PYTHON

**19CSE100 - Problem Solving and Algorithmic Thinking
PROGRAMMING LANGUAGE SURVEY ASSIGNMENT**

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Outline

What do you know about coding?

Coding, sometimes called computer programming, is how we communicate with computers. Code tells a computer what actions to take, and writing code is like creating a set of instructions. By learning to write code, you can tell computers what to do or how to behave in a much faster way. Different styles can be followed.

What is Python?

- Python is a high level, general-purpose programming language.
- It was first released in 1991 as Python 0.9.0 by Guido van Rossum.
- Python is currently the most widely used multi-purpose, high-level programming language.
- This language is being used by almost all tech-giant companies like Google, Amazon, Facebook, Instagram, Dropbox, Uber. . . etc.

Paradigm

- Programming paradigms are different ways or styles in which a given program or programming language can be organized.
- Python is a multi-paradigm programming language. Meaning it supports different styles of writing code. One can write Python code in procedural, object oriented, functional or imperative manner.
- For this reason, Python is considered a "swiss army knife" in the developers toolbox.

Operating System

- An operating system (OS) is the program that, after being initially loaded into the computer by a boot program, manages all of the other application programs in a computer.
- Python works on Windows, macOS, and Linux and it runs best on Linux based operating system.
- Most preffered OS for python is either macOS or Linux.

Languages python was influenced by

These are some of the languages which influenced python:

- ABC
- JavaScript
- Ada
- Dylan
- C
- C++

Languages influenced by python

These are some of the languages which were influenced by python:

- Apache Groovy
- Boo
- Cobra
- JavaScript
- Ruby
- Julia

Syntax

Hello world program
○

```
>>> print("Hello, World!")
Hello, World!
```

- Hello world program is the basic program run on any programming language.
- "print" directive is used to print the sentence or characters present inside the brackets.

Real life applications of python

Web Development
Python is often used to develop the back end of a website or application—the parts that a user doesn't see. Python's role in web development can include sending data to and from servers, processing data and communicating with databases, URL routing, and ensuring security.

Automation or scripting
If you find yourself performing a task repeatedly, you could work more efficiently by automating it with Python. Writing code used to build these automated processes is called scripting. In the coding world, automation can be used to check for errors across multiple files, convert files, execute simple math, and remove duplicates in data.

Software testing and prototyping
In software development, Python can aid in tasks like build control, bug tracking and testing. With Python, software developer can automate testing for new products or features.

Game Development
Python is also used in the development of interactive games. There are libraries such as PySoy which is a 3D game engine supporting Python 3, PyGame which provides functionality and a library for game developmemt.

Some other applications of python

Scientific and Numeric Applications
Python provides the skeleton for applications that deal with computation and scientific data processing. Apps like Free CAD (3D modeling software) and Abaqus are coded in Python.

Enterprise-level/Business Applications
Business applications are developed, keeping in mind the custom requirements to cater to the specific needs of an organization's operating model, the entire development process becomes very complicated. This is where Python can make a significant difference. Python's high performance, scalability, flexibility, and readability are just the features required for developing fully-functional and efficient business applications.

Machine Learning and Artificial Intelligence
Machine learning and artificial intelligence are the talks of the town. We make the computer learn based on past experiences through the data stored or better yet, create algorithms which makes the computer learn by itself. Python includes a modular machine learning library known as PyBrain, which provides easy-to-use algorithms for use in machine learning tasks.

Thank you.

References

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