VQUIZ- ONLINE QUIZ SYSTEM

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Normalization of admin table

Name	Uname	Password	Mobileno
admin	admin01	admin	8745113289
Kumar K	kk01	kumar01	9379210930
Light Y	light	iamkira01	9389801200
Sheldon Cooper	shelly	shelly	9090428020
Sue Some	sussie	suestorm	9090428020
Admin True	yoda	theforce	9029887429

For admin table

This table contains admin details.

Functional dependency:

- Uname -> Name, Password, Mobileno
- Mobile number is a multi valued attribute. So, the table was split into 2:
- Admin(uname,name,password) and Adminmobileno(uname,mobileno)

New admin table

Name	Uname	Password
admin	admin01	admin
Kumar K	kk01	kumar01
Light Y	light	iamkira01
Sheldon Cooper	shelly	shelly
Sue Some	sussie	suestorm
Admin True	yoda	theforce

For new admin table

This table contains admin details.

Functional dependency:

- Uname -> Name, Password
- Uname is thus the candidate key for the admin table.
- Now, the admin table has no multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, the admin table is in BCNF

New admin_mobile table

Uname	Mobileno
admin01	8745113289
kk01	9379210930
light	9389801200
shelly	9090428020
sussie	9090428020
yoda	9029887429

For admin_mobile table

This table contains admin’s mobile no.

Functional dependency:

- Uname -> mobileno
- Uname is thus the candidate key for the admin table.
- Now, the admin table has no multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, the admin_mobile table is in BCNF.

Normalization of user table

Name	Gender	Email	Mobileno	Password
New User	M	new@email.com	8784545921	reset1
Red F	M	redfool2@email.com	9409230980	redfool01
User-1	M	user@mail.com	4080909200	user001
Shlok	M	shlok@mail.com	9882109200	shlok223
Shefali	F	shefali@mail.com	9774509200	shefali2990
Sunaina	F	sunaina@mail.com	9992109200	sunainareboot11

For user table

This table contains user details.

Functional dependency:

- Email-> Name, Gender, Mobileno, Password
- Mobile number is a multi valued attribute. So, the table was split into 2:
- User(email,name,gender,password) and Usermobileno(email,mobileno)

New user table

Name	Gender	Email	Password
New User	M	new@email.com	reset1
Red F	M	redfool2@email.com	redfool01
User-1	M	user@mail.com	user001
Shlok	M	shlok@mail.com	shlok223
Shefali	F	shefali@mail.com	shefali2990
Sunaina	F	sunaina@mail.com	sunainareboot11

For user table

This table contains user details.

Functional dependency:

- Email-> Name, Gender, Password
- Email is thus the candidate key for the user table
- Now, the user table does not have multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, user table is in BCNF.

User_mobile table

Email	Mobileno
new@email.com	8784545921
redfool2@email.com	9409230980
user@mail.com	4080909200
shlok@mail.com	9882109200
shefali@mail.com	9774509200
sunaina@mail.com	9992109200

For user_mobile table

- Functional dependency:
- Email->mobileno
- Email is thus the candidate key for the user table
- Now, the user table does not have multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, user_mobile table is in BCNF.

Normalization of questions table

Original questions table

Eid	Qid	Question	Choice	sn	Ansid
q101	q101q1	Who is the father of our nation?	2	1	op101
q101	q101q2	Who was the first president of America?	2	2	op103
q101	q101q3	When was the first world war fought?	2	3	op105
q102	q102q1	What is (2+2)^2 ?	2	1	op106
q102	q102q2	What is the formula for sum of first n natural numbers?	2	2	op109
q102	q102q3	what is 10+10?	2	3	op110
q102	q102q4	what is 20^2?	2	1	op113
q102	q102q5	which is a complex root?	2	2	op114
q103	q103q1	Where did humpty dumpty sit?	2	3	op116
q103	q103q2	When was Shakespere born?	2	4	op119

For original questions table

- This table contains the questions for the quiz.
- Functional dependency:
- Qid-> Eid, Question, Choice, Sn, Ansid
- Qid is thus the candidate key
- No multivalued attributes, thus table in 1NF.
- Partial dependency in the original table as ansid can derive all the other attributes. Thus, the table is split into 2 tables:
- Question(Eid,Qid,Question, Choice, Sn) and Answer(Qid ,Ansid).

Question table

Eid	Qid	Question	Choice	sn
q101	q101q1	Who is the father of our nation?	2	1
q101	q101q2	Who was the first president of America?	2	2
q101	q101q3	When was the first world war fought?	2	3
q102	q102q1	What is (2+2)^2 ?	2	1
q102	q102q2	What is the formula for sum of first n natural numbers?	2	2
q102	q102q3	what is 10+10?	2	3
q102	q102q4	what is 20^2?	2	1
q102	q102q5	which is a complex root?	2	2
q103	q103q1	Where did humpty dumpty sit?	2	3
q103	q103q2	When was Shakesphere born?	2	4

For the new question table

- This table contains the questions for the quiz.
- Functional dependency:
- Qid-> Eid, Question, Choice, Sn, Ansid
- Qid is thus the candidate key
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus table in 2NF.
- No transitional dependency in question table, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, questions table is in BCNF.

Answer table

Qid	Ansid
q101q1	op101
q101q2	op103
q101q3	op105
q102q1	op106
q102q1	op109
q102q3	op110
q102q4	op113
q102q5	op114
q103q1	op116
q103q2	op119

For new answer table

- This table contains the values inserted by exam taker.
- Functional dependency:
- Qid -> ansid
- Qid is thus the candidate key.
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, answer table is in BCNF.

Feedback table

Email	Eid	Score	Time	Id	Feedback
new@email.com	Q101	10	2020-10-11 14:39:52	F101	Very easy
new@email.com	Q102	3	2019-08-20 19:30:00		
Redfool2@email.com	Q103	20	2020-10-20 17:00:00	F102	Childs play
Redfool2@email.com	Q101	15	2020-10-11 14:39:52		
user@mail.com	Q103	10	2020-10-20 17:00:00	F103	Very very tough
user@mail.com	Q102	5	2019-08-20 19:30:00		
shlok@mail.com	Q101	0	2020-10-11 14:39:52	F104	Make tougher
shefali@mail.com	Q102	2	2019-08-20 19:30:00		
sunaina@mail.com	Q103	0	2020-10-20 17:00:00	f105	Hell of a lengthy

For Feedback table

Functional dependency:

- Id -> email, eid, score, time, feedback
- No multivalued attributes, so table in 1NF
- But, email, eid -> score, time thus, table is not in 2NF. Thus, table is split into 2 tables
- Feedback(id, email, feedback) and Rank(email, eid, score, time)

Normalization of feedback table

Id	Email	Feedback
f101	new@email.com	Very easy
f102	redfool2@email.com	Childs play
f103	user@gmail.com	Make tougher
f104	shlok@mail.com	Very very tough
f105	sunaina@mail.com	Hell of a lengthy

For feedback table

This table contains feedback given by student.

Functional dependency:

- Id-> email, subject, feedback
- Id is thus the candidate key
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, feedback table is in BCNF.

Normalization of rank table

Email	Eid	Score	Time
new@email.com	Q101	10	2020-10-11 14:39:52
new@email.com	Q102	3	2019-08-20 19:30:00
Redfool2@email.com	Q103	20	2020-10-20 17:00:00
Redfool2@email.com	Q101	15	2020-10-11 14:39:52
user@mail.com	Q103	10	2020-10-20 17:00:00
user@mail.com	Q102	5	2019-08-20 19:30:00
shlok@mail.com	Q101	0	2020-10-11 14:39:52
shefali@mail.com	Q102	2	2019-08-20 19:30:00
sunaina@mail.com	Q103	0	2020-10-20 17:00:00

For rank table

This table contains the rank of the students ordered by the marks obtained in a particular quiz.

Functional dependency:

- Email,eid -> score,time
- Thus, email,eid is minimal super key
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, rank table is in BCNF.

Normalization of notice table

Notice	Uname
You have a test on Monday prepare well.	Yoda
Hope you guys are well during the covid situation reminder for upcoming test on history	shelly
Your quiz is cancelled	light
Your quiz is scheduled on 26th of this month	sussie
Your is quiz is rescheduled	kk01

For notice table

- This table contains notices given by admin.
- Functional dependency:
- Uname->notice
- Uname is thus the candidate key
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, notice table is in BCNF.

Normalization of quiz table

Eid	Title	Sahi	Wrong	Total	Time	Intro	Tag	date
q101	History	5	0	3	20	YOU HAVE 20 MINUTES TO APPEAR FOR THE QUIZ TOTAL MARKS AWARDED IS 15 THERE ARE 3 QUESTIONS	#history	2020-10-11 14:39:02
q102	Maths	1	0	5	10	YOU HAVE 10 MINUTES TO APPEAR FOR THE QUIZ TOTAL MARKS AWARDED IS 5 THERE ARE 5 QUESTIONS	#maths	2019-08-20 19:30:00
q103	English	10	0	2	30	YOU HAVE 30 MINUTES TO APPEAR FOR THE QUIZ TOTAL MARKS AWARDED IS 20 THERE ARE 2 QUESTIONS	#english	2020-10-20 17:00:00
q104	DBMS	1	0	10	15	YOU HAVE 15 MINUTES TO APPEAR FOR THE QUIZ TOTAL MARKS AWARDED IS 10 THERE ARE 10 QUESTION	#dbms	2020-10-22 16:00:00

For quiz table

- This table contains the values for the quiz that have been inserted by admin.
- Functional Dependency:
- Eid-> Title, Sahi, Wrong, Total, Time, Intro, Tag, date
- Thus, Eid is the minimal super key as it can determine all the attributes of the table.
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, quiz table is in BCNF.

Normalization of options table

Qid	Option	optionid
q101q1	Nathuram Ghodse	op100
q101q1	Mahatma Gandhi	op101
q101q2	Donald Trump	op102
q101q2	George Washington	op103
q101q3	1935	op104
q101q3	1930	op105
q102q1	16	op106
q102q1	4	op107
q102q2	n(n-1)/2	op108
q102q2	n(n+1)/2	op109
q102q3	20	op110
q102q3	1010	op111
q102q4	2020	op112
q102q4	400	op113
q102q5	sqrt(-2)	op114
q102q5	sqrt((-)*(-4))	op115
q103q1	Wall	op116
q103q1	Donkey	op117
q103q2	1860	op118
q103q2	1870	op119

For options table

- This table consists of the optionid, option content for a question whose id is qid.
- Functional dependency:
- Optionid->qid, option
- Optionid is thus the candidate key.
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, options table is in BCNF.

Normalization of history table

Email	Eid	Score	Level	Sahi	Wrong	date
new@email.com	q101	10	1	2	0	2020-10-11 14:39:52
new@email.com	q102	3	1	3	0	2019-08-20 19:30:00
redfool2@email.com	q103	20	1	2	0	2020-10-20 17:00:00
redfool2@email.com	q101	15	1	3	1	2020-10-11 14:39:52
user@mail.com	q103	10	1	1	0	2020-10-20 17:00:00
user@mail.com	q102	5	1	5	0	2019-08-20 19:30:00
shlok@mail.com	q101	0	1	0	3	2020-10-11 14:39:52
shefali@mail.com	q102	2	1	2	3	2019-08-20 19:30:00
sunaina@mail.com	q103	0	1	0	2	2020-10-20 17:00:00

For history table

This table contains the details of the previous quiz that the user has attempted.

Functional dependency:

- Email, eid -> score, level, sahi, wrong, date
- Thus, email+eid is the minimal super key as it can determine all the attributes of the table.
- No multivalued attributes, thus table in 1NF.
- No partial dependency, thus, in 2NF.
- No transitional dependency, thus in 3NF.
- As, all functional dependencies have Super key or Candidate key on LHS, the table is in BCNF.
- Thus, history table is in BCNF.

5 complex queries

1) Find the title of the quiz in which the sum of the marks of all the user appearing for the given test is equal to 25.

Code screenshot

SQL Worksheet

```
1  select distinct(quiz.title) from quiz
2  inner join history
3  on history.eid=quiz.eid
4  where history.eid=(select history.eid from history
5  group by history.eid
6  having sum(history.score)=25);
7
```

Output screenshot with code

SQL Worksheet

```
1  select distinct(quiz.title) from quiz
2  inner join history
3  on history.eid=quiz.eid
4  where history.eid=(select history.eid from history
5  group by history.eid
6  having sum(history.score)=25);
7
```

TITLE
History

5 complex queries

2) Find all the correct answers along with question no. wise for the quiz with title Maths.

Code screenshot:

SQL Worksheet

```
1  select questions.sn,options.options from(((questions
2  inner join options
3  on questions.qid=options.qid)inner join answer
4  on answer.ansid=options.optionid)inner join quiz
5  on questions.eid=quiz.eid)
6  where quiz.title='Maths';
```

Output screenshot:

SQL Worksheet

```
1  select questions.sn,options.options from(((questions
2  inner join options
3  on questions.qid=options.qid)inner join answer
4  on answer.ansid=options.optionid)inner join quiz
5  on questions.eid=quiz.eid)
6  where quiz.title='Maths';
```

SN	OPTIONS
1	16
2	n(n+1)/2
3	20
4	400
5	sqrt(-2)

5 complex queries

3) Find the feedback of the student who attended the quiz history and scored less then the average marks scored by the students in maths quiz

Code screenshot:

SQL Worksheet

```
1  select feedback.feedback from((history
2  inner join feedback
3  on feedback.email=history.email) inner join quiz
4  on quiz.eid=history.eid)
5  where history.score<(select avg(history.score) from history
6  group by history.eid
7  having history.eid='q102') and quiz.title='History';
8
```

Output screenshot:

SQL Worksheet

```
1  select feedback.feedback from((history
2  inner join feedback
3  on feedback.email=history.email) inner join quiz
4  on quiz.eid=history.eid)
5  where history.score<(select avg(history.score) from history
6  group by history.eid
7  having history.eid='q102') and quiz.title='History';
8
```

FEEDBACK
Very very tough

5 complex queries

4) Display user name, mean deviation of score and subject title of the Maths quiz.

Code screenshot:

SQL Worksheet

Clear

```
1  select q_user.name,abs(history.score-(select avg(history.score) from history where quiz.title='Maths'))
2  as mean_deviation,quiz.title from((q_user
3  inner join history
4  on q_user.email=history.email)inner join quiz
5  on quiz.eid=history.eid)
6  where quiz.title='Maths';
```

Output screenshot:

SQL Worksheet

Clear

```
1  select q_user.name,abs(history.score-(select avg(history.score) from history where quiz.title='Maths'))
2  as mean_deviation,quiz.title from((q_user
3  inner join history
4  on q_user.email=history.email)inner join quiz
5  on quiz.eid=history.eid)
6  where quiz.title='Maths';
```

NAME	MEAN_DEVIATION	TITLE
New User	4.22222222222222222222222222222222222222	Maths
User-1	2.22222222222222222222222222222222222222	Maths
Shefali	5.22222222222222222222222222222222222222	Maths

5 complex queries

5) Display name, email, score, no. of question correct and no. of question wrong in descending order of score in the quiz where maximum number of users has appeared.

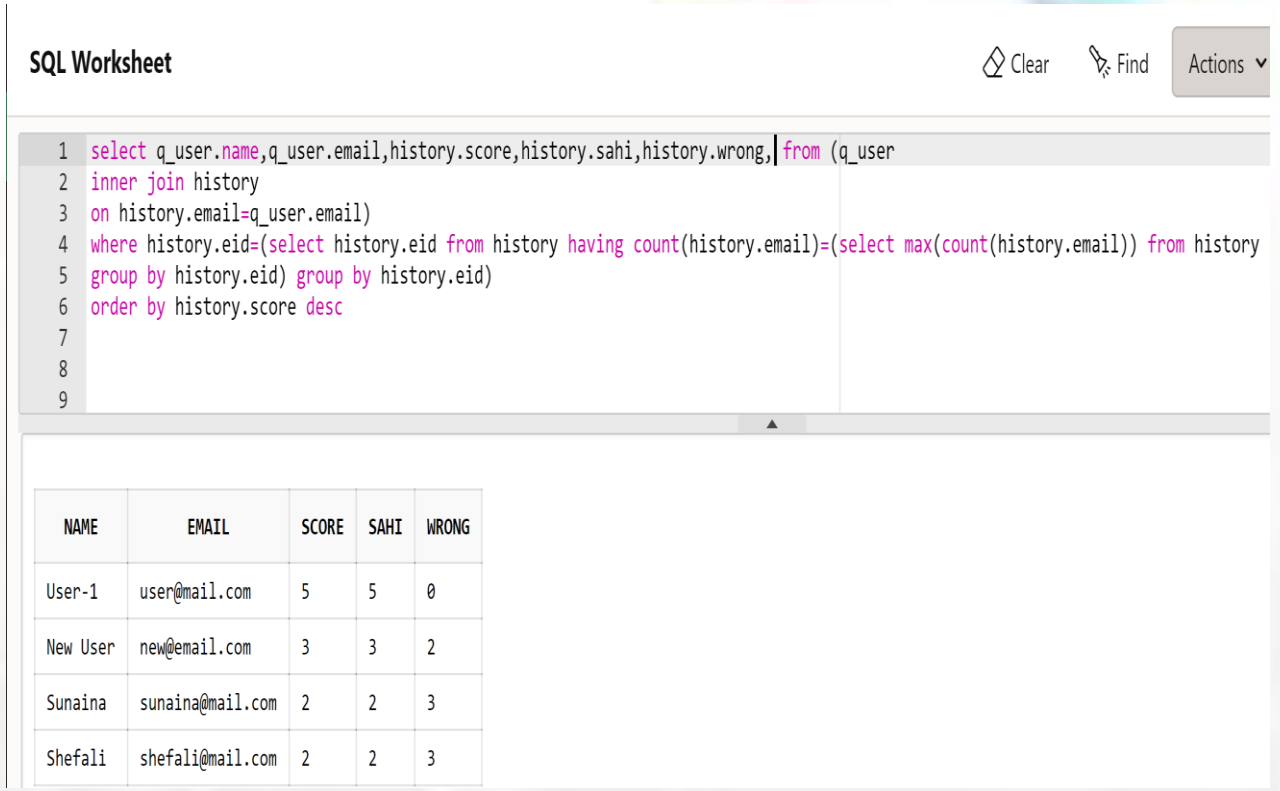
Code output

SQL Worksheet

Clear Find Actions

```
1  select q_user.name,q_user.email,history.score,history.sahi,history.wrong, from (q_user
2  inner join history
3  on history.email=q_user.email)
4  where history.eid=(select history.eid from history having count(history.email)=(select max(count(history.email)) from history
5  group by history.eid) group by history.eid)
6  order by history.score desc
7
8
9
```

Output screenshot:



NAME	EMAIL	SCORE	SAHI	WRONG
User-1	user@mail.com	5	5	0
New User	new@email.com	3	3	2
Sunaina	sunaina@mail.com	2	2	3
Shefali	shefali@mail.com	2	2	3