



Data Structures Class 12

Important Questions

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1. What is a Data Structure?

Answer – A data structure is a specific method used to arrange, process, retrieve, and store data. It is a fundamental concept of computer science for solving problems effectively.

2. Why we are using Data Structures?

Answer – A data structure helps to process data faster, consuming less memory and handling large amounts of data effectively. This data structure program helps to develop fast and efficient software.

3. Compare a data type with a Data Structure.

Answer – Data types and data structures are used in the Python programming language, but they are not the same. We define a data type when we want to hold

some value, whereas a data structure defines how data is organised and manages multiple data elements efficiently.

4. What are some applications of Data structures?

Answer – Nowadays, data structures are used in various real-world applications. These data structures are used in various fields like artificial intelligence and machine learning, operating systems, databases, web search engines, etc.

5. What is linear and non-linear data structure?

Answer – Data items are arranged in a linear order and connected to their previous and next neighbouring pieces in a linear data structure. Data elements are attached hierarchically in a non-linear data structure.

6. Describe the types of Data Structures?

Answer – Data structures are categorised into linear and non-linear structures. In linear data structures, elements are arranged in sequential format; on the other hand, the non-linear data structure allows elements to connect in complex relationships like trees, graphs, etc.

7. What common operations are performed on different Data Structures?

Answer – Some of the commonly performed operations on data structures are:

- **Insertion:** To add a new data item in the given collection of data items.
- **Deletion:** To delete an existing data item from the given collection of data items.
- **Traversal:** To access each data item exactly once so that it can be processed.
- **Searching:** To find out the location of the data item if it exists in the given collection of data items.
- **Sorting:** To arrange the data items in some order i.e. in ascending or descending order in case of numerical data and in dictionary order in case of alphanumeric data.

8. What purpose Linear lists data structure are mostly used for?

Answer – It is a kind of data structure where information is managed and stored in an uniform manner. Each data element in the series is linked to the one before it. Since the data is arranged progressively, it is simple to implement the linear structure in a computer's memory.

10. What is a list comprehension? How is it useful?

Answer – List comprehensions are helpful and can assist you in writing elegant code that is simple to read and debug, but they are not always the best option. They might increase memory use or slow down the performance of your code.

14. What is a stack? What basic operations can be performed on them?

Answer – A stack is a linear data structure which allows adding and removing elements in a Last In, First Out order. This means that the recently added elements will be removed first.

Basic operations on a Stack are:

- **Push:** Adds an element to the top of the stack
- **Pop:** Remove an element from the top of the stack