

LAB 04

EC 5070 – DATABASE SYSTEMS

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2019/E/166

SEMESTER 05

13 OCTOBER 2022

01.

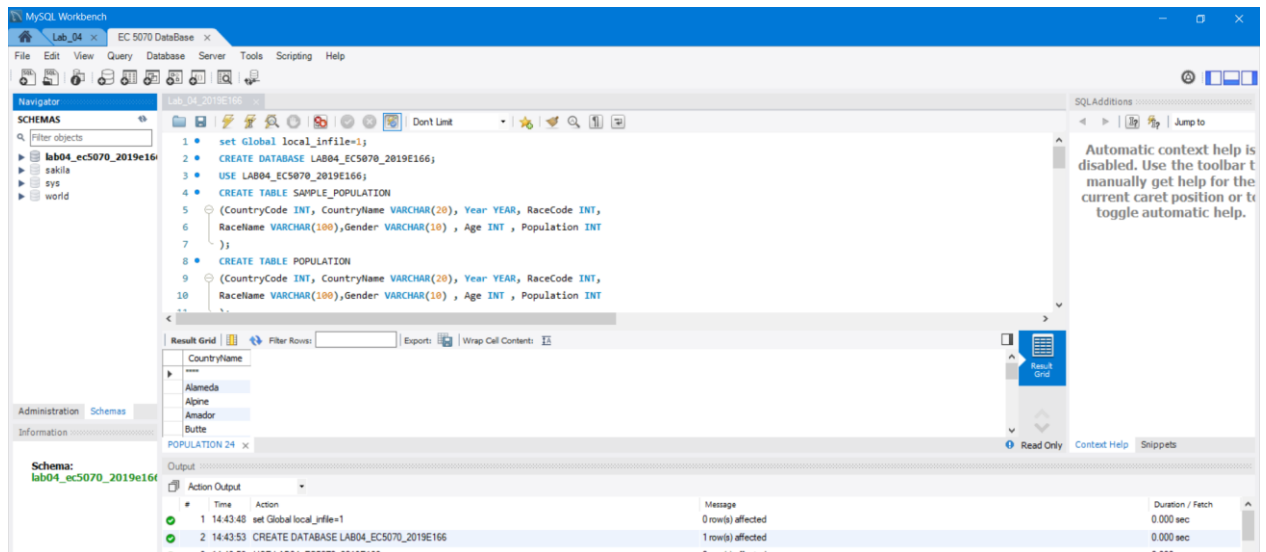


FIGURE 01 – CREATE DATABASE

02.

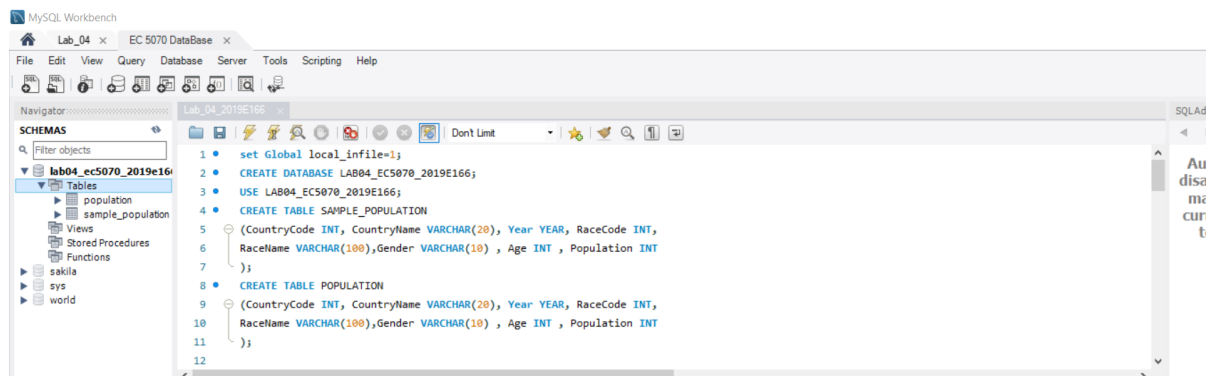


FIGURE 02 – CREATE TABLE

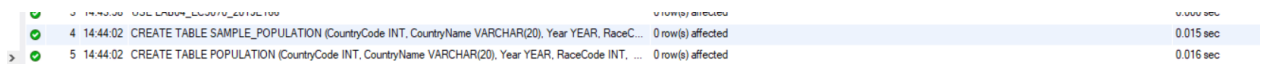


FIGURE 03 – CREATE TABLE

03.

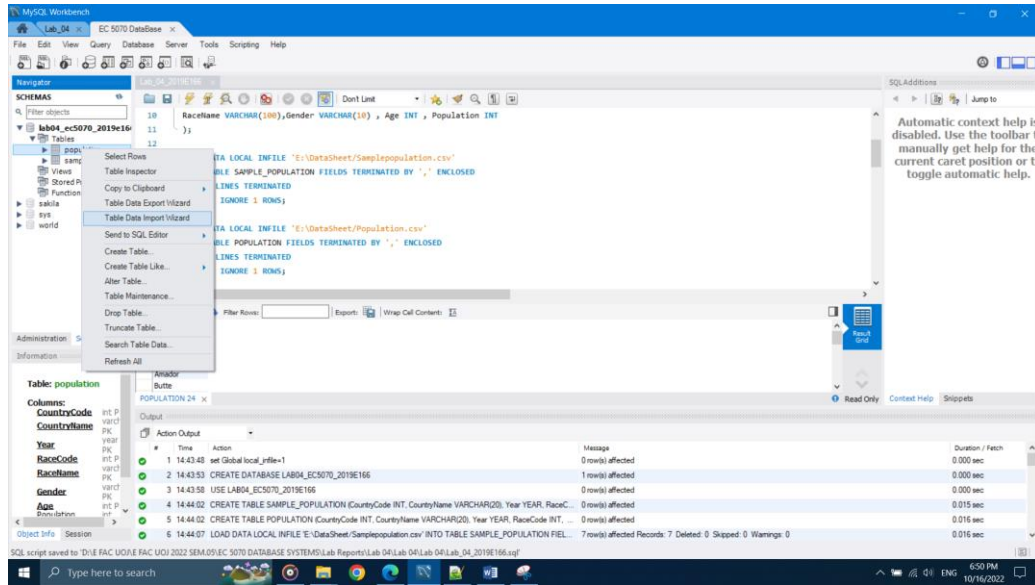


FIGURE 04 – IMPORT DATA USING IMPORT DATA WIZARD

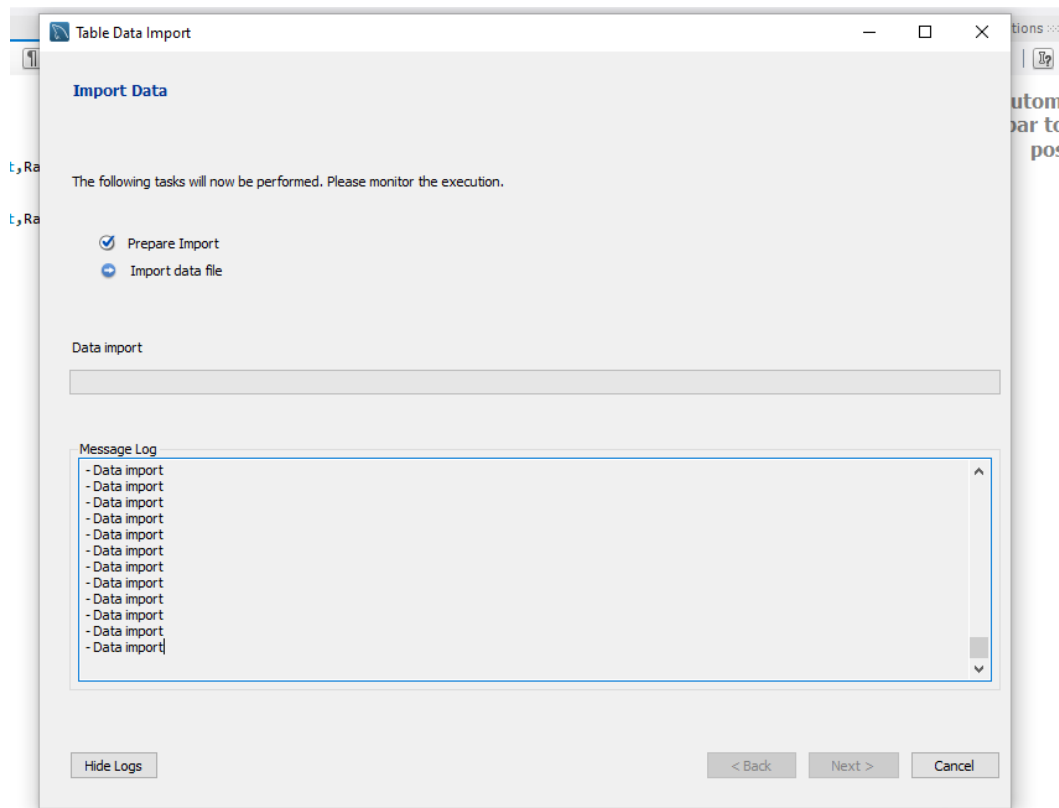


FIGURE 05 – IMPORT DATA USING IMPORT DATA WIZARD

04.

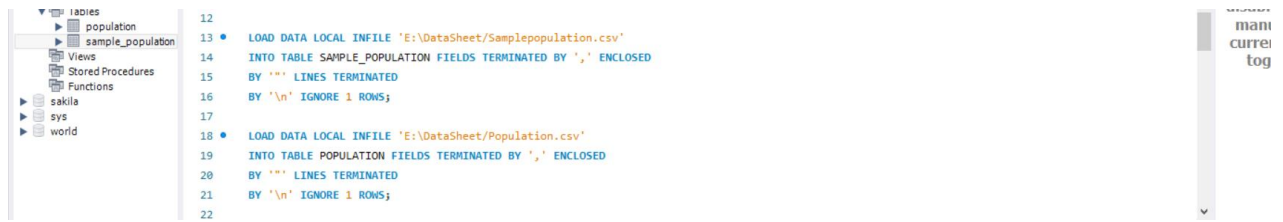


FIGURE 06 – IMPORT DATA USING QUERIES

✓	5	14:44:02	CREATE TABLE POPULATION (CountryCode INT, CountryName VARCHAR(20), Year YEAR, RaceCode INT, ...	0 row(s) affected	0.016 sec
✓	6	14:44:07	LOAD DATA LOCAL INFILE 'E:\DataSheet\Samplepopulation.csv' INTO TABLE SAMPLE_POPULATION FIEL...	7 row(s) affected Records: 7 Deleted: 0 Skipped: 0 Warnings: 0	0.016 sec
✓	7	14:44:13	LOAD DATA LOCAL INFILE 'E:\DataSheet\Population.csv' INTO TABLE POPULATION FIELDS TERMINATED...	1048575 row(s) affected Records: 1048575 Deleted: 0 Skipped: 0 Warnings: 0	21.438 sec

FIGURE 07 – IMPORT DATA USING QUERIES

05.

When data import from the import data wizard method it take more time. For small data importing this method is ok but when we importing big data sheet to a file this method is not a good method. For large file it take more time for importing data.

When queries use for data importing it is a good solution for big data importing. It take less time than import data wizard method.

Main different between these two methods is the time taken for importing data for big data files.

06.

```

21
22 • SELECT Population, RaceName
23 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
24 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Female")AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age = 15)AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Alameda")));
25
26 • SELECT Population
27 FROM LAB04_EC5070_2019E166.POPULATION

```

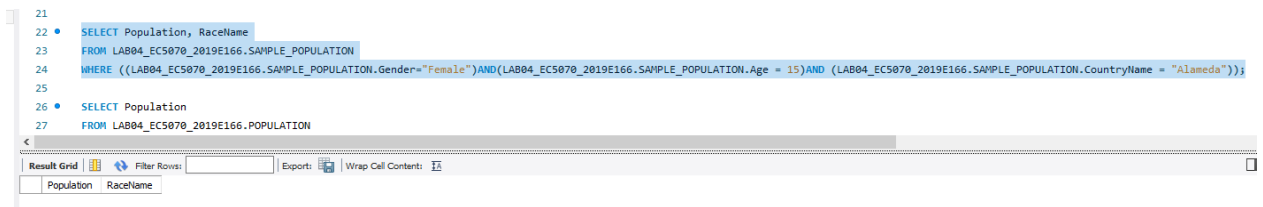


FIGURE 08 – QUERY 01 FOR SAMPLE POPULATION TABLE

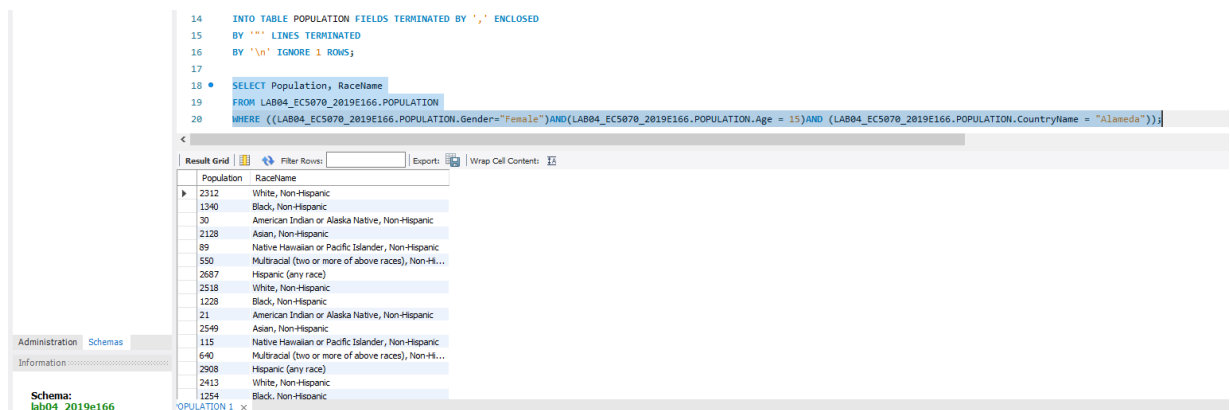
19 10:54:46 SELECT Population, RaceName FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE ((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Female")AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age = 15)AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Alameda")); 0 row(s) returned 0.016 sec / 0.000 sec

FIGURE 09 – TIME DURATION FOR QUERY 01 FOR SAMPLE POPULATION TABLE

```

14 INTO TABLE POPULATION FIELDS TERMINATED BY ',' ENCLOSED
15 BY '' LINES TERMINATED
16 BY '\n' IGNORE 1 ROWS;
17
18 • SELECT Population, RaceName
19 FROM LAB04_EC5070_2019E166.POPULATION
20 WHERE (((LAB04_EC5070_2019E166.POPULATION.Gender="Female")AND (LAB04_EC5070_2019E166.POPULATION.Age = 15)AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Alameda")));

```



Population	RaceName
2312	White, Non-Hispanic
1340	Black, Non-Hispanic
30	American Indian or Alaska Native, Non-Hispanic
2128	Asian, Non-Hispanic
89	Native Hawaiian or Pacific Islander, Non-Hispanic
550	Multiracial (two or more of above races), Non-Hispanic
2687	Hispanic (any race)
2518	White, Non-Hispanic
1228	Black, Non-Hispanic
21	American Indian or Alaska Native, Non-Hispanic
2549	Asian, Non-Hispanic
115	Native Hawaiian or Pacific Islander, Non-Hispanic
640	Multiracial (two or more of above races), Non-Hispanic
2908	Hispanic (any race)
2413	White, Non-Hispanic
1254	Black, Non-Hispanic

FIGURE 10 – QUERY 01 FOR POPULATION TABLE

17 10:50:52 SELECT Population, RaceName FROM LAB04_EC5070_2019E166.POPULATION WHERE ((LAB04_EC5070_2019E166.POPULATION.Gender="Female")AND (LAB04_EC5070_2019E166.POPULATION.Age = 15)AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Alameda")); 357 row(s) returned 2.328 sec / 0.000 sec

FIGURE 11 – TIME DURATION FOR QUERY 01 FOR POPULATION TABLE

```

26 • SELECT Population
27 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
28 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Male")AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Imperial")));
29

```

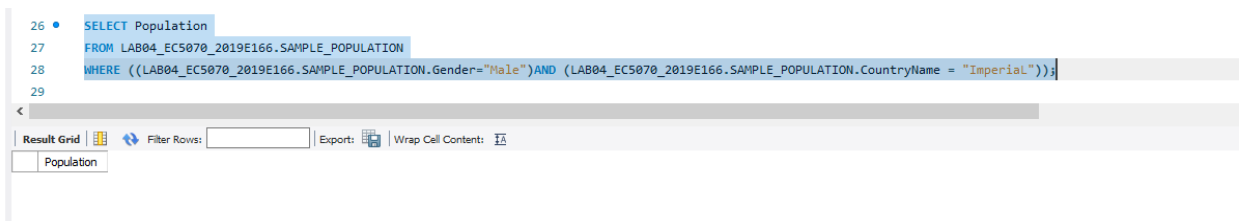


FIGURE 12 – QUERY 02 FOR SAMPLE POPULATION TABLE

21 10:56:57 SELECT Population FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE ((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Male")AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Imperial")); 0 row(s) returned 0.000 sec / 0.000 sec

FIGURE 13 – TIME DURATION FOR QUERY 02 FOR SAMPLE POPULATION TABLE

```

29
30 • SELECT Population
31 FROM LAB04_EC5070_2019E166.POPULATION
32 WHERE (((LAB04_EC5070_2019E166.POPULATION.Gender="Male")AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Imperial"));
33

```

Population
116
102
94
114
117
101
109
100
119
108
100
119
111
116

Schemas

POPULATION 6 x

FIGURE 14 – QUERY 02 FOR POPULATION TABLE

```

22 10:57:52 SELECT Population FROM LAB04_EC5070_2019E166.POPULATION WHERE ((LAB04_EC5070_2019E166.POPULATION.Gender="Male")AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Imperial")); 1000 row(s) returned 0.458 sec / 0.000 sec

```

FIGURE 15 – TIME DURATION FOR QUERY 02 FOR POPULATION TABLE

```

33
34 • SELECT *
35 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
36 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6)AND(LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Inyo"));
37
38 • ALTER TABLE POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age, Population);
39

```

CountryCode	CountryName	Year	RaceCode	RaceName	Gender	Age	Population
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FIGURE 16 – QUERY 03 FOR SAMPLE POPULATION TABLE

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23 11:01:22 SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6)AND(LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Inyo")); 0 row(s) returned 0.062 sec / 0.000 sec

```

FIGURE 17 – TIME DURATION FOR QUERY 03 FOR SAMPLE POPULATION TABLE

```

36 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6)AND(LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Inyo"));
37
38 • SELECT *
39 FROM LAB04_EC5070_2019E166.POPULATION
40 WHERE (((LAB04_EC5070_2019E166.POPULATION.Age >= 6)AND(LAB04_EC5070_2019E166.POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Inyo"));
41

```

CountryCode	CountryName	Year	RaceCode	RaceName	Gender	Age	Population
6027	Inyo	2010	1	White, Non-Hispanic	Female	6	36
6027	Inyo	2010	1	White, Non-Hispanic	Female	7	32
6027	Inyo	2010	1	White, Non-Hispanic	Female	8	35
6027	Inyo	2010	1	White, Non-Hispanic	Female	9	45
6027	Inyo	2010	1	White, Non-Hispanic	Female	10	44
6027	Inyo	2010	1	White, Non-Hispanic	Female	11	50
6027	Inyo	2010	1	White, Non-Hispanic	Female	12	38

emas

FIGURE 18 – QUERY 03 FOR POPULATION TABLE

```

24 11:02:45 SELECT * FROM LAB04_EC5070_2019E166.POPULATION WHERE (((LAB04_EC5070_2019E166.POPULATION.Age >= 6)AND(LAB04_EC5070_2019E166.POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Inyo")); 1000 row(s) returned 0.594 sec / 0.000 sec

```

FIGURE 19 – TIME DURATION FOR QUERY 03 FOR POPULATION TABLE

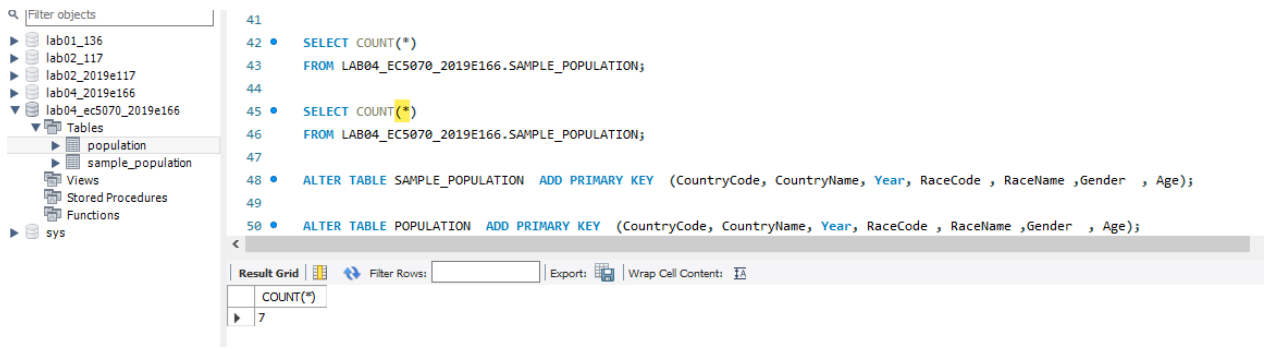


FIGURE 20 – QUERY 04 FOR SAMPLE POPULATION TABLE

4	11:32:40	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
3	11:34:13	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION LIMIT 0, 1000	1 row(s) returned	1.812 sec / 0.000 sec

FIGURE 21 – TIME DURATION FOR QUERY 04 FOR SAMPLE POPULATION TABLE

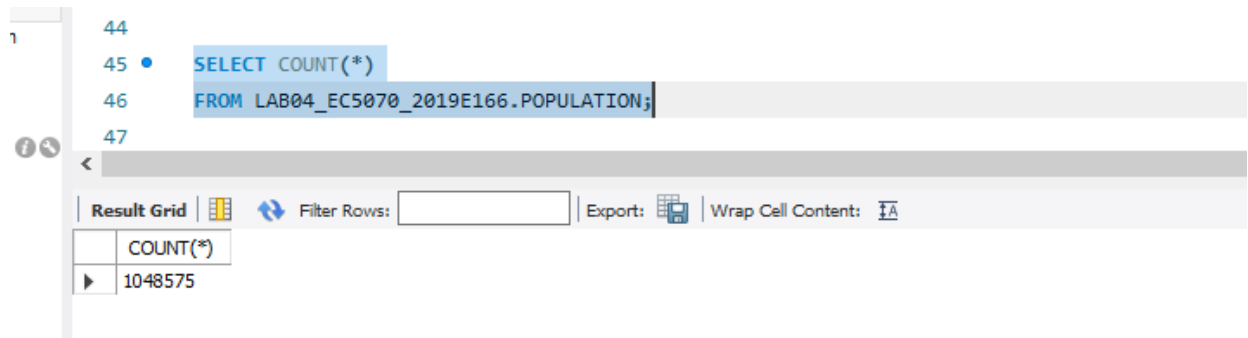


FIGURE 22 – QUERY 04 FOR POPULATION TABLE

4	11:36:09	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.POPULATION LIMIT 0, 1000	1 row(s) returned	2.204 sec / 0.000 sec
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FIGURE 23 – TIME DURATION FOR QUERY 04 FOR POPULATION TABLE

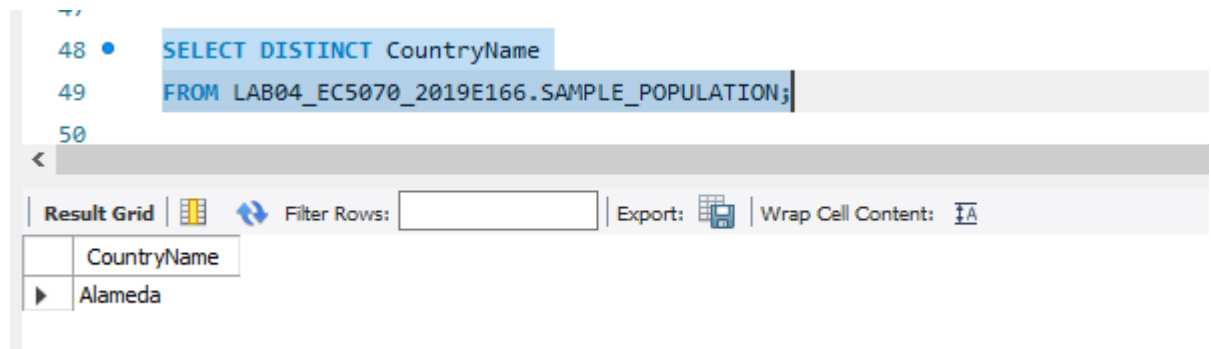


FIGURE 24 – QUERY 05 FOR SAMPLE POPULATION TABLE

5	11:38:28	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION LIMIT 0, 1000	1 row(s) returned	0.032 sec / 0.000 sec
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FIGURE 25 – TIME DURATION FOR QUERY 05 FOR SAMPLE POPULATION TABLE

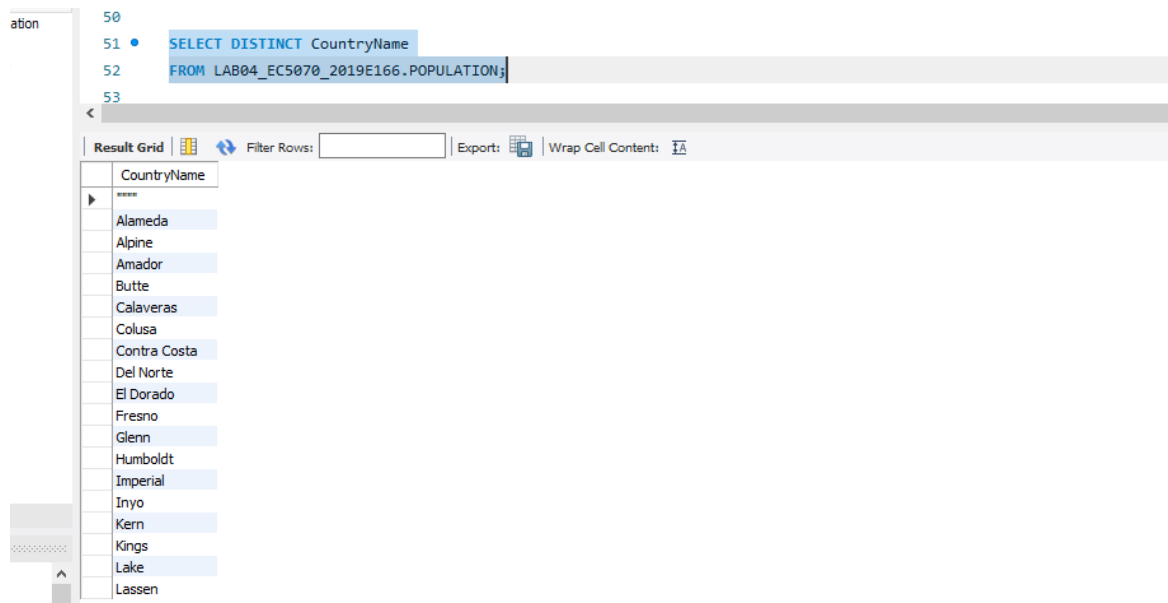


FIGURE 26 – QUERY 05 FOR POPULATION TABLE

6	11:39:31	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.POPULATION LIMIT 0, 1000	19 row(s) returned	0.687 sec / 0.000 sec
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FIGURE 27 – TIME DURATION FOR QUERY 05 FOR POPULATION TABLE

07.

59	ALTER TABLE LAB04_EC5070_2019E166.SAMPLE_POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);
60	
61	ALTER TABLE LAB04_EC5070_2019E166.POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);
62	

FIGURE 28 – CREATE PRIMARY KEY FOR TABLE

10	15:48:25	ALTER TABLE LAB04_EC5070_2019E166.SAMPLE_POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.078 sec
11	15:49:59	ALTER TABLE LAB04_EC5070_2019E166.POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	20.485 sec

FIGURE 29 – TIME DURATION FOR CREATEING PRIMARY KEY FOR TABLE

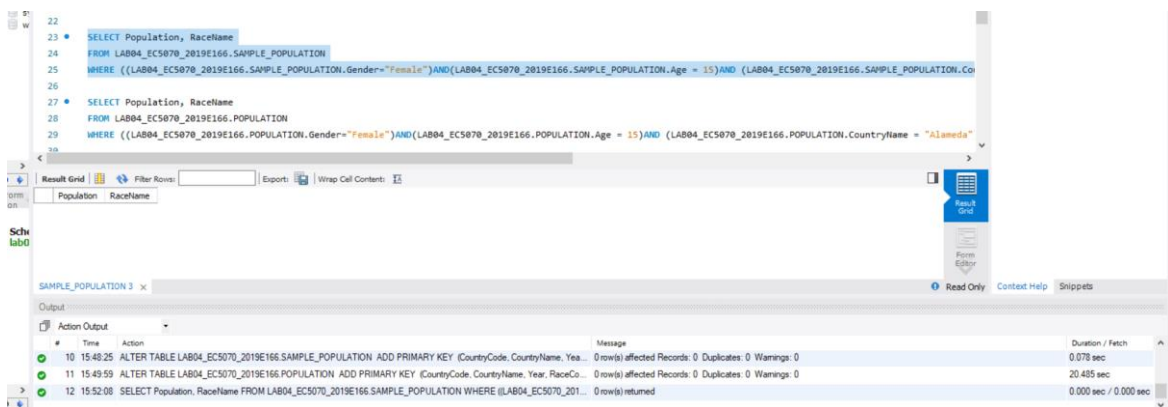
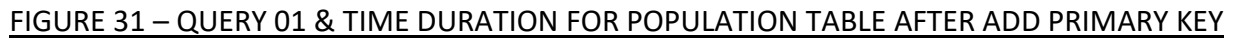


FIGURE 30 – QUERY 01 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY



toggle automatic help.

```

41 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Count
42
43 SELECT *
44 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
45 WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Count
46
47 SELECT COUNT(*)
48 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION

```

CountryCode	CountryName	Year	RaceCode	RaceName	Gender	Age	Population
6027	Inyo	2010	1	White, Non-Hispanic	Female	6	26
6027	Inyo	2010	1	White, Non-Hispanic	Female	7	32
6027	Inyo	2010	1	White, Non-Hispanic	Female	8	35
6027	Inyo	2010	1	White, Non-Hispanic	Female	9	45
6027	Inyo	2010	1	White, Non-Hispanic	Female	10	44
6027	Inyo	2010	1	White, Non-Hispanic	Female	11	50
6027	Inyo	2010	1	White, Non-Hispanic	Female	12	38
6027	Inyo	2010	1	White, Non-Hispanic	Female	13	67

Output

Action Output

#	Time	Action	Message	Duration / Fetch
14	15:54:06	SELECT Population FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	0 rows(s) returned	0.000 sec / 0.000 sec
15	15:54:43	SELECT Population FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	3180 row(s) returned	0.594 sec / 0.313 sec
16	15:55:25	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	0 row(s) returned	0.015 sec / 0.000 sec
17	15:56:34	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	4273 row(s) returned	0.390 sec / 0.141 sec
18	15:56:34	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	1 row(s) returned	0.000 sec / 0.000 sec

FIGURE 35 – QUERY 03 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

manually get help for the current caret position or toggle automatic help.

```

46
47 SELECT COUNT(*)
48 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
49
50 SELECT COUNT(*)
51 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
52
53 SELECT DISTINCT CountryName
54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
14	15:54:06	SELECT Population FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	0 rows(s) returned	0.000 sec / 0.000 sec
15	15:54:43	SELECT Population FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	3180 row(s) returned	0.594 sec / 0.313 sec
16	15:55:25	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	0 row(s) returned	0.015 sec / 0.000 sec
17	15:56:34	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	4273 row(s) returned	0.390 sec / 0.141 sec
18	15:56:34	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	1 row(s) returned	0.000 sec / 0.000 sec

FIGURE 36 – QUERY 04 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

manually get help for the current caret position or toggle automatic help.

```

49
50 SELECT COUNT(*)
51 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
52
53 SELECT DISTINCT CountryName
54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
16	15:55:25	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	0 row(s) returned	0.015 sec / 0.000 sec
17	15:56:34	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	4273 row(s) returned	0.390 sec / 0.141 sec
18	15:56:34	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	1 row(s) returned	0.000 sec / 0.000 sec
19	15:57:28	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.110 sec / 0.000 sec

FIGURE 37 – QUERY 04 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

manually get help for the current caret position or toggle automatic help.

```

51 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
52
53 SELECT DISTINCT CountryName
54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
17	15:56:34	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	4273 row(s) returned	0.390 sec / 0.141 sec
18	15:56:34	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >= 6) AND (LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)	1 row(s) returned	0.000 sec / 0.000 sec
19	15:57:28	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.110 sec / 0.000 sec
20	15:57:55	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.000 sec / 0.000 sec

FIGURE 38 – QUERY 05 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

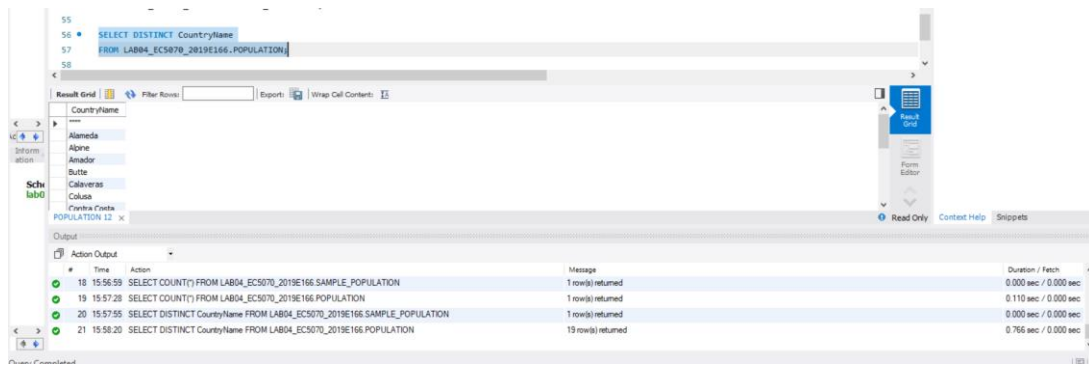


FIGURE 39 – QUERY 05 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

08.

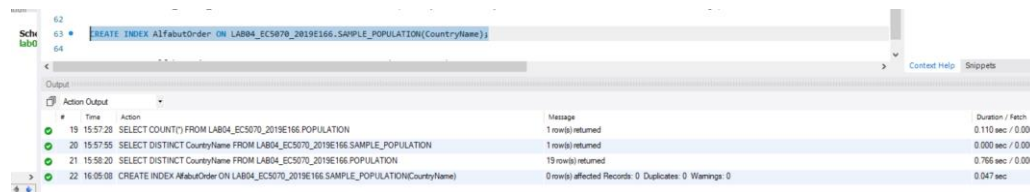


FIGURE 40 – CREATE THE SECONDARY INDEX FOR SAMPLE POPULATION TABLE



FIGURE 41 – CREATE THE SECONDARY INDEX FOR POPULATION TABLE

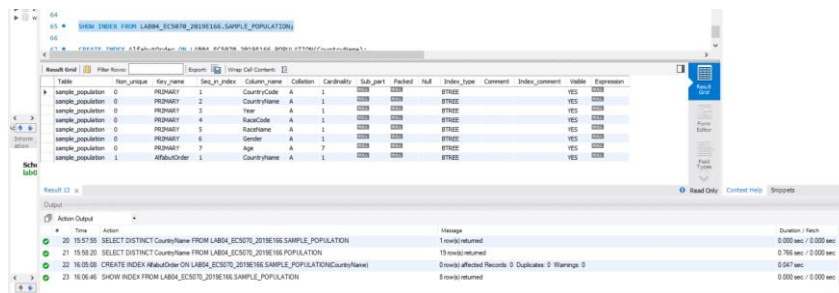


FIGURE 42 – SHOW INDEX FROM SAMPLE POPULATION TABLE

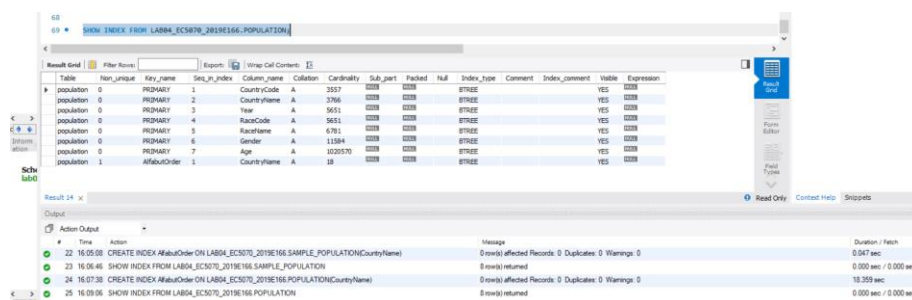


FIGURE 43 – SHOW INDEX FROM POPULATION TABLE

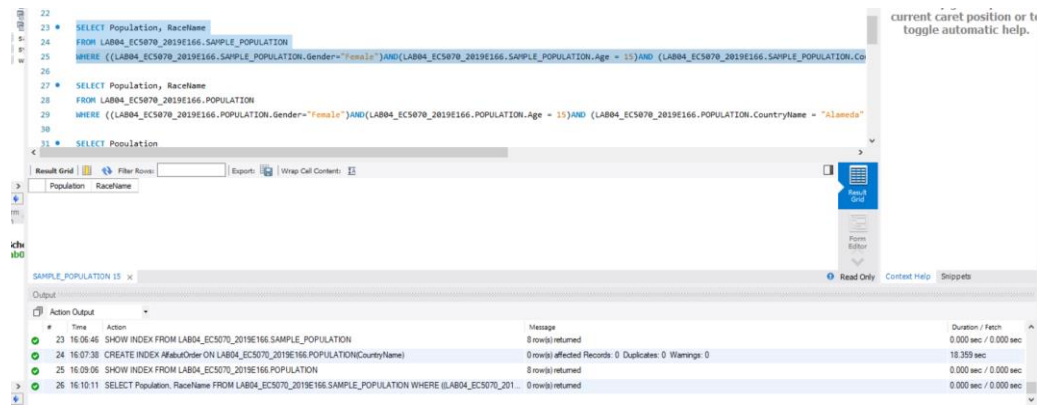


FIGURE 44 - QUERY 01 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

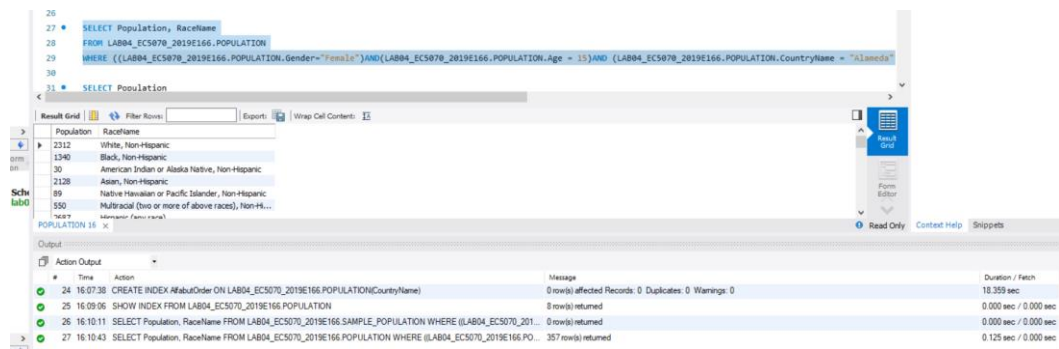


FIGURE 45 - QUERY 01 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

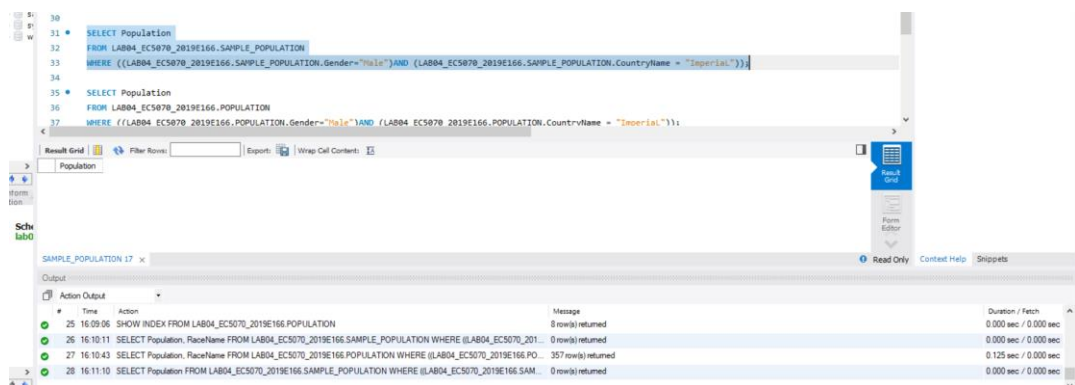


FIGURE 46 - QUERY 02 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

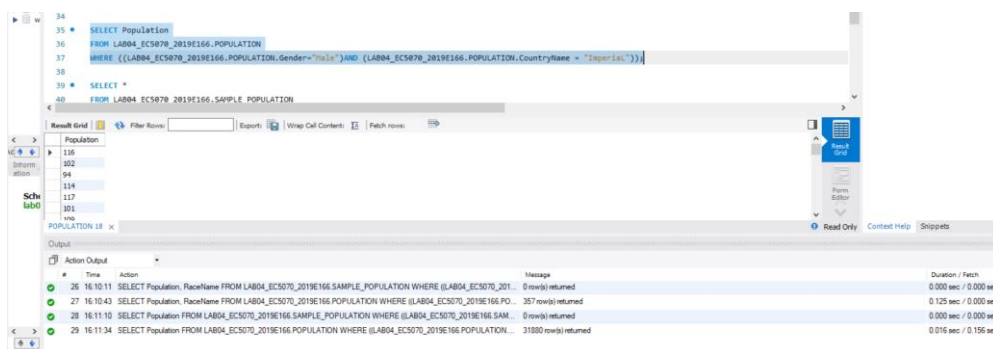


FIGURE 47 - QUERY 02 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

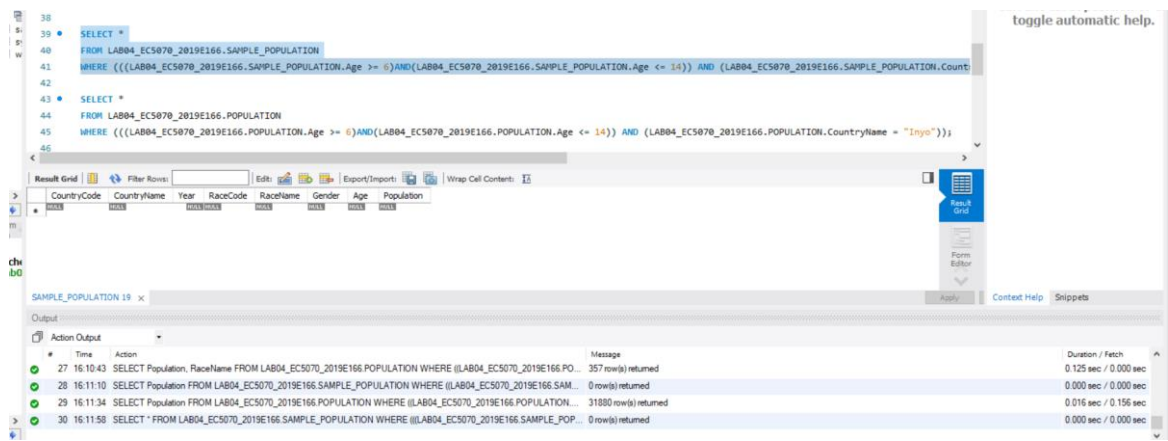


FIGURE 48 - QUERY 03 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

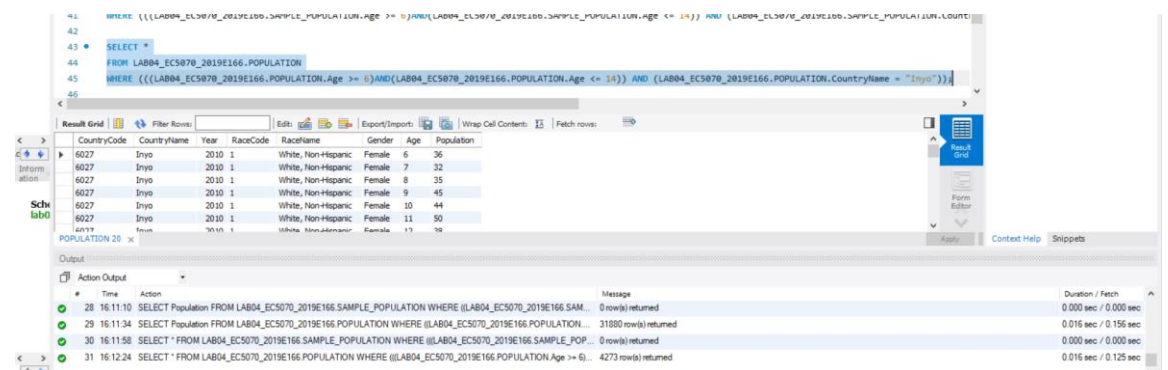


FIGURE 49 - QUERY 03 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

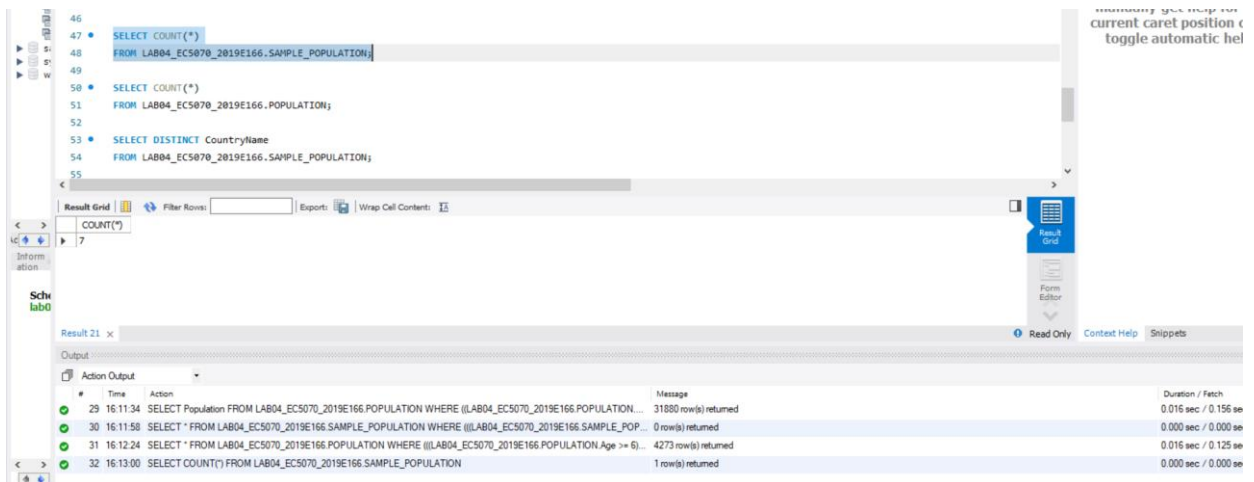


FIGURE 50 - QUERY 04 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

Query 04 SQL:

```

49
50 SELECT COUNT(*)
51 FROM LAB04_EC5070_2019E166.POPULATION;
52
53 SELECT DISTINCT CountryName
54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
55

```

Result Grid:

Column	Value
COUNT(*)	1048575

Action Output:

Time	Action	Message	Duration / Fetch
30 16:11:50	SELECT * FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION WHERE ((LAB04_EC5070_2019E166.SAMPLE_POP...	0 row(s) returned	0.000 sec / 0.000 sec
31 16:12:24	SELECT * FROM LAB04_EC5070_2019E166.POPULATION WHERE ((LAB04_EC5070_2019E166.POPULATION.Age >= 6)...	4273 row(s) returned	0.016 sec / 0.125 sec
32 16:13:00	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.000 sec / 0.000 sec
33 16:13:28	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.POPULATION	1 row(s) returned	0.390 sec / 0.000 sec

FIGURE 51 - QUERY 04 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

Query 05 SQL:

```

52
53 SELECT DISTINCT CountryName
54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
55
56 SELECT DISTINCT CountryName
57 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
58
59 ALTER TABLE LAB04_EC5070_2019E166.SAMPLE_POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);
60
61 ALTER TABLE LAB04_EC5070_2019E166.POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);

```

Result Grid:

Column	Value
CountryName	Alameda

Action Output:

Time	Action	Message	Duration / Fetch
31 16:12:24	SELECT * FROM LAB04_EC5070_2019E166.POPULATION WHERE ((LAB04_EC5070_2019E166.POPULATION.Age >= 6)...	4273 row(s) returned	0.016 sec / 0.125 sec
32 16:13:00	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.000 sec / 0.000 sec
33 16:13:28	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.POPULATION	1 row(s) returned	0.390 sec / 0.000 sec
34 16:13:52	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.015 sec / 0.000 sec

FIGURE 52 - QUERY 05 & TIME DURATION FOR SAMPLE POPULATION TABLE AFTER ADD PRIMARY KEY

Query 05 SQL:

```

54 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
55
56 SELECT DISTINCT CountryName
57 FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
58
59 ALTER TABLE LAB04_EC5070_2019E166.SAMPLE_POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);
60
61 ALTER TABLE LAB04_EC5070_2019E166.POPULATION ADD PRIMARY KEY (CountryCode, CountryName, Year, RaceCode, RaceName, Gender, Age);

```

Result Grid:

Column	Value
CountryName	Alameda
CountryName	Alpine
CountryName	Amador
CountryName	Butte
CountryName	Calaveras

Action Output:

Time	Action	Message	Duration / Fetch
32 16:13:00	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.000 sec / 0.000 sec
33 16:13:28	SELECT COUNT(*) FROM LAB04_EC5070_2019E166.POPULATION	1 row(s) returned	0.390 sec / 0.000 sec
34 16:13:52	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION	1 row(s) returned	0.015 sec / 0.000 sec
35 16:14:14	SELECT DISTINCT CountryName FROM LAB04_EC5070_2019E166.POPULATION	19 row(s) returned	0.000 sec / 0.000 sec

FIGURE 53 - QUERY 05 & TIME DURATION FOR POPULATION TABLE AFTER ADD PRIMARY KEY

09.

Time duration for find population and racename of data in table.

	Time for Sample Population Table	Time for Population Table
Normal Query	0.016 sec	2.328 sec
After primary key add	0.000 sec	0.843 sec
After secondary index add	0.000 sec	0.125 sec

Time duration for getting count of data in table.

	Time for Sample Population Table	Time for Population Table
Normal Query	0.000 sec	0.468 sec
After primary key add	0.000 sec	0.594 sec
After secondary index add	0.000 sec	0.016 sec

Time duration for getting count of data in table.

	Time for Sample Population Table	Time for Population Table
Normal Query	0.062 sec	0.594 sec
After primary key add	0.015 sec	0.390 sec
After secondary index add	0.000 sec	0.016 sec

Time duration for getting count of data in table.

	Time for Sample Population Table	Time for Population Table
Normal Query	1.812 sec	2.204 sec
After primary key add	0.000 sec	0.110 sec
After secondary index add	0.000 sec	0.390 sec

Time duration for getting count of data in table.

	Time for Sample Population Table	Time for Population Table
Normal Query	0.032 sec	0.687 sec
After primary key add	0.000 sec	0.766 sec
After secondary index add	0.015 sec	0.000 sec

When we study the upper tables we can see that most queries the time duration decrease step by step. When without any primary key or secondary index time duration is high the time after adding primary key is less than without query and the less time taken when secondary index added.

SQL QUERY

```
set Global local_infile=1;
CREATE DATABASE LAB04_EC5070_2019E166;
USE LAB04_EC5070_2019E166;
CREATE TABLE SAMPLE_POPULATION
(CountryCode INT, CountryName VARCHAR(20), Year YEAR, RaceCode INT,
RaceName VARCHAR(100), Gender VARCHAR(10) , Age INT , Population INT
);
CREATE TABLE POPULATION
(CountryCode INT, CountryName VARCHAR(20), Year YEAR, RaceCode INT,
RaceName VARCHAR(100), Gender VARCHAR(10) , Age INT , Population INT
);
```

```
LOAD DATA LOCAL INFILE 'E:\DataSheet/Samplepopulation.csv'
INTO TABLE SAMPLE_POPULATION FIELDS TERMINATED BY ',' ENCLOSED
BY '"' LINES TERMINATED
BY '\n' IGNORE 1 ROWS;
```

```
LOAD DATA LOCAL INFILE 'E:\DataSheet/Population.csv'
INTO TABLE POPULATION FIELDS TERMINATED BY ',' ENCLOSED
BY '"' LINES TERMINATED
BY '\n' IGNORE 1 ROWS;
```

```
SELECT Population, RaceName
FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
WHERE
((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Female")AND(LAB04_EC5070_2019
E166.SAMPLE_POPULATION.Age = 15)AND
(LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Alameda"));
```

```
SELECT Population, RaceName
FROM LAB04_EC5070_2019E166.POPULATION
WHERE
((LAB04_EC5070_2019E166.POPULATION.Gender="Female")AND(LAB04_EC5070_2019E166.POP
ULATION.Age = 15)AND (LAB04_EC5070_2019E166.POPULATION.CountryName = "Alameda"));
```

```
SELECT Population
FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
WHERE ((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Gender="Male")AND
(LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Imperial"));
```

```
SELECT Population
FROM LAB04_EC5070_2019E166.POPULATION
WHERE ((LAB04_EC5070_2019E166.POPULATION.Gender="Male")AND
(LAB04_EC5070_2019E166.POPULATION.CountryName = "Imperial"));
```

```
SELECT *
```



```
FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION
WHERE (((LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age >=
6)AND(LAB04_EC5070_2019E166.SAMPLE_POPULATION.Age <= 14)) AND
(LAB04_EC5070_2019E166.SAMPLE_POPULATION.CountryName = "Inyo"));
```

```
SELECT *
FROM LAB04_EC5070_2019E166.POPULATION
WHERE (((LAB04_EC5070_2019E166.POPULATION.Age >=
6)AND(LAB04_EC5070_2019E166.POPULATION.Age <= 14)) AND
(LAB04_EC5070_2019E166.POPULATION.CountryName = "Inyo"));
```

```
SELECT COUNT(*)
FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
```

```
SELECT COUNT(*)
FROM LAB04_EC5070_2019E166.POPULATION;
```

```
SELECT DISTINCT CountryName
FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
```

```
SELECT DISTINCT CountryName
FROM LAB04_EC5070_2019E166.POPULATION;
```

```
ALTER TABLE LAB04_EC5070_2019E166.SAMPLE_POPULATION ADD PRIMARY KEY
(CountryCode, CountryName, Year, RaceCode , RaceName ,Gender , Age);
```

```
ALTER TABLE LAB04_EC5070_2019E166.POPULATION ADD PRIMARY KEY (CountryCode,
CountryName, Year, RaceCode , RaceName ,Gender , Age);
```

```
CREATE INDEX AlfabutOrder ON
LAB04_EC5070_2019E166.SAMPLE_POPULATION(CountryName);
```

```
SHOW INDEX FROM LAB04_EC5070_2019E166.SAMPLE_POPULATION;
```

```
CREATE INDEX AlfabutOrder ON LAB04_EC5070_2019E166.POPULATION(CountryName);
```

```
SHOW INDEX FROM LAB04_EC5070_2019E166.POPULATION;
```