Describe the purpose of database indexing and types of indexes in MySQL?

Database indexing is a technique used to optimize the retrieval of data from a database table. The primary purpose of indexing is to improve the speed of data retrieval operations, such as SELECT queries, by creating a data structure that allows the database management system (DBMS) to quickly locate the rows that match a specific condition. Without indexing, the DBMS would have to scan the entire table to find the requested data, which can be inefficient, especially in large tables. Here are some key purposes of database indexing:

-Improved Query Performance:

-Faster Sorting and Grouping:

Q) you have two table lift and passenger \_lift you have to find the passger who can shift in lift but not excedded the capacity in there increasing order of there weight  
  
**with cte as**

**(select \***

**, sum(weight\_kg) over(partition by id order by id, weight\_kg)as com\_sum**

**, case when capacity\_kg>=sum(weight\_kg) over(partition by id order by id, weight\_kg)**

**then 1 else 0 end as flag**

**from lift l**

**join**

**lift\_passanger p**

**on**

**l.id =p.lift\_id order by id,weight\_kg)**

**select lift\_id,GROUP\_CONCAT(passanger\_name separator ' , ') as passanger**

**from cte where flag=1 group by lift\_id;**