BCA Sem-IV

Subject:-RDBMS

Topic:- Index(Prepared by Sant pandey)

Multilevel Index

Multi-level Index helps in breaking down the index into several smaller indices in order to make the outermost level so small that it can be saved in a single disk block, which can easily be accommodated anywhere in the main memory.

The main goal of designing the database is faster access to any data in the database and quicker insert/delete/update to any data. This is because no one likes waiting. When a database is very huge, even a smallest transaction will take time to perform the action. In order to reduce the time spent in transactions, Indexes are used. Indexes are similar to book catalogues in library or even like an index in a book. When records are stored in the primary memory like RAM, accessing them is very easy and quick. But records are not limited in numbers to store in RAM. They are very huge and we have to store it in the secondary memories like hard disk. As we have seen already, in memory we cannot store records like we see – tables. They are stored in the form of files in different data blocks. Each block is capable of storing one or more records depending on its size. When we have to retrieve any required data or perform some transaction on those data, we have to pull them from memory, perform the transaction and save them back to the memory. In order to do all these activities, we need to have a link between the records and the data blocks so that we can know where these records are stored. This link between the records and the data block is called index. It acts like a bridge between the records and the data block.

Index records comprise search-key values and data pointers. Multilevel index is stored on the disk along with the actual database files. As the size of the database grows, so does the size of the indices. There is an immense need to keep the index records in the main memory so as to speed up the search operations. If single-level index is used, then a large size index cannot be kept in memory which leads to multiple disk accesses.

