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| 1. **Employee(Emp\_No,Emp\_Name,Designation,City,Salary,Zipcode,County) (INDEX)** |

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1. Create a sequence used to generate Employee numbers for the Emp\_No column of the Employee table.

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mysql>create table Employee(Emp\_No int(3) primary key auto\_increment,Emp\_Name varchar(10),Designation varchar(15),City varchar(10),Salary float(5),Zipcode int(6),County int(3));

mysql> alter table Employee auto\_increment=100;

+--------+------------+--------------+--------+--------+---------+--------+

| Emp\_No | Emp\_Name | Designation | City | Salary | Zipcode | County |

+--------+------------+--------------+--------+--------+---------+--------+

| 100 | Rupesh | CEO | Mumbai | 40000 | 400030 | 75 |

| 101 | Atharva | Director | Pune | 39000 | 411001 | 71 |

| 102 | Mayur | Manager | Nasik | 35000 | 422002 | 65 |

| 103 | Andrew | Founder | Mumbai | 45000 | 400002 | 62 |

| 104 | Abiali | Team Leader | Pune | 37000 | 411013 | 67 |

| 105 | Uddesh | Project Head | Pune | 38000 | 411013 | 67 |

| 106 | Varun | Testing Head | Nagpur | 40000 | 402010 | 64 |

| 107 | Amit | Developer | Nagpur | 45000 | 402010 | 64 |

+--------+------------+--------------+--------+--------+---------+--------+

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mysql> insert into Employee(Emp\_No,Emp\_Name,Designation,City,Salary,Zipcode,County) values(291,'Rashi','Developer','Nagpur',45000.0,402010,064);

+--------+------------+--------------+--------+--------+---------+--------+

| Emp\_No | Emp\_Name | Designation | City | Salary | Zipcode | County |

+--------+------------+--------------+--------+--------+---------+--------+

| 100 | Rupesh | CEO | Mumbai | 40000 | 400030 | 75 |

| 101 | Atharva | Director | Pune | 39000 | 411001 | 71 |

| 102 | Mayur | Manager | Nasik | 35000 | 422002 | 65 |

| 103 | Andrew | Founder | Mumbai | 45000 | 400002 | 62 |

| 104 | Abiali | Team Leader | Pune | 37000 | 411013 | 67 |

| 105 | Uddesh | Project Head | Pune | 38000 | 411013 | 67 |

| 106 | Durgesh | Testing Head | Nagpur | 40000 | 402010 | 64 |

| 107 | Amit | Developer | Nagpur | 45000 | 402010 | 64 |

| 291 | Rashi | Developer | Nagpur | 45000 | 402010 | 64 |

+--------+------------+--------------+--------+--------+---------+--------+

======================================================================================3. Create an Index on county.

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mysql> create index County\_Index on Employee(County);

mysql> explain select Zipcode from Employee where County=64;

+----+-------------+----------+------------+------+---------------+--------------+----

| id | select\_type | table | partitions | type | possible\_keys | key | key\_len | ref | rows | filtered | Extra |

+----+-------------+----------+------------+------+---------------+--------------+----

| 1 | SIMPLE | Employee | NULL | ref | County\_Index | County\_Index | 5 | const | 3 | 100.00 | NULL |

+----+-------------+----------+------------+------+---------------+--------------+----

mysql> insert into Employee(Emp\_Name,Designation,City,Salary,Zipcode,County) values('Prajakta','Team Leader','Pune',40000.0,400030,075);

+--------+------------+--------------+--------+--------+---------+--------+

| Emp\_No | Emp\_Name | Designation | City | Salary | Zipcode | County |

+--------+------------+--------------+--------+--------+---------+--------+

| 100 | Rupesh | CEO | Mumbai | 40000 | 400030 | 75 |

| 101 | Atharva | Director | Pune | 39000 | 411001 | 71 |

| 102 | Mayur | Manager | Nasik | 35000 | 422002 | 65 |

| 103 | Andrew | Founder | Mumbai | 45000 | 400002 | 62 |

| 104 | Abiali | Team Leader | Pune | 37000 | 411013 | 67 |

| 105 | Uddesh | Project Head | Pune | 38000 | 411013 | 67 |

| 106 | Durgesh | Testing Head | Nagpur | 40000 | 402010 | 64 |

| 107 | Amit | Developer | Nagpur | 45000 | 402010 | 64 |

| 291 | Mayur | Developer | Nagpur | 45000 | 402010 | 64 |

| 292 | Prajakta | Team Leader | Pune | 40000 | 400030 | 75 |

+--------+------------+--------------+--------+--------+---------+--------+

mysql> explain select Zipcode from Employee where City='Nagpur';

+----+-------------+----------+------------+------+---------------+------+---------+--

| id | select\_type | table | partitions | type | possible\_keys | key | key\_len | ref | rows | filtered | Extra |

+----+-------------+----------+------------+------+---------------+------+---------+--| 1 | SIMPLE | Employee | NULL | ALL | NULL | NULL | NULL | NULL | 10 | 10.00 | Using where |

+----+-------------+----------+------------+------+---------------+------+---------+--

mysql> show indexes from Employee;

+----------+------------+--------------+--------------+-------------+-----------+-----

| Table | Non\_unique | Key\_name | Seq\_in\_index | Column\_name | Collation | Cardinality | Sub\_part | Packed | Null | Index\_type | Comment | Index\_comment |

+----------+------------+--------------+--------------+-------------+-----------+-----

| Employee | 0 | PRIMARY | 1 | Emp\_No | A | 9 | NULL | NULL | | BTREE | | |

| Employee | 1 | County\_Index | 1 | County | A | 7 | NULL | NULL | YES | BTREE | | |

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