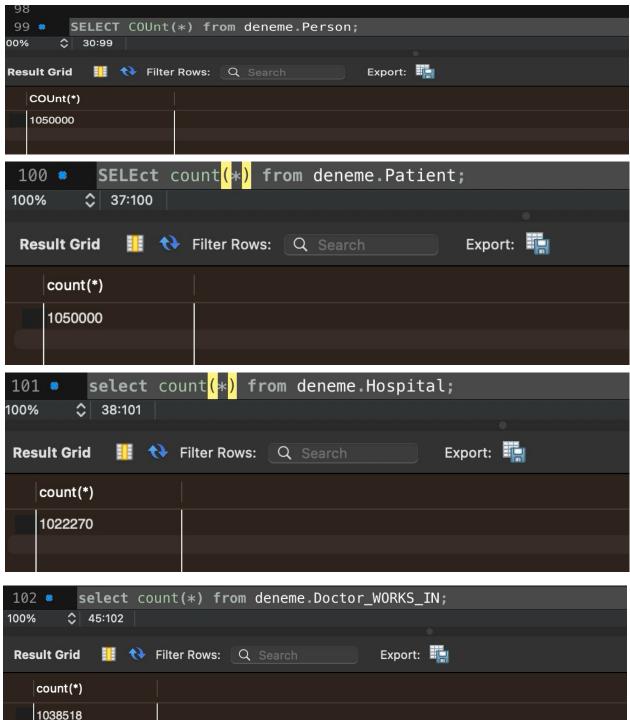
First, we selected Person, DOCTOR_WORKS_IN, Patient, and Hospital as tables. Then we populated with over 1,000,000 users to each of them. Furthermore, after populating each of them we wrote our queries which can be seen below. At first, we run the queries without indexing and take a screenshot of the benchmark results. Moreover, we inserted indexing, which created a faster way to implement our queries that uses an indexing system to find the wanted data, into our queries and ran it again. Lastly, we took the screenshots of the benchmark results.



SELECT *

FROM deneme.Person
JOIN deneme.Patient ON deneme.Person.SSN = deneme.Patient.Patient_SSN
WHERE deneme.Person.age > 35
LIMIT 1000000;

SHOW PROFILE;

tus	Duration
starting	0.000084
Executing hook on transaction	0.000005
starting	0.000005
checking permissions	0.000003
checking permissions	0.000004
Opening tables	0.000225
init	0.000007
System lock	0.000033
optimizing	0.000017
statistics	0.000113
preparing	0.000039
executing	3.000508
end	0.000012
query end	0.000003
waiting for handler commit	0.000016
closing tables	0.000019
freeing items	0.000018
cleaning up	0.000026

SELECT *

FROM deneme.Doctor_WORKS_IN
JOIN deneme.Hospital on deneme.Doctor_WORKS_IN.hospitalName =
deneme.Hospital.hospitalName
WHERE deneme.Hospital.location <> "Nicolefurt"
LIMIT 1000000;

Status	uration	
starting	.000199	
Executing hook on transaction	.000004	
starting	.000007	
checking permissions	.000014	
checking permissions	.000004	
Opening tables	.000309	
init	.000007	
System lock	.000038	
optimizing	.000017	
statistics	.000140	
preparing	.000045	
executing	.871330	
end	.000013	
query end	.000003	
waiting for handler commit	.000022	
closing tables	.000022	
freeing items	.000016	
cleaning up	.000027	
<u> </u>		
Result 168 Result 16		Read On
n Output 💝		
Time Action	Response	Duration / Fetch Time
181 22:01:08 SELECT *	ROM deneme 819857 row(s) returned	0.0054 sec / 2.760 se

After Indexing

CREATE INDEX name_ind ON Person(name); CREATE INDEX age_ind ON Person(age); Drop INDEX age_ind on Person;

SET profiling = 1; SELECT * FROM deneme.Person JOIN deneme.Patient ON deneme.Person.SSN = deneme.Patient.Patient_SSN WHERE deneme.Person.age > 35 LIMIT 1000000; SHOW PROFILE;

Status	Duration
starting	0.000049
Executing hook on transaction	0.000002
starting	0.000002
checking permissions	0.000002
checking permissions	0.000001
Opening tables	0.000073
init	0.000002
System lock	0.000014
optimizing	0.000012
statistics	0.000039
preparing	0.000024
executing	2.662487
end	0.000013
query end	0.000002
waiting for handler commit	0.000013
closing tables	0.000015
freeing items	0.000017
cleaning up	0.000015

CREATE INDEX h_ssn_ind ON Doctor_WORKS_IN(Doctor_SSN);
CREATE INDEX h_name_ind ON Doctor_WORKS_IN(hospitalName);
Drop INDEX h_ssn_ind ON Doctor_WORKS_IN;

SET profiling = 1;
SELECT *
FROM deneme.Doctor_WORKS_IN
JOIN deneme.Hospital ON deneme.Doctor_WORKS_IN.hospitalName = deneme.Hospital.hospitalName
WHERE deneme.Hospital.location <> 'Nicolefurt'
LIMIT 1000000;

SHOW PROFILE;

Status	Duration	
starting	0.000040	
Executing hook on transaction	0.000001	
starting	0.000003	
checking permissions	0.000002	
checking permissions	0.000001	
Opening tables	0.000085	
nit	0.000002	
System lock	0.000005	
optimizing	0.000007	
statistics	0.000034	
preparing	0.000016	
executing	6.128182	
end	0.000011	
query end	0.000002	
waiting for handler commit	0.000008	
closing tables	0.000005	
reeing items	0.000021	
cleaning up	0.000019	