Pragati Software Pvt. Ltd.

QUALITY, AGILITY, ADAPTABILITY

Corporate IT Training House

Python programming (14-16 hours)

Introduction to Script (30 Minutes)

- What is Script, program? Types of Scripts, Difference between Script and Programming Languages
- Features and Limitation of Scripting,Types of programming Language Paradigms

Introduction to Python (60 Minutes)

- What is Python? , Why Python?,Who Uses Python?,Characteristics of Python,History of Python
- What is PSF?,Python Versions,How to Download and Install Python,Install Python with Diff IDEs
- Features and Limitations of Python,Python Applications,Creating Your First Python Program
- Printing to the Screen,Reading Keyboard Input,Using Command Prompt and GUI or IDE
- Python Distributions

Different Modes in PYTHON (15 Minutes)

- **Interactive prompt**
- **scripting**

PYTHON IDEs (Best IDE) (15 Minutes)

Build, Deploy and Debug (Standalone (CLI) and web app) (30 Minutes)

Variables in Python (15 Minutes)

Python Operators and Operands (30 Minutes)

* Operator

 * Arithmetic

 * Logical

 * Relational

 * Bitwise

 * Special Operators

Python Conditional Statements , Loops (15 Minutes)
 * Python Nesting Recap
 * Comparison Operations
 * The if Statement
 * The if Ternary Expression
 * The while Loop
 * The for Loop
 * Traversing Parallel Sets

Python Strings, String Operations, Data Structures   **(30 minutes)**

* Generating Strings in Python

* Immutable

* Common String Methods

* Type Conversion in Python

* Formatting String Output

* Format Specifier

* Variable Substitution

* String Indexing

* String Slicing

* String Iteration

Sequence or Collections in PYTHON   (30 Minutes)

- Strings
- Unicode Strings
- Lists
- Tuples
- buffers
- range

Python's Tuples (15 Minutes)

* Immutable

* Common Tuples Methods

* Tuples Operations

* Tuples Indexing

* Tuples Slicing

* Tuples Iteration

* Multi-Dimensional Tuples (Matrices)

Python's Lists   (30 Minutes)

* Common List Methods

* The range() Function

* List Operations

* List Indexing

* List Slicing

* List Iteration

* Multi-Dimensional Lists (Matrices)

Python List Comprehension (15 Minutes)

 * Basic List Comprehensions

 * Compound List Comprehensions

Python Dictionaries (30 Minutes)

 * Python Dictionaries

 * Assigning Values to Dictionaries

 * Dictionary Methods

 * Dictionaries vs Lists & Tuples

 * Dictionary Indexing

* Dictionary Iteration

Basic Input/Output with Files

 * Opening Files

 * Working with Files

 * Controlling Output Location

Python Functions   (90 Minutes)

- Defining Function, Processing parameters,Local Variables, Default argument values
- Keyword Arguments, The return statement, DocString, Lambda,Recursive functions
- Changing the recursive depth, Call by value, Call by reference

Python Modules & Packages (20 Minutes)

 * Module Basics

 * Packages

 * Using __all__

* Using __name__

* Using third party modules

OOPS (Participant know the concepts of OOP) so if one example program written in python is covered which shows all OOPs features then that will be sufficient. (100 Minutes)

* Classes and class attributes

 * Instances and instance attributes

 * Binding and method invocation

 * Composition, Subclassing and Derivation

 * Inheritance

 *polymorphism

File Handling   (30 Minutes)

 * Opening Files

 * Working with Files

 * Controlling Output Location

Python Parsing (40 Minutes)

- How to Parse and Create JSON, HTML, XML

Python REST support   (40 Minutues)

* REST Client using Python

Python Exception Handling (40 Minutes)

 * About Exceptions

 * Python's Default Exception Handler

 * Using Try/Except/Finally Exceptions

 * Generating User Defined Exceptions

 * More on Exceptions

 * Exception Examples

Python Iterators, Generators, Yield, Closures, Decorators and Python @property (120 Minutes)

Python Regular Expressions (we don't want to cover what is Regex in general)   (40 Minutes)

- Regular Expression syntax in Python
- Example of \s expression in re.split function
- Using regular expression methods
- Using re.match()
- Finding Pattern in Text (re.search())
- Using re.findall for text
- Python Flags
- Methods of Regular Expressions

Python-Data Base Communication (Preferably using MS SQL server) (40 Minutes)

- Installing of required Python Modules
- Executing DML Operations.
- Connection Pooling

Web Scrapping (30 Minutes)

☐ The components of a web page

☐ HTML— **contain the main content of the page.**

☐ CSS— **add styling to make the page look nicer.**

☐ JS— **Javascript files add interactivity to web pages.**

☐ Images— **image formats, such as JPG and PNG allow web pages to show**

pictures.

☐ Parsing a page with BeautifulSoup

☐ Finding all instances of a tag at once

☐ Searching for tags by class and id

Sorry, don't think so we will have time for the below topics.

~~**Debugging using pdb**~~ (if time permits)

~~**Multi-Threading**~~ (if time permits)

- ~~What is Multi-Threading~~
- ~~Threading Module~~
- ~~Defining a Thread~~
- ~~Thread Synchronization~~

2. Web Development using Python (3.5-4 hours)

Using Django framework

Introduction to Django

- Overview, design
- Advantages
- Installation

Django Environment

Starting Django Project

- Overview & Creating App

Views

- URL Mapping/ URL Dispatcher
- Regular expressions
- Error/Exception handling
- Decorators

Templates

- Django Template language
- Filters

Models

- Fields
- Queries [with Filters]
- Migrations

Forms

- Validations
- Fields & Widgets

Authentication & Administration

3.Data Analytics using Python (3.5-4 hours) Demo's only

We want to mainly conver as much of Panda in this training as possible from the document attached

Python Pandas

- Pandas – Introduction
- Pandas – Environment Setup

Pandas – Introduction to Data Structures

Dimension & Description

Series

DataFrame

Data Type of Columns

Panel

Pandas — Series

o pandasSeries

o Create an Empty Series

o Create a Series from ndarray

   Create a Series from dict

   Create a Series from Scalar

   Accessing Data from Series with Position

   Retrieve Data Using Label (Index)

   Python Pandas

Pandas – DataFrame

o pandasDataFrame

o Create DataFrame

o Create an Empty DataFrame

o Create a DataFrame from Lists

   Create a DataFrame from Dict of ndarrays / Lists

   Create a DataFrame from List of Dicts

   Create a DataFrame from Dict of Series

   Column Selection

   Column

   Addition

   Column Deletion

   Row Selection, Addition, and Deletion

• Pandas – Basic Functionality

o DataFrame Basic Functionality

- Pandas – Descriptive Statistics

o Functions & Description

- Pandas – Reindexing

o Reindex to Align with Other Objects

o Filling while ReIndexing

o Limits on Filling while Reindexing

o Renaming

- Pandas – Iteration

o Iterating a DataFrame

  iteritems()

  iterrows()

  itertuples()

- Pandas – Sorting

o By Label

o Sorting Algorithm

- Pandas – Working with Text Data

- Pandas – Options and Customization

o get_option(param)

o set_option(param,value)

o reset_option(param)

o describe_option(param)

o option_context()

- Pandas – Indexing and Selecting Data

o loc()

o iloc()

o Python Pandas

o Use of Notations

- Pandas – Statistical Functions

o Percent_change

o Covariance

o Correlation

o Data Ranking

- Pandas – Window Functions

o rolling() Function

o expanding() Function

o ewm() Function

- Pandas – Aggregations

o Applying Aggregations on DataFrame

- Pandas – Missing Data

o Cleaning / Filling Missing Data

o Replace NaN with a Scalar Value

o Fill NA Forward and Backward

o Drop Missing Values

o Replace Missing (or) Generic Values

- Pandas – GroupBy

o Split Data into Groups

o View Groups

o Iterating through Groups

o Select a Group

o Aggregations

o Transformations

o Python Pandas

o Filtration

- Pandas – Merging/Joining

o Merge Using 'how' Argument

• Pandas – Concatenation

o Concatenating Objects

o Time Series

• Pandas – Date Functionality

• Pandas – Timedelta

• Pandas – Categorical Data

o Object Creation

• Pandas – Visualization

o Bar Plot

o Histograms

o Box Plots

o Area Plot

o Scatter Plot

o Pie Chart

• Pandas – IO Tools