1. What is Python and why is it popular?

Python is a high-level, interpreted programming language that is widely used in various applications such as web development, data science, machine learning, artificial intelligence, automation, and more.

Python’s popularity is due to several factors

* Easy to use and learn
* Large community and support
* Popular in Data Science, Machine Learning
* Rich Library Ecosystem
* Versatile and Flexible
* It has high corporate demand.

1. What are the differences Python 2 and Python 3 ?

Python 2 has been officially deprecated and is no longer receiving updates

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| --- | --- | --- |
|  | **Python 2** | **Python 3** |
| Function print | print “hello” | print (“hello”) |
| Syntax | The syntax of Python 2 was comparatively difficult to understand. | The syntax is simpler and easily understandable. |
| Exceptions | It should be enclosed in notations. | It should be enclosed in parenthesis. |
| Unicode | To store Unicode string value, you require to define them with “u”. | In Python 3, default storing of strings is Unicode. |
| Division of Integers | When two integers are divided, you always provide integer value. | Whenever two integers are divided, you get a float value |
| Iteration | In Python 2, the xrange() is used for iterations. | The new Range() function introduced to perform iterations. |

1. What is the difference between a tuple and a list in Python?

Tuple :

Tuple are similar to list so we can use them to store a list of items. But unlike list we cannot modify them, cannot add new items and cannot remove items from tuple so tuple are immutable.

**numbers = (1,2,3,4)**

**print(numbers[0])**

List :

Lists are used to store multiple items in a single variable. List are mutuable so we can able to elements in lists.

**names = ['John', 'Smith', 'Henry', 'Mary']**

**print(names)**

**names[0] = 'Jack'**

**print(names)**

1. How do you create a dictionary in Python?

We want to create dictionary to store information as key value pairs. Key should be unique.

**customer = {**

**"name" : "Henry Williams",**

**"age" : 22,**

**"gender" : "Male"**

**}**

**customer["birthdate"] = "Jan 2 1990"**

**print(customer.get("gender"))**

**print(customer["birthdate"])**

1. What is a function in Python and how do you define one?

A function is a container for a few lines of code that perform a specific task.

**def greet\_user(first\_name, last\_name):**

**print(f'Hi {first\_name} {last\_name}')**

**print('Welcome aboard')**

**print('start')**

**greet\_user("John", "Smith")**

**print('end')**

1. What is object-oriented programming (OOP) and how does it relate to Python?

Python is a versatile programming language that supports various programming styles including object-oriented programming(OOP). In OOP, an object is an instance of a class, which is a blueprint that defines the properties and behaviors of the object. In python everything is an object and supports four main concepts of OOP such as Encapsulation, Abstraction, Inheritance, Polymorphism.

1. How do you handle exceptions in Python?

Exceptions can be handled in below ways

**try:**

**age = int(input('Enter Age: '))**

**income = 2000**

**risk = income / age**

**print(age)**

**except ZeroDivisionError:**

**print('Age should not be zero.')**

**except ValueError:**

**print('Age should not be in string format')**

**except Exception as ex:**

**print(ex)**

1. How do you read and write files in Python?

**f = open('MyData.txt', 'r')**

**print(f.read())**

**f1 = open('test.txt', 'w')**

**for data in f:**

**f1.write(data)**

1. How do you install and use external packages in Python?

External packages cab be installed and used through Package Manager such as pip. General steps to install and use external packages.

* Open a command prompt or terminal window.
* Use the pip command to install the package. For example, to install “numpy” package type “pip install numpy”.
* Once the package is installed, it can be imported in out Python code using import statement and the use the package functions in code.

1. How do you use the "if" statement in Python to perform conditional execution?

If statement allow us to build programs that can make decisions based on some condition. If some conditions are true, program will do certain things

**is\_hot = False**

**is\_cold = False**

**if is\_hot:**

**print("It's a hot day")**

**print("Drink plenty of water")**

**elif is\_cold:**

**print("It's a cold day")**

**print('Stay warm')**

**else:**

**print("Enjoy your day")**