Q1) what is python and its features.

Ans Python is high level interpreted programming langua known for its readability and versatility. It is widely used for various tasks like web development, data science, and machine learning. The features of Python are

(i) Free and open source:- Python is a programming language freely available at the official website. One can download and install it by clicking on the following link. Download Python searching online platform. Python being an open source programming language allows user to access its source code available to the public. This source code can be downloaded for well usage as well as sharing purposes allowing user to contribute to the Python community from around the world.

(ii) Easy to learn:- Python is a high level programming language that is quite easier to learn when compared to other programming languages like C, Java, C#, Java script etc. Python offers a clean and simple syntax, similar to plain english making it easy for beginners to comprehend and write program quickly.

(iii) Easy to read:- As we discussed earlier, Python is an expressive language with quite straightforward syntax. The chunks of code in Python are structured using the identation making it exceptional programming language when compared to other programming langugs like c++ or Java.

(iv) Object Oriented language:- Python offers support for the object-oriented paradigm, a programming approach where software system is designed and developed with the help of "objects", which are basically blue prints (known as classes) that define data (known as attributes) and behaviour (known as methods) allowing developers to organize code in a well structured format.

(v) Dynamically typed language:- Python is also a dynamically typed language allowing Python to figure out the variable types (int, double, long, etc) automatically run time, without the need of declaring the manually

(vi) High level language:- Python is a high level language. This feature allows programmers to mainly focus on solving problems rather than dealing with hardware details like system architecture or memory allocation

(vii) Integrated language:- Python is an integrated language because it can easily connected with other programming languages like C, C++, Java and more. This features allow programmers to use existing libraries in Python in other languages.

(viii) Multi purpose Programming:- Python is a multipurpose programming language that can be used for a wide range of applications including web development, data analysis, automation, machine learning and scientific computing. This makes it versatile for various types of project due to its simple syntax and extensive libraries.

Difference between Python 2 and Python 3

Python 2 and 3 are two ~~versions~~ versions of the Python programming language, with Python 3 being the latest and containing new features, syntax and improved performance. Python 2 has reached end of life and is no longer updated, while Python 3 is actively maintained. It is recommended to use Python 3 for new projects.

Feature	Python 2	Python 3
Division Operator	In Python 2 division operator returns an integer if both operands are integers	In Python 3, the division operator always return a float.
Print Statement	In Python 2, the print statement is used as print "Hello world!"	In Python 3 the print statement is used as print("Hello world") with parenthesis.
Exception Handling	In Python 2, exception handling is done using the 'except' keyword.	In Python 3 exception handling is done using 'as' keyword.
Unicode Support	In Python 2, Unicode support is optional and requires a separate declaration	In Python 3 Unicode is the default encoding and requires no separate declaration
Range Function	In Python 2 the range function returns a list	In Python 3 the xrange function does not exist and is replaced by the range function
Integer Division	In Python 2 integer division can be performed using the '/' operator	In Python 3 integer division can be performed using the '//' operator.