

### 1. How write a python code that runs as fast as C++?

By using cython. Cython is a programming language that is a superset of Python. It allows developers to write python code which is compiled in C language. So, it is much faster than python and allows low level access.

### 2. What is the fastest data type in python?

The fastest data structure in Python that has an  $O(1)$  time complexity for most operations is a dictionary. A dictionary is an unordered collection of key-value pairs, where each key is unique and has a certain value associated with it. Dictionaries are implemented using hash tables, which are a data structure that allows for efficient lookup, insertion, and deletion of key-value pairs. The hash function takes the key and returns an index into an array, where the corresponding value is stored.

### 3. What is Hadoop? and what type of data does it use?

Hadoop is an open-source software framework that is used to store and process large datasets across clusters of computers. It is designed to run on commodity hardware, which makes it a cost-effective solution for processing and storing large datasets. It is widely used in industry for tasks such as data warehousing, data mining, and machine learning. Hadoop does not use a traditional relational database to store data. Instead, it uses the Hadoop Distributed File System (HDFS) to store large amounts of data across multiple machines in a distributed environment. HDFS is a distributed file system that is designed to store large files and provide high throughput access to those files across a cluster of computers.

### 4. What are the ways to compensate for missing values in data?

- Deletion of rows with missing values.
- Imputation like mean, median, mode, multiple and regression imputation.
- Prediction of missing values.
- Weighting the correct data with higher values than the missing data.