SE 3309a-Database Management Systems

Assignment 3-Creating the database system in a DBMS

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November 29, 2017

Section 003

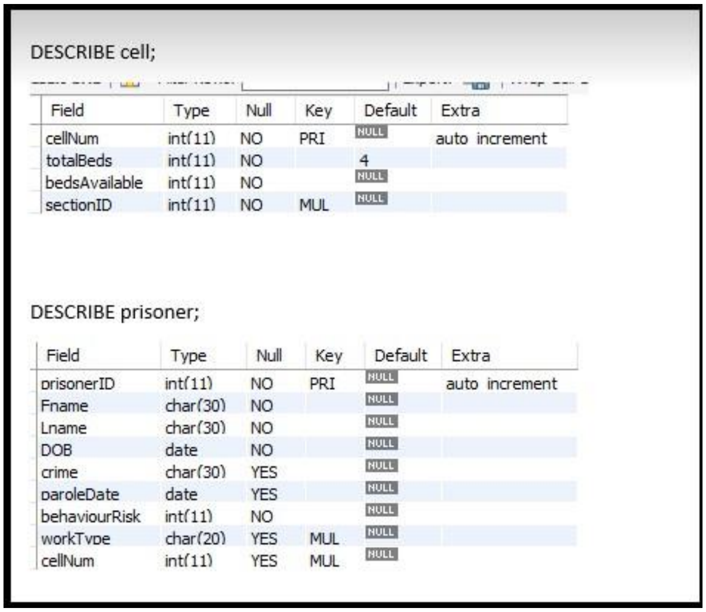
Team Latitude 15

GitHub Repo: https://github.com/kri12345/se3309teamlatitude

Command Responses:

Q1) Installing MySQL

Q2) Relation Schemas:

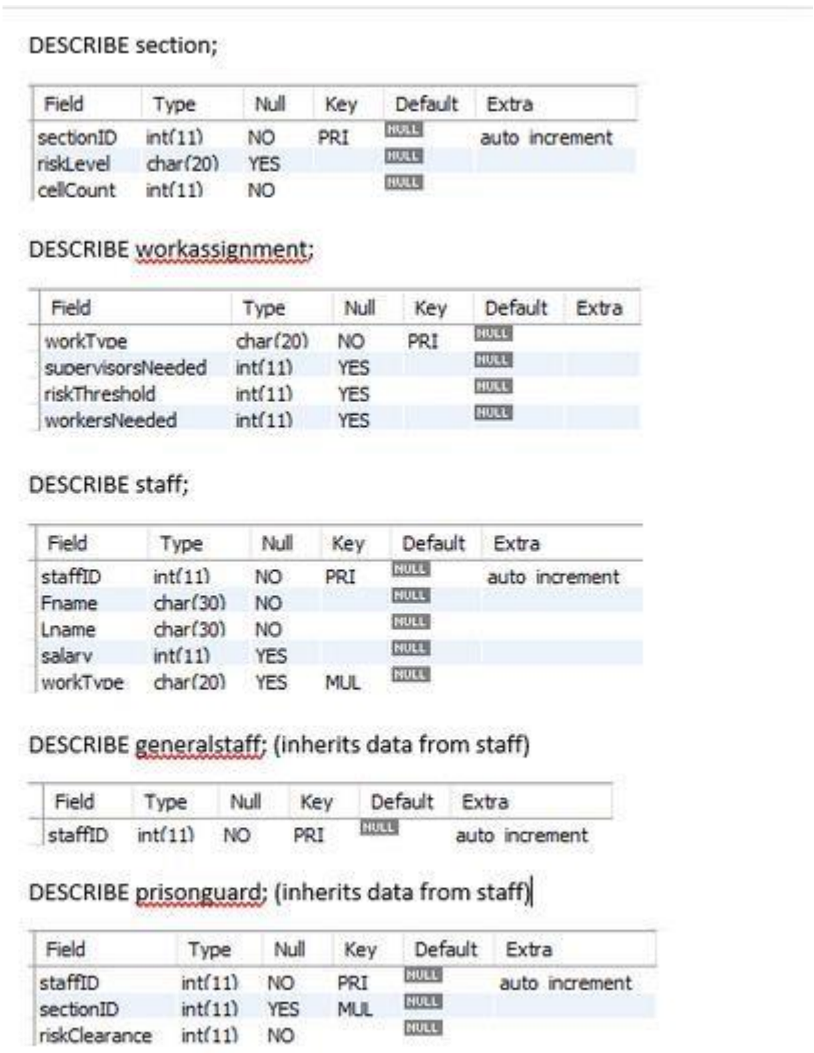


DESCRIBE cell;

Field	Type	Null	Key	Default	Extra
cellNum	int(11)	NO	PRI	NULL	auto increment
totalBeds	int(11)	NO		4	
bedsAvailable	int(11)	NO		NULL	
sectionID	int(11)	NO	MUL	NULL	

DESCRIBE prisoner;

Field	Type	Null	Key	Default	Extra
prisonerID	int(11)	NO	PRI	NULL	auto increment
Fname	char(30)	NO		NULL	
Lname	char(30)	NO		NULL	
DOB	date	NO		NULL	
crime	char(30)	YES		NULL	
paroleDate	date	YES		NULL	
behaviourRisk	int(11)	NO		NULL	
workType	char(20)	YES	MUL	NULL	
cellNum	int(11)	YES	MUL	NULL	



DESCRIBE section;

Field	Type	Null	Key	Default	Extra
sectionID	int(11)	NO	PRI	NULL	auto increment
riskLevel	char(20)	YES		NULL	
cellCount	int(11)	NO		NULL	

DESCRIBE workassignment;

Field	Type	Null	Key	Default	Extra
workType	char(20)	NO	PRI	NULL	
supervisorsNeeded	int(11)	YES		NULL	
riskThreshold	int(11)	YES		NULL	
workersNeeded	int(11)	YES		NULL	

DESCRIBE staff;

Field	Type	Null	Key	Default	Extra
staffID	int(11)	NO	PRI	NULL	auto increment
Fname	char(30)	NO		NULL	
Lname	char(30)	NO		NULL	
salary	int(11)	YES		NULL	
workType	char(20)	YES	MUL	NULL	

DESCRIBE generalstaff; (inherits data from staff)

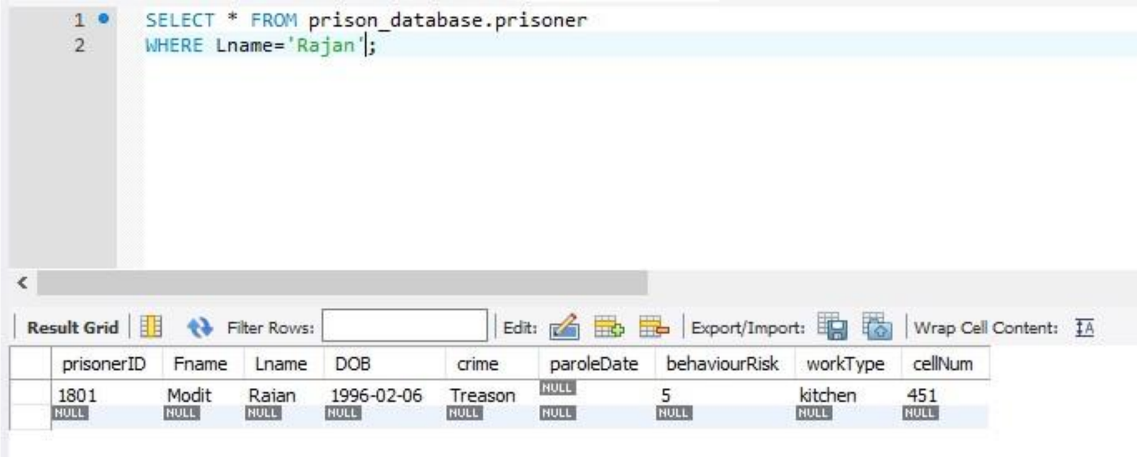
Field	Type	Null	Key	Default	Extra
staffID	int(11)	NO	PRI	NULL	auto increment

DESCRIBE prisonguard; (inherits data from staff)

Field	Type	Null	Key	Default	Extra
staffID	int(11)	NO	PRI	NULL	auto increment
sectionID	int(11)	YES	MUL	NULL	
riskClearance	int(11)	NO		NULL	

Q3) Inserts:

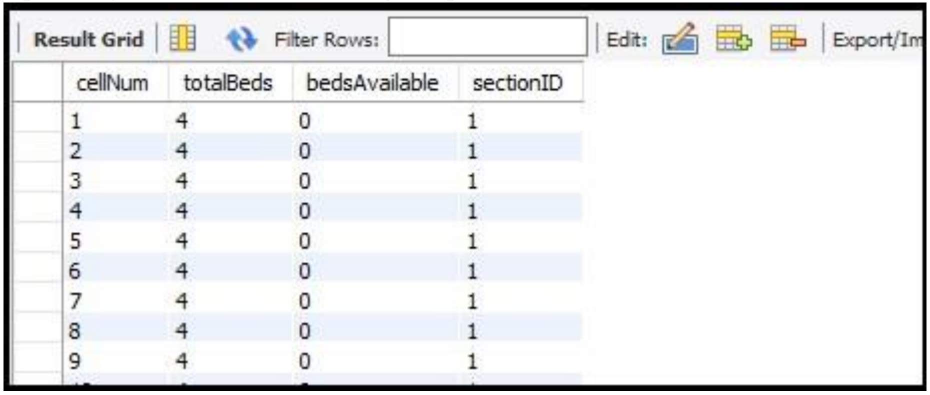
1. *Inserting a prisoner into prisoner table*



```
SELECT * FROM prison_database.prisoner
WHERE Lname='Rajan';
```

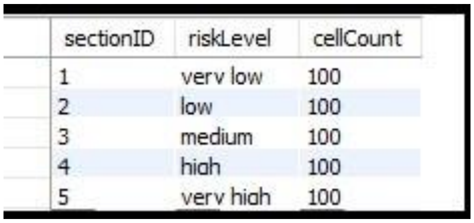
prisonerID	Fname	Lname	DOB	crime	paroleDate	behaviourRisk	workType	cellNum
1801	Modit	Rajan	1996-02-06	Treason	NULL	5	kitchen	451
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

2. *Populating cell table with values from prisoner table*



cellNum	totalBeds	bedsAvailable	sectionID
1	4	0	1
2	4	0	1
3	4	0	1
4	4	0	1
5	4	0	1
6	4	0	1
7	4	0	1
8	4	0	1
9	4	0	1

3. *Populating section table with values from cell table*

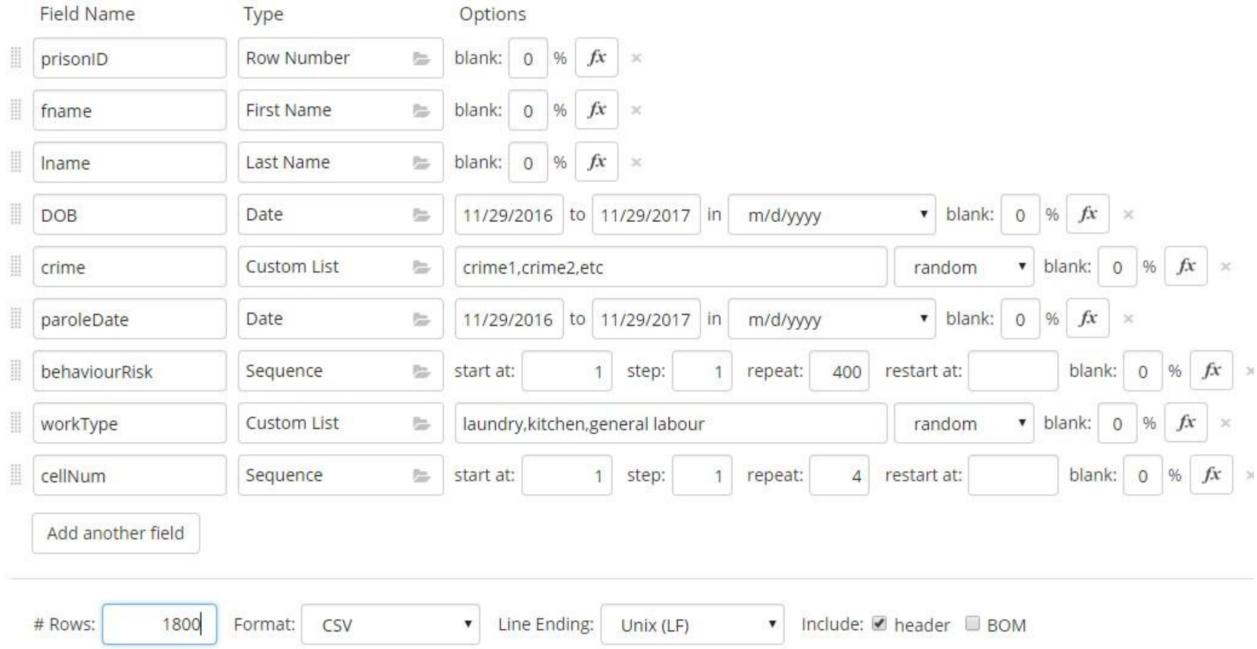


sectionID	riskLevel	cellCount
1	verv low	100
2	low	100
3	medium	100
4	hiah	100
5	verv hiah	100

Q4) Loading Data

To load substantial amount of data to the relations involving more than 1000 tuples mock data was generated using mockaroo.com to generate a csv file.

For example to generate values for the prisoners this was used

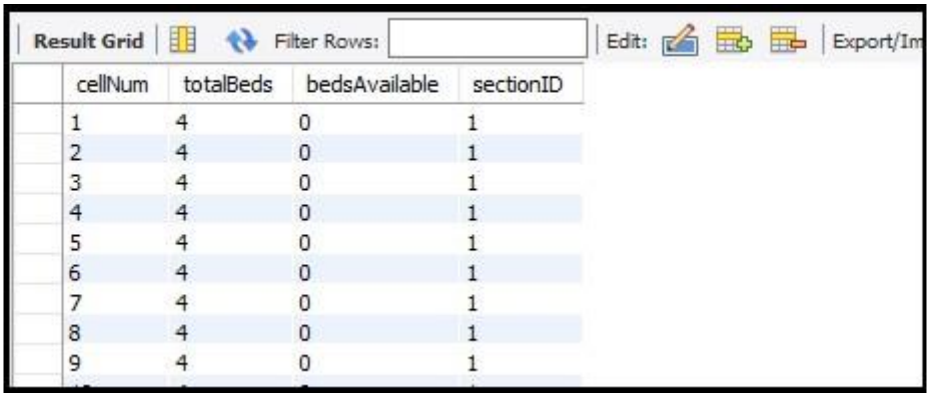


Field Name	Type	Options
prisonID	Row Number	blank: 0 %
fname	First Name	blank: 0 %
lname	Last Name	blank: 0 %
DOB	Date	11/29/2016 to 11/29/2017 in m/d/yyyy blank: 0 %
crime	Custom List	crime1,crime2,etc random blank: 0 %
paroleDate	Date	11/29/2016 to 11/29/2017 in m/d/yyyy blank: 0 %
behaviourRisk	Sequence	start at: 1 step: 1 repeat: 400 restart at: blank: 0 %
workType	Custom List	laundry,kitchen,general labour random blank: 0 %
cellNum	Sequence	start at: 1 step: 1 repeat: 4 restart at: blank: 0 %

Rows: 1800 Format: CSV Line Ending: Unix (LF) Include: ☑ header □ BOM

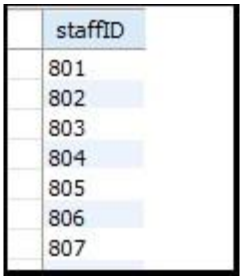
Sample of our relations:

Cell:



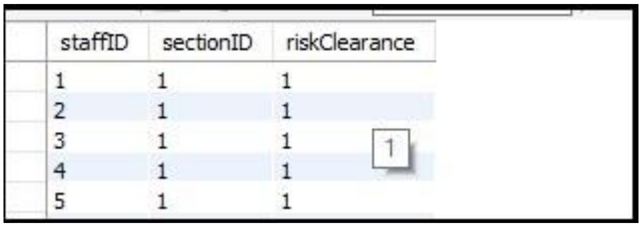
cellNum	totalBeds	bedsAvailable	sectionID
1	4	0	1
2	4	0	1
3	4	0	1
4	4	0	1
5	4	0	1
6	4	0	1
7	4	0	1
8	4	0	1
9	4	0	1

General Staff:



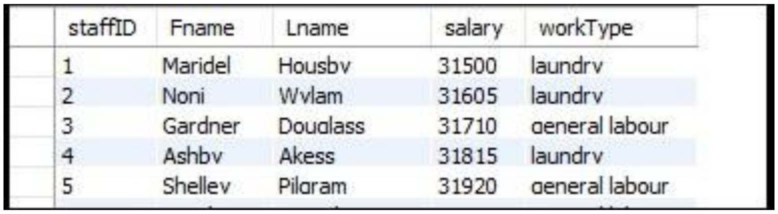
staffID
801
802
803
804
805
806
807

Prison Guard:



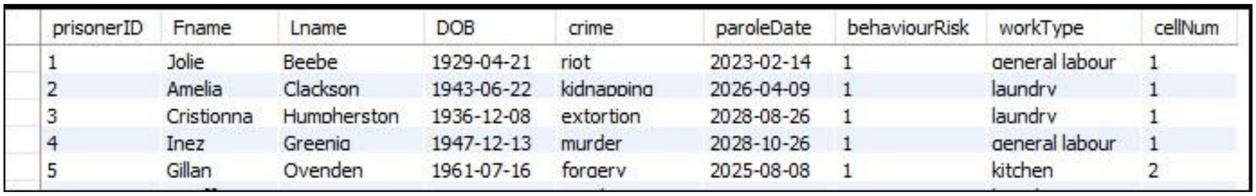
staffID	sectionID	riskClearance
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1

Staff:



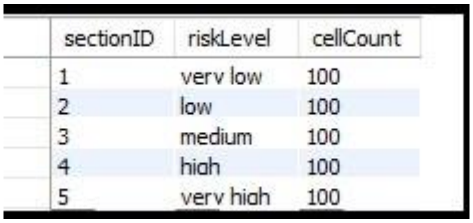
staffID	Fname	Lname	salary	workType
1	Maridel	Housbv	31500	laundrv
2	Noni	Wvlam	31605	laundrv
3	Gardner	Doualass	31710	aeneral labour
4	Ashbv	Akess	31815	laundrv
5	Shellev	Pilaram	31920	aeneral labour

Prisoner:



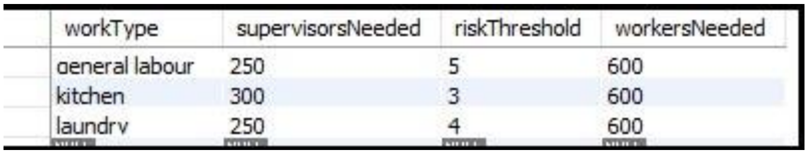
prisonerID	Fname	Lname	DOB	crime	paroleDate	behaviourRisk	workType	cellNum
1	Jolie	Beebe	1929-04-21	riot	2023-02-14	1	aeneral labour	1
2	Amelia	Clackson	1943-06-22	kidnappina	2026-04-09	1	laundrv	1
3	Cristionna	Humpherston	1936-12-08	extortion	2028-08-26	1	laundrv	1
4	Inez	Greenia	1947-12-13	murder	2028-10-26	1	aeneral labour	1
5	Gillan	Ovenden	1961-07-16	foraerv	2025-08-08	1	kitchen	2

Section:



sectionID	riskLevel	cellCount
1	very low	100
2	low	100
3	medium	100
4	high	100
5	very high	100

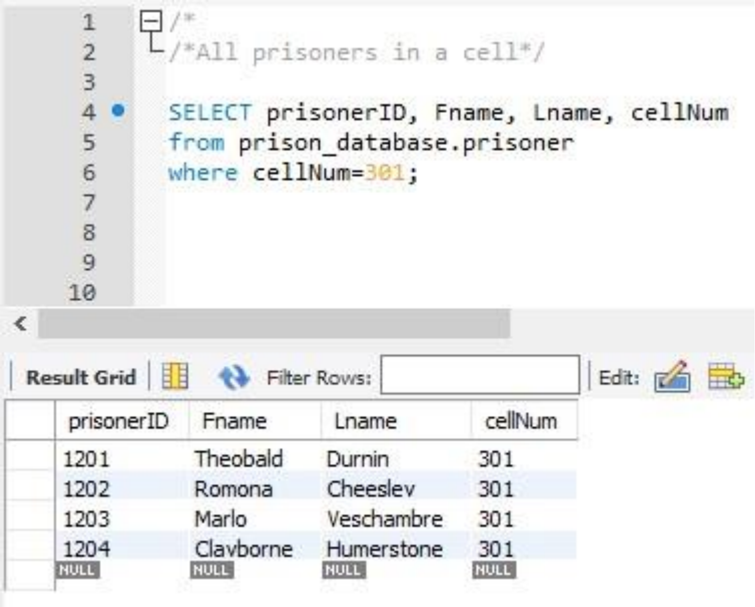
Work Assignment:



workType	supervisorsNeeded	riskThreshold	workersNeeded
general labour	250	5	600
kitchen	300	3	600
laundry	250	4	600

Q5) Queries:

1. *Return information of all prisoners in a certain cell*

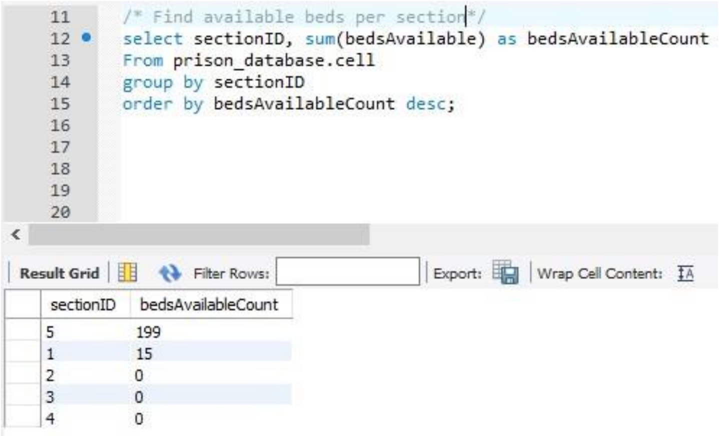


```
/*
/*All prisoners in a cell*/

SELECT prisonerID, Fname, Lname, cellNum
from prison_database.prisoner
where cellNum=301;
```

prisonerID	Fname	Lname	cellNum
1201	Theobald	Durnin	301
1202	Romona	Cheesley	301
1203	Marlo	Veschambre	301
1204	Clayborne	Humerstone	301
NULL	NULL	NULL	NULL

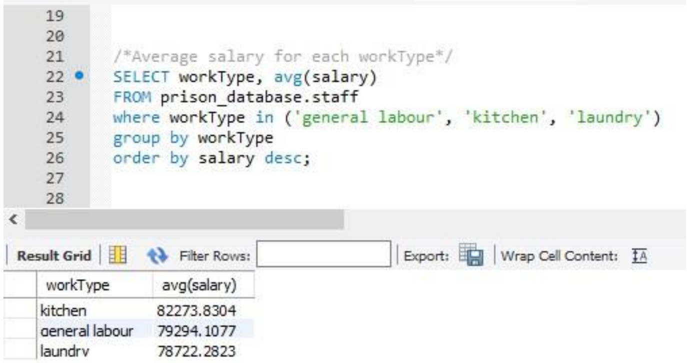
2. *Return number of beds available in each section*



```
/* Find available beds per section*/
select sectionID, sum(bedsAvailable) as bedsAvailableCount
From prison_database.cell
group by sectionID
order by bedsAvailableCount desc;
```

sectionID	bedsAvailableCount
5	199
1	15
2	0
3	0
4	0

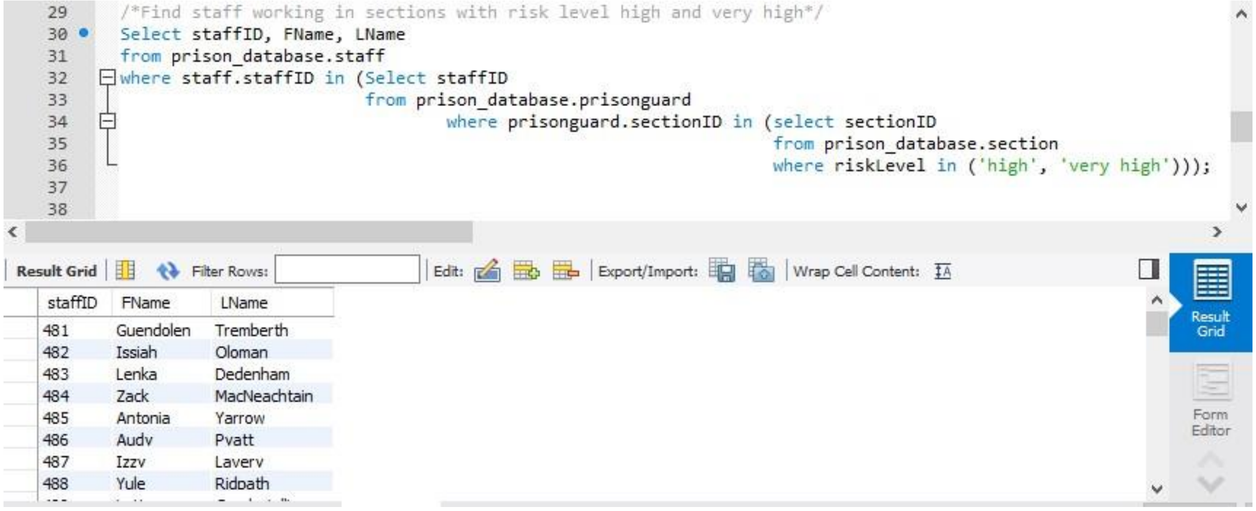
3. *Return average salary for each work type (kitchen, laundry, general labour)*



```
/*Average salary for each workType*/
SELECT workType, avg(salary)
FROM prison_database.staff
where workType in ('general labour', 'kitchen', 'laundry')
group by workType
order by salary desc;
```

workType	avg(salary)
kitchen	82273.8304
general labour	79294.1077
laundry	78722.2823

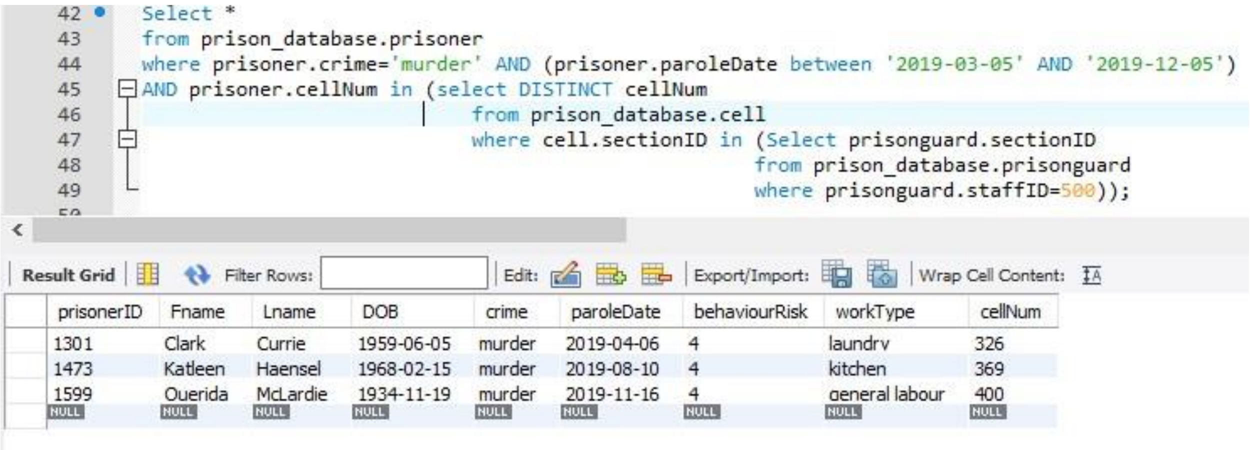
4. *Return information of all the staff working in sections with a certain risk level*



```
/*Find staff working in sections with risk level high and very high*/
Select staffID, FName, LName
from prison_database.staff
where staff.staffID in (Select staffID
                        from prison_database.prisonguard
                              where prisonguard.sectionID in (select sectionID
                                                              from prison_database.section
                                                              where riskLevel in ('high', 'very high')));
```

staffID	FName	LName
481	Guendolen	Tremberth
482	Issiah	Oloman
483	Lenka	Dedenham
484	Zack	MacNeachtain
485	Antonia	Yarrow
486	Audy	Pyatt
487	Izzy	Lavery
488	Yule	Ridpath

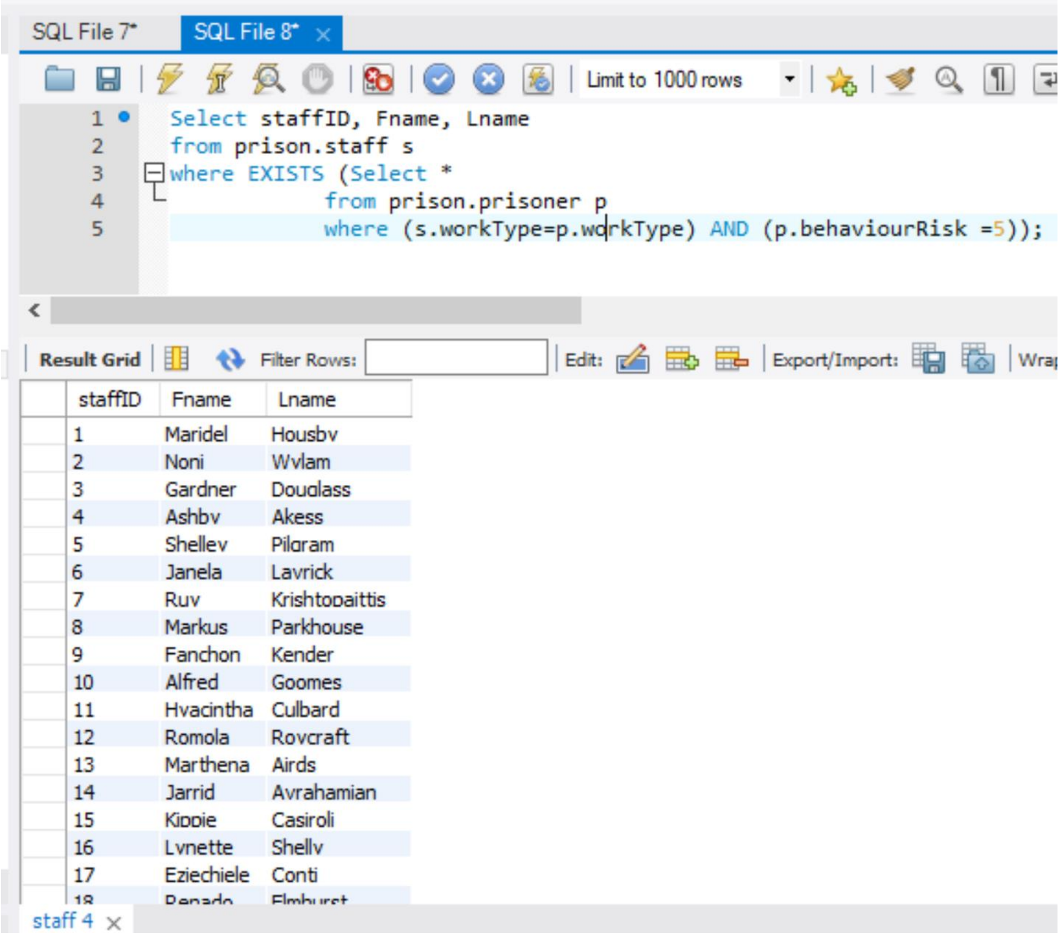
5. *Given a staffId, find prisoners with a certain crime and a certain parole date that are supervised under that staff member*



```
Select *
from prison_database.prisoner
where prisoner.crime='murder' AND (prisoner.paroleDate between '2019-03-05' AND '2019-12-05')
AND prisoner.cellNum in (select DISTINCT cellNum
                            from prison_database.cell
                            where cell.sectionID in (Select prisonguard.sectionID
                                                        from prison_database.prisonguard
                                                        where prisonguard.staffID=500));
```

prisonerID	Fname	Lname	DOB	crime	paroleDate	behaviourRisk	workType	cellNum
1301	Clark	Currie	1959-06-05	murder	2019-04-06	4	laundrv	326
1473	Katleen	Haensel	1968-02-15	murder	2019-08-10	4	kitchen	369
1599	Ouerida	McLardie	1934-11-19	murder	2019-11-16	4	aeneral labour	400
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

6. *Return staff IF they supervise work with prisoners that have behaviour risk of high or very high*

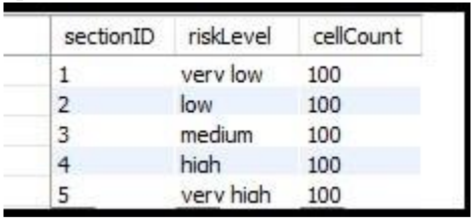


```
Select staffID, Fname, Lname
from prison.staff s
where EXISTS (Select *
              from prison.prisoner p
              where (s.workType=p.workType) AND (p.behaviourRisk =5));
```

staffID	Fname	Lname
1	Maridel	Housbv
2	Noni	Wvlam
3	Gardner	Doualass
4	Ashbv	Akess
5	Shellev	Pilaram
6	Janela	Lavrick
7	Ruv	Krishtopaittis
8	Markus	Parkhouse
9	Fanchon	Kender
10	Alfred	Goomes
11	Hvacintha	Culbard
12	Romola	Rovcraft
13	Marthena	Airds
14	Jarrid	Avrahamian
15	Kippie	Casiroli
16	Lvnette	Shellv
17	Eziechiele	Conti
18	Renado	Elmhurst

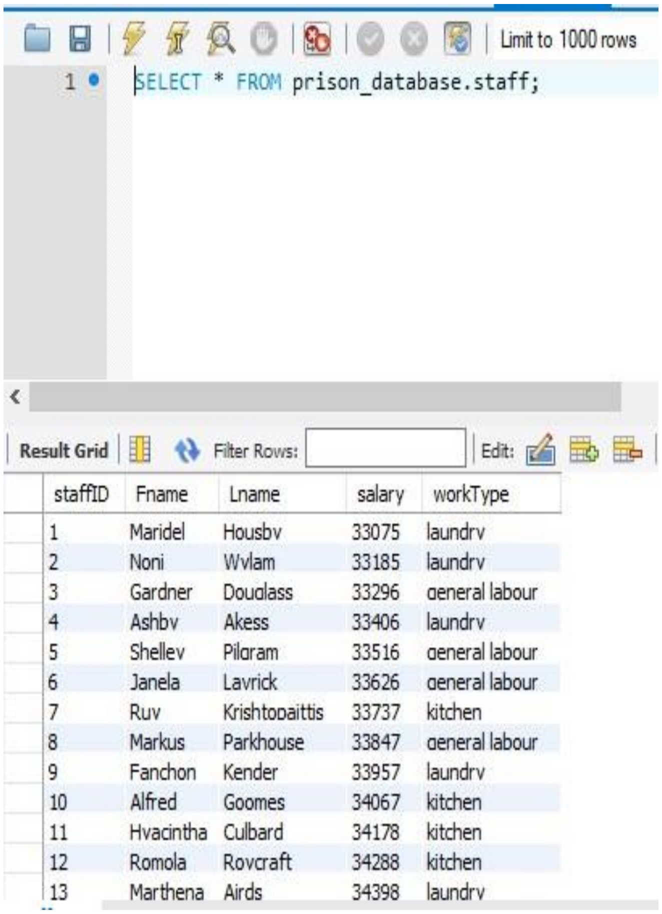
Q6) <u>Updates:</u>

1. *Update risk Level in section*



sectionID	riskLevel	cellCount
1	verv low	100
2	low	100
3	medium	100
4	hiah	100
5	verv hiah	100

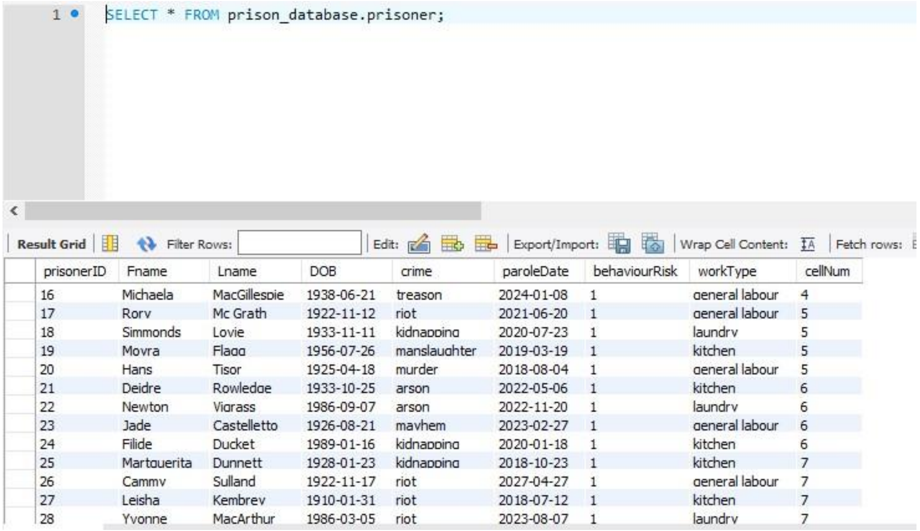
2. *Increase salary of staff (with ids less than 100) by 5%*



```
SELECT * FROM prison_database.staff;
```

staffID	Fname	Lname	salary	workType
1	Maridel	Housby	33075	laundry
2	Noni	Wylam	33185	laundry
3	Gardner	Douglass	33296	general labour
4	Ashby	Akess	33406	laundry
5	Shelley	Pilgram	33516	general labour
6	Janela	Lavrick	33626	general labour
7	Ruy	Krishtopaittis	33737	kitchen
8	Markus	Parkhouse	33847	general labour
9	Fanchon	Kender	33957	laundry
10	Alfred	Goomes	34067	kitchen
11	Hyacintha	Culbard	34178	kitchen
12	Romola	Roycraft	34288	kitchen
13	Marthena	Airds	34398	laundry

3. *Delete the first 16 prisoners*

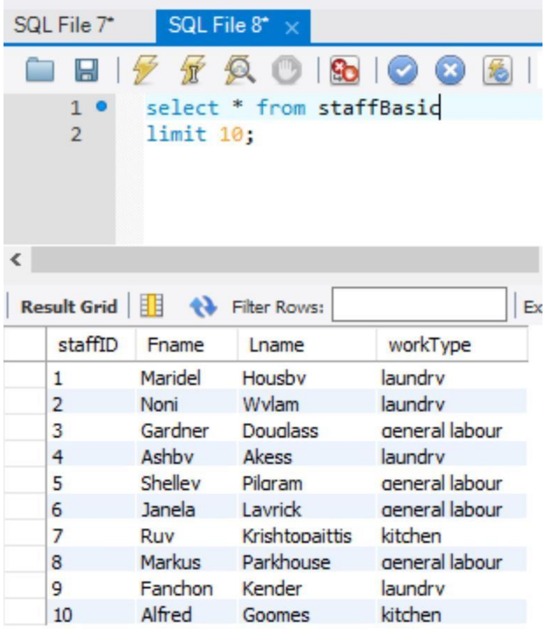


```
SELECT * FROM prison_database.prisoner;
```

prisonerID	Fname	Lname	DOB	crime	paroleDate	behaviourRisk	workType	cellNum
16	Michaela	MacGillespie	1938-06-21	treason	2024-01-08	1	general labour	4
17	Rory	Mc Grath	1922-11-12	riot	2021-06-20	1	general labour	5
18	Simmonds	Lovie	1933-11-11	kidnapping	2020-07-23	1	laundry	5
19	Moyra	Flagg	1956-07-26	manslaughter	2019-03-19	1	kitchen	5
20	Hans	Tisor	1925-04-18	murder	2018-08-04	1	general labour	5
21	Deidre	Rowledge	1933-10-25	arson	2022-05-06	1	kitchen	6
22	Newton	Vigrass	1986-09-07	arson	2022-11-20	1	laundry	6
23	Jade	Castelletto	1926-08-21	mayhem	2023-02-27	1	general labour	6
24	Filide	Ducket	1989-01-16	kidnapping	2020-01-18	1	kitchen	6
25	Marguerita	Dunnett	1928-01-23	kidnapping	2018-10-23	1	kitchen	7
26	Cammy	Sulland	1922-11-17	riot	2027-04-27	1	general labour	7
27	Leisha	Kembrey	1910-01-31	riot	2018-07-12	1	kitchen	7
28	Yvonne	MacArthur	1986-03-05	riot	2023-08-07	1	laundry	7

Q7) Views:

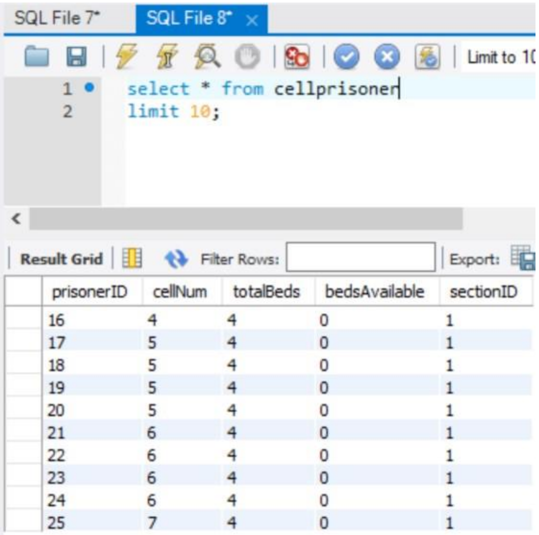
1. **View 1**



```
select * from staffBasic
limit 10;
```

staffID	Fname	Lname	workType
1	Maridel	Housbv	laundrv
2	Noni	Wvlam	laundrv
3	Gardner	Doualass	aeneral labour
4	Ashbv	Akess	laundrv
5	Shellev	Pilaram	aeneral labour
6	Janela	Lavrick	aeneral labour
7	Ruv	Krishtopaittis	kitchen
8	Markus	Parkhouse	aeneral labour
9	Fanchon	Kender	laundrv
10	Alfred	Goomes	kitchen

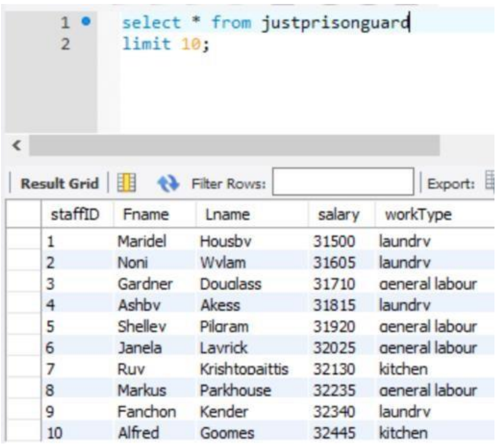
2. **View 2**



```
select * from cellprisoner
limit 10;
```

prisonerID	cellNum	totalBeds	bedsAvailable	sectionID
16	4	4	0	1
17	5	4	0	1
18	5	4	0	1
19	5	4	0	1
20	5	4	0	1
21	6	4	0	1
22	6	4	0	1
23	6	4	0	1
24	6	4	0	1
25	7	4	0	1

3. View 3



```
select * from justprisonguard
limit 10;
```

staffID	Fname	Lname	salary	workType
1	Maridel	Housby	31500	laundry
2	Noni	Wylam	31605	laundry
3	Gardner	Douglass	31710	general labour
4	Ashby	Akess	31815	laundry
5	Shelley	Pilgram	31920	general labour
6	Janela	Lavrick	32025	general labour
7	Ruy	Krishtopaittis	32130	kitchen
8	Markus	Parkhouse	32235	general labour
9	Fanchon	Kender	32340	laundry
10	Alfred	Goomes	32445	kitchen

Questions:

Q7) Views- From the 3 views given above, the first one is updateable as it uses data from 1 relation (base table). The second and the third are NOT updateable as it uses data from multiple relations (FROM clause only specifies one table).

Q8) SQL clauses that we learned in class (from ISO standard) that we were not able to use in MySQL because the dialect has not implemented it, was the use of “ANY/ALL”, “Modify”, “EXCEPT”, “UNION”, “INTERSECT”. We used our knowledge of other SQL clauses to get around these issues.

LINK: https://github.com/kri12345/se3309teamlatitude