

# Lab4:-

Tables:-

\*Class:-

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of databases, with 'lab4' selected. Under 'lab4', the 'Tables' folder is expanded, showing 'class'. The 'Table: class' information pane shows the following columns:

Column	Type
cname	varchar(30) PK
meetsat	time
room	varchar(5)
fid	int

The 'Query 1' editor shows the following SQL:

```
1 use lab4;
2 select * from class;
```

The 'Result Grid' displays the following data:

#	cname	meetsat	room	fid
1	c1	09:00:00	r110	1
2	c2	10:00:00	r120	2
3	c3	11:00:00	r128	3
4	c4	09:00:00	r128	1
5	c5	10:00:00	r110	2

The 'Action Output' pane shows the following actions:

#	Time	Action	Message	Duration / Fetch
43	23:07:59	insert into enrolled values(5,c3)	1 row(s) affected	0.109 sec
44	23:07:59	delete from enrolled where snum=5	2 row(s) affected	0.172 sec
45	23:08:49	use lab4	0 row(s) affected	0.000 sec
46	23:08:49	select * from class LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

\*enrolled:-

The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view of databases, with 'lab4' selected. Under 'lab4', the 'Tables' folder is expanded, showing 'enrolled'. The 'Table: class' information pane shows the following columns:

Column	Type
cname	varchar(30) PK
meetsat	time
room	varchar(5)
fid	int

The 'Query 1' editor shows the following SQL:

```
1 use lab4;
2 select * from enrolled;
```

The 'Result Grid' displays the following data:

#	snum	cname
1	1	c1
2	1	c4
3	1	c2
4	1	c3
5	2	c2
6	3	c2
7	4	c2

The 'Action Output' pane shows the following actions:

#	Time	Action	Message	Duration / Fetch
45	23:08:49	use lab4	0 row(s) affected	0.000 sec
46	23:08:49	select * from class LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
47	23:13:28	use lab4	0 row(s) affected	0.000 sec
48	23:13:28	select * from enrolled LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

\*faculty:-

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'lab4' selected. The 'Table: class' is highlighted, showing its columns: cname, time, room, and fid. The main query editor contains the following SQL:

```
1 use lab4;
2 select * from faculty;
```

The 'Result Grid' shows the output of the query:

fid	fname	deptid
1	f1	1
2	f2	2
3	f3	3

The 'Output' pane at the bottom shows the execution log:

#	Time	Action	Message	Duration / Fetch
47	23:13:28	use lab4	0 row(s) affected	0.000 sec
48	23:13:28	select * from enrolled LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
49	23:14:14	use lab4	0 row(s) affected	0.000 sec
50	23:14:14	select * from faculty LIMIT 0, 1000	3 row(s) returned	0.031 sec / 0.000 sec

\*student:-

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'lab4' selected. The 'Table: class' is highlighted, showing its columns: cname, time, room, and fid. The main query editor contains the following SQL:

```
1 use lab4;
2 select * from student;
```

The 'Result Grid' shows the output of the query:

snum	sname	major	lvl	age
1	s1	m1	JR	18
2	s2	m2	FR	16
3	s3	m1	SR	17
4	s4	m4	JR	19
5	s5	m3	FR	20
6	s6	m1	JR	18
7	s7	m1	SR	18

The 'Output' pane at the bottom shows the execution log:

#	Time	Action	Message	Duration / Fetch
49	23:14:14	use lab4	0 row(s) affected	0.000 sec
50	23:14:14	select * from faculty LIMIT 0, 1000	3 row(s) returned	0.031 sec / 0.000 sec
51	23:15:01	use lab4	0 row(s) affected	0.000 sec
52	23:15:01	select * from student LIMIT 0, 1000	7 row(s) returned	0.015 sec / 0.000 sec

1)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1  
lab2  
lab3  
lab4

Tables  
catalog  
parts  
suppliers  
Views  
Stored Procedures  
Functions

lab4  
Tables  
class  
enrolled  
faculty  
student  
Views  
Stored Procedures  
Functions

sakila  
sys  
world

Administration Schemas

Information

Table: class

Columns:  
cname varchar(30) PK  
meetsat time  
room varchar(5)  
fid int

Query 1 x

Limit to 1000 rows

```
1 • use lab4;
2 • select s.sname from student s where s.snum in (select distinct e.snum from enrolled e where e.cname in (select c.cname from class c where c.fid = s1));
3
```

Result Grid

Filter Rows:  Export:  Wrap Cell Contents: ☐

sname

s1

student 5 x

Output

Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
51	23:15:01	use lab4	0 row(s) affected	0.000 sec
52	23:15:01	select * from student LIMIT 0, 1000	7 row(s) returned	0.015 sec / 0.000 sec
53	23:21:45	use lab4	0 row(s) affected	0.000 sec
54	23:21:45	select s.sname from student s where s.snum in (select distinct e.snum from enrolled e where e.cname in (select ...	1 row(s) returned	0.047 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

2)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1  
lab2  
lab3  
lab4

Tables  
catalog  
parts  
suppliers  
Views  
Stored Procedures  
Functions

lab4  
Tables  
class  
enrolled  
faculty  
student  
Views  
Stored Procedures  
Functions

sakila  
sys  
world

Administration Schemas

Information

Table: class

Columns:  
cname varchar(30) PK  
meetsat time  
room varchar(5)  
fid int

Query 1 x

Limit to 1000 rows

```
1 • use lab4;
2 • select c.cname from class c where c.room='R128' union select e.cname from enrolled e group by e.cname having count(e.snum)>=5;
3 • insert into enrolled values(5,'c2');
4 • select c.cname from class c where c.room='R128' union select e.cname from enrolled e group by e.cname having count(e.snum)>=5;
5 • delete from enrolled e where e.snum=5 and e.cname='c2';
```

Result Grid

Filter Rows:  Export:  Wrap Cell Contents: ☐

cname

c3  
c4  
c2

Result 6 Result 7 x

Output

Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
56	23:23:59	select c.cname from class c where c.room='R128' union select e.cname from enrolled e group by e.cname havi...	2 row(s) returned	0.016 sec / 0.000 sec
57	23:23:59	insert into enrolled values(5,'c2')	1 row(s) affected	0.813 sec
58	23:24:00	select c.cname from class c where c.room='R128' union select e.cname from enrolled e group by e.cname havi...	3 row(s) returned	0.000 sec / 0.000 sec
59	23:24:00	delete from enrolled e where e.snum=5 and e.cname='c2'	1 row(s) affected	0.187 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

3)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1  
lab2  
lab3  
lab4  
Tables  
catalog  
parts  
suppliers  
Views  
Stored Procedures  
Functions  
lab4  
Tables  
class  
enrolled  
faculty  
student  
Views  
Stored Procedures  
Functions  
sakila  
sys  
world  
Administration Schemas  
Information

Table: class

Columns:

cname varchar(30) PK  
time time  
room varchar(5)  
fid int

Query 1

```
1 use lab4;
2 select distinct(e1.snum) from enrolled e1,enrolled e2 where e1.snum=e2.snum and e1.cname=e2.cname and (select c.meetsat from class c where c.cname=e1.cname);
3 select * from enrolled;
4
```

Result Grid

snum	cname
1	c1
1	c4
1	c2
1	c3
2	c2
3	c2
4	c2

Result 8 enrolled 9 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
59	23:24:00	delete from enrolled e where e.snum=5 and e.cname='c2'	1 row(s) affected	0.187 sec
60	23:27:12	use lab4	0 row(s) affected	0.000 sec
61	23:27:12	select distinct(e1.snum) from enrolled e1,enrolled e2 where e1.snum=e2.snum and e1.cname=e2.cname and (...)	1 row(s) returned	0.000 sec / 0.000 sec
62	23:27:12	select * from enrolled LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

4)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1  
lab2  
lab3  
lab4  
Tables  
catalog  
parts  
suppliers  
Views  
Stored Procedures  
Functions  
lab4  
Tables  
class  
enrolled  
faculty  
student  
Views  
Stored Procedures  
Functions  
sakila  
sys  
world  
Administration Schemas  
Information

Table: class

Columns:

cname varchar(30) PK  
meetsat time  
room varchar(5)  
fid int

Query 1

```
1 use lab4;
2 select distinct(c.fid) from class c where not exists (select c1.room from class c1 where c1.room not in (select c2.room from class c2 where c2.cname=c.cname));
```

Result Grid

fid
1

Result 10 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
61	23:27:12	select distinct(e1.snum) from enrolled e1,enrolled e2 where e1.snum=e2.snum and e1.cname=e2.cname and (...)	1 row(s) returned	0.000 sec / 0.000 sec
62	23:27:12	select * from enrolled LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
63	23:29:01	use lab4	0 row(s) affected	0.000 sec
64	23:29:01	select distinct(c.fid) from class c where not exists (select c1.room from class c1 where c1.room not in (select c2...	0 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

5)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1

lab2

lab3

lab4

Tables

catalog

parts

supplies

Views

Stored Procedures

Functions

lab4

Tables

class

enrolled

faculty

student

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

Table: class

Columns:

cname varchar(30) PK

meetsat time

room varchar(5)

fid int

Query 1

Limit to 1000 rows

```

1 4;
2 f.fname from faculty f where (select count(e.snum) from enrolled e where e.cname in (select c.cname from class c where c.fid=f.fid))<=5;
3 into enrolled values(5,'c2');
4 f.fname from faculty f where (select count(e.snum) from enrolled e where e.cname in (select c.cname from class c where c.fid=f.fid))<=5;

```

Result Grid

Filter Rows:

Export:

Wrap Cell Content: 15

faculty 11 faculty 12 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
65	23:30:06	use lab4	0 row(s) affected	0.000 sec
66	23:30:06	select f.fname from faculty f where (select count(e.snum) from enrolled e where e.cname in (select c.cname from class c where c.fid=f.fid))<=5;	3 row(s) returned	0.000 sec / 0.000 sec
67	23:30:06	insert into enrolled values(5,'c2')	1 row(s) affected	1.532 sec
68	23:30:08	select f.fname from faculty f where (select count(e.snum) from enrolled e where e.cname in (select c.cname from class c where c.fid=f.fid))<=5;	3 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

6)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1

lab2

lab3

lab4

Tables

catalog

parts

supplies

Views

Stored Procedures

Functions

lab4

Tables

class

enrolled

faculty

student

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

Table: class

Columns:

cname varchar(30) PK

meetsat time

room varchar(5)

fid int

Query 1

Limit to 1000 rows

```

1 use lab4;
2 select s.sname from student s where s.snum not in (select distinct(e.snum) from enrolled e);

```

Result Grid

Filter Rows:

Export:

Wrap Cell Content: 15

student 13 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
67	23:30:06	insert into enrolled values(5,'c2')	1 row(s) affected	1.532 sec
68	23:30:08	select f.fname from faculty f where (select count(e.snum) from enrolled e where e.cname in (select c.cname from class c where c.fid=f.fid))<=5;	3 row(s) returned	0.000 sec / 0.000 sec
69	23:30:59	use lab4	0 row(s) affected	0.000 sec
70	23:30:59	select s.sname from student s where s.snum not in (select distinct(e.snum) from enrolled e) LIMIT 0, 1000	2 row(s) returned	0.031 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

7)

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- lab2
- lab3
  - Tables
    - catalog
    - parts
    - supplies
  - Views
  - Stored Procedures
  - Functions
- lab4
  - Tables
    - class
    - enrolled
    - faculty
    - student
  - Views
  - Stored Procedures
  - Functions
- sakila
- sys
- world

Administration Schemas

Information

Table: class

Columns:

- cname varchar(30) PK
- meetsat time
- room varchar(5)
- fid int

Query 1 x

Limit to 1000 rows

```
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
```

Result Grid

age	lv
18	JR
16	FR
17	SR
19	JR
20	FR

SQL Additions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
69	23:30:59	use lab4	0 row(s) affected	0.000 sec
70	23:30:59	select s.sname from student s where s.snum not in (select distinct(e.snum) from enrolled e) LIMIT 0, 1000	2 row(s) returned	0.031 sec / 0.000 sec
71	23:32:15	use lab4	0 row(s) affected	0.016 sec
72	23:32:15	select distinct(st.age),st.lv from student st where st.lv = (select s.lv from student s where s.age=st.age group by s.lv order by count(s.lv) desc limit 1)	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session