SIMPLE PYTHON PROGRAM USING PANDAS LIBRARY

This example demonstrates how to use the Pandas library in Python to create a simple DataFrame and calculate the average marks of students.

```
import pandas as pd

# Creating a simple dataset
data = {
    'Name': ['Sakshi', 'Jayesh', 'Vikas'],
    'Marks': [85, 90, 78]
}

# Creating DataFrame
df = pd.DataFrame(data)

# Displaying DataFrame
print(df)

# Calculating average marks
average = df['Marks'].mean()
print("Average Marks:", average)
```

Output:

Name	Marks
Sakshi	85
Jayesh	90
Vikas	78

Average Marks: 84.33

CONCLUSION

During this internship at **Three M Software Pvt. Ltd.**, we gained valuable exposure to Python programming and its applications in data analysis and visualization. Through hands-on exercises, we strengthened our problem-solving abilities, learned about Python libraries like **NumPy**, **Pandas**, and **Matplotlib**, and applied these tools to build real-world mini projects.

This training not only enhanced our technical understanding but also improved our analytical thinking, teamwork, and practical development skills — preparing us for future industry-level challenges.

— *Presented by Sakshi Shihhare & Jayesh Shihhare*

REFERENCES



Python Official Documentation

<https://docs.python.org/>



Visual Studio Code

<https://code.visualstudio.com/>



Geeks for Geeks

<https://www.geeksforgeeks.org/>



YouTube Tutorials

Python Tutorials on YouTube



GitHub Repositories

<https://github.com/topics/python>

Internship under Dr. Anuradha Gupta, Mahakala Institute of Technology and Research