DA - Introduction to Python

1. What are the types of Applications?

- **Web Apps** (run in browser)
- **Mobile Apps** (Android/iOS)
- **Desktop Apps** (Windows/Mac/Linux)
- **Enterprise Apps** (large-scale business)
- **Embedded Apps** (IoT, devices)

2. What is programming?

- Writing instructions (code) that a computer can understand to perform tasks.

3. What is Python?

- A high-level, easy-to-learn programming language used for web, data, AI, automation, and more.

4. How memory is managed in Python?

- The memory is Managed by Python's memory manager & Garbage Collector.

5. What is the purpose continuing statement in python?

- Skips the current iteration of a loop and Moves directly to the next iteration**.**

6. What are negative indexes and why are they used?

- **Negative indexes**:- Indexing list/sequence elements from the end using negative numbers.
- **Used**:- Makes it easy to access elements from the last side without knowing exact length.

7. What is List? How will you reverse a list?

- List is ordered, mutable collection of items in Python.
- **Reverse**: list.reverse() or list[::-1].

8. How will you remove last object from a list?

- Remove last object from list Use list.pop()removes last element.

9. Suppose list1 is [2, 33, 222, 14, and 25], what is list1 [1]?

- Output: 33 (index starts at 0).

10. Differentiate between append () and extend () methods?

- **Append** = add as a whole list to the end
- **Extend** = Add one by one Value to the end of the list

11. How will you compare two lists?

- Use == :-checks if lists are equal (same elements in same order).
- Use set() if only content matters, not order.

12. What is tuple? Difference between list and tuple.

- **Tuple**: Ordered, immutable collection in Python. Written with `()` brackets, e.g., `(1, 2, 3)`.
- **Difference between list and tuple**

  List:-

  a. List is mutable → elements can be added, removed, or changed.
  b. List uses square brackets [].
  c. List is slower (because it's flexible)

  Tuple:-

  a. Tuple is immutable → elements cannot be modified after creation.
  b. Tuple uses parentheses ().
  c. Tuple is faster (because it's fixed).

13. How will you create a dictionary using tuples in python?

- I create each tuple should have 2 items(key,value) and then use: dict() function.

14. How Do You Traverse Through a Dictionary Object in Python?

- Use for key in dict**:**- iterate keys
- Use for key, value in dict.items():- iterate key-value pairs

15. How Do You Check the Presence of a Key in A Dictionary?

- Check the presence of a key in a dictionary using the In keyword.

16. How Many Basic Types of Functions Are Available in Python?

- **Built-in functions** – provided by Python(print,len)
- **User-defined functions** – created by the programmer using def

17. How can you pick a random item from a list or tuple?

- I can use random.choice() pick the random item from a list or tuple.

18. How can you pick a random item from a range?

- I can use random.choice() with range() pick a random item from the range.

19. How can you get a random number in python?

- **Integer**:- random.randint(a,b)
- **Float**:- random.random()

20. How will you set the starting value in generating random numbers?

- Use seed() to initialize the random generator.

21. How will you randomize the items of a list in place?

- Use shuffle() to randomize the items of the list in place.

22. Explain Exception handling? What is an Error in Python?

- **Excepttion handilng:-** A way to catch and handle errors so that the program doesn't crash.
- **Error**:- problem in the program that stops it from running.

23. How many except statements can a try-except block have? Name Some built-in exception classes:

- A try block can have multiple except statements to handle different types of errors.
- Some built-in exception classes:
  a. ZeroDivisionError
  b. ValueError
  c. TypeError
  d. FileNotFoundError
  e. IndexError
  f. KeyError

24. When will the else part of try-except-else be executed?

- The else block runs only if no exception occurs.

25. Can one block of except statements handle multiple exception?

- Yes one block of except can handle multiple exceptions in one except block by using a tuple.

26. When is the finally block executed?

- The finally block always runs, whether an error occurs or not.

27. What happens when „1“== 1 is executed?

- '1' is a string and 1 is an integer, so it’s give an False.

28. How Do You Handle Exceptions with Try/Except/Finally in Python? Explain with coding snippets.

- ```
  try:
      num = int(input("Enter a number: "))
      result = 10 / num
      except ValueError:
      print("You must enter a number!")
  except ZeroDivisionError:
      print("Cannot divide by zero!")
  else:
      print("Result is:", result)
  finally:
      print("Program finished (finally block always runs).")
  ```
  ```