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Database Report

This report is to discuss the possibility of upgrading the way spreadsheet data is currently being utilized. This upgrade is the creation of a database that will centralize the spreadsheet data that is currently scattered or duplicated. That data saved in this manner will allow for easier access and better management. Which would allow the agency to have better data retrieval over its operations while also providing the ability for future growth.

Data Dictionary

The following tables are detailed descriptions over where and how the data is going to be stored. The data stored in this manner will allow for easier retrieval or manipulation of the database. This keeps the database ever expanding allow the future growth mentioned before.

This table is about the resumes from potential workers that the agency receives. Collecting all the information needed such as contact information, education, work history, references, availability, and skills.

PWorker

Data Name	Data	Length	Description	Source
	Type			
Name	Character	20	Name of the Potential	PWorker
			Worker	
SNN	VarChar	11	Social Security Number	PWorker
Address	VarChar	30	Mailing Address	PWorker
Telephone	VarChar	12	Phone Number	PWorker
AltNumber	VarChar	12	Alternate Phone Number	PWorker
Education Level	Character	20	Highest Level of Education	PWorker
Institute	Character	20	Institution of Education	PWorker
Year Granted	VarChar	4	Year Graduated	PWorker
PrevWorkTitle	Character	20	Previous Work Title	PWorker
PrevWorkTelephone	VarChar	12	Previous Work Number	PWorker
ReferenceName	Character	20	Name of Reference	PWorker
ReferenceNumber	VarChar	12	Number of Reference	PWorker
DateAvailable	VarChar	8	Date of Availability	PWorker
TimeAvailable	VarChar	5	Days Available to work	PWorker
Skills	Character	30	Skills	PWorker

This next table gathers the data after the Personnel Director holds an interview with any candidates that might join the workforce.

PersonnelDirector

Data Name	Data Type	Length	Description	Source
InterviewDate	VarChar	8	Date of Interview	PersonnelDirector
IntName	Character	20	Name of Interviewee	PersonnelDirector
JobType	Character	20	Type of Job	PersonnelDirector
JobLevel	Character	10	Level of Job	PersonnelDirector
StartDate	VarChar	8	Start Date of Work	PersonnelDirector
Rejection	Character	50	Reason for Rejection	PersonnelDirector
DaysAvailable	Character	30	Days Available to work	PersonnelDirector
HoursAvailable	VarChar	10	Hours Available to work	PersonnelDirector

This table will hold every client that has asked for assistance from the agency. It collects the name and contact info of every client that has asked for help.

Employer

Data Name	Data Type	Length	Description	Source
Name	Character	20	Name of the Client	Employer
Telephone	VarChar	12	Telephone Number	Employer

The following table will hold every job from clients. It lists what the job is and the level of experience required for the job.

Job

Data Name	Data Type	Length	Description	Source
JobTitle	Character	20	Job Title	Job
JobLevel	Character	10	Job Level	PersonnelDirector
DailyRate	Float	6	Pay amount Per day	Job
Skills	Character	30	Skills needed for Job	PWorker
EduLevel	Character	10	Education Level	PWorker
Hours	VarChar	10	Hours of work	Job
ClientName	Character	20	Client Name	Employer
ClientNumber	Character	12	Client Phone Number	Employer

This next table holds the data after one of the workers is matched with a job and has an interview with a client.

WCInterview

Data Name	Data Type	Length	Description	Source
Wname	Character	20	Name of the Worker	PWorker
CName	Character	30	Client Name	Employer
Date	VarChar	8	Date of the Interview	WCInterview
Time	VarChar	5	Time of the Interview	WCInterview
Outcome	Character	10	Outcome of the	WCInterview
			Interview	
StartDate	VarChar	8	Start Date of Work	WCInterview
EndDate	VarChar	8	End Date of Work	WCInterview

This table holds the evaluations from clients after either a successful or terminated job. This should reduce the need for two separate forms.

Evaluation

Data	Data Type	Length	Description	Source
Name				
wName	Character	20	Name of the worker	PWorker
cName	Character	20	Name of the Client	Employer
JobTitle	Character	20	Job Title	Job
EvalDate	VarChar	8	Evaluation Date	Evaluation
Rating	Interger	1	Rating of the Worker	Evaluation
Comment	Character	50	Comment After the	Evaluation
			Evaluation	

The billing information is described here. This should allow easy retrieval of the data making the accounting manager's job less stressful.

Bill

Data Name	Data	Length	Description	Source
	Type			
ClientName	Character	20	Name of the	Employer
			Client	
DailyRate	Float	7	Daily Rate of Pay	Job
JobTitle	Character	20	Job Title	Job
Days	Integer	3	Days of Pay	Bill
Hours	Integer	3	Hours of Pay	Bill

This would hold the payroll data. It would assist on making accounting less stressful as well. It will also assist on gathering tax related information what it is required.

Payroll

Data Name	Data Length		Description	Source
	Type			
WorkerName	Character	20	Name of the Worker	PWorker
GrossPay	Float	5	Gross Pay	Payroll
TaxesWithheld	Float	4	Taxes Withheld	Payroll
NetPay	Float	5	Net Pay	Payroll
YtDateHours	Integer	4	Year to Date Hours	Payroll
YtDateGrosspay	Float	7	Year to Date Gross Pay	Payroll
YtDateTaxes	Float	6	Year to Date Taxes	Payroll
			Withheld	
YtDateNetPay	Float	7	Year to Date Net Pay	Payroll

Cross Reference

The data dictionary described how the data would be stored. These next two tables reference the previous tables to show what forms and reports they will assist on filling out from the stored data from the database.

Forms Table

This table covers which forms are filled from what database medium. The 'X' marks if data is retrieved from that corresponding dictionary.

Names	PWorker	PersonnelDirector	Employer	Job	WCInterview	Evaluation	Bill	Payroll
Worker	X							
Application								
Form								
Personnel	X	X						
Director								
Interview								
Form								
Job			X	X				
Requisition								
Worker						X		
Evaluation								
Form								

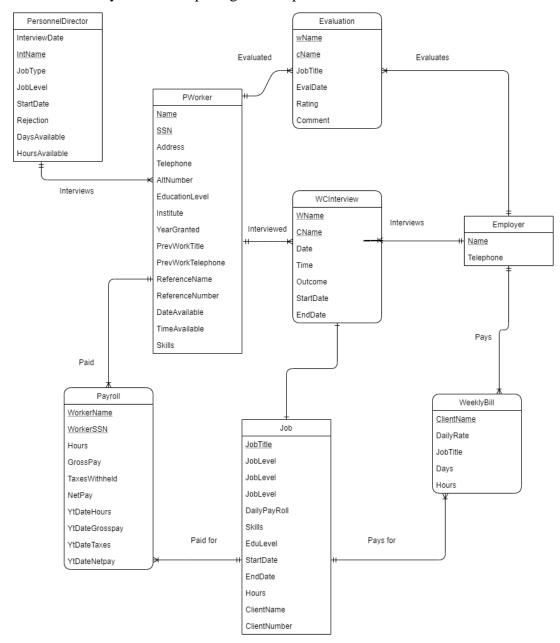
Report Table

This covers which reports are cross referenced from the data dictionary. This one is also marked with an 'X' for each dictionary that correspond with information needed in a report.

Names	PWorker	PersonnelDirector	Employer	Job	WCInterview	Evaluation	Bill	Payroll
Weekly			X				X	
Client Bill								
Weekly	X							X
Pay Stub								
Weekly								X
Payroll								
Report								
Client			X				X	
Account								
Receivable								
s Report								
Worker	X		X		X	X		
Jobs								
Report								
Report of	X		X	X				
Current								
Assignmen								
ts								
End-of-								X
Year Wage								
and Tax								
Statement								

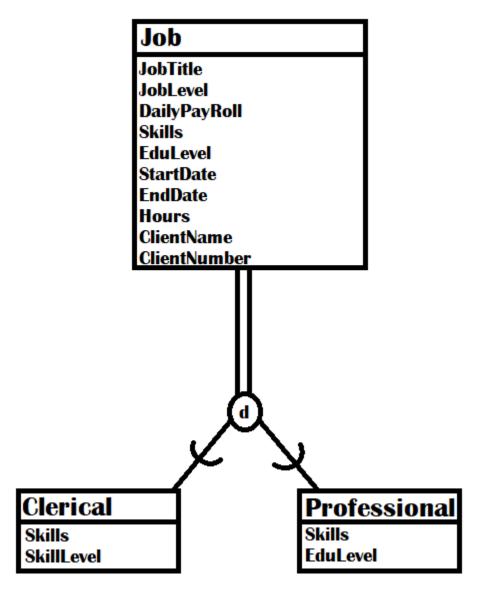
ERD

This is an Entity Relationship Diagram it represents what tables have data related to another it is connected to.



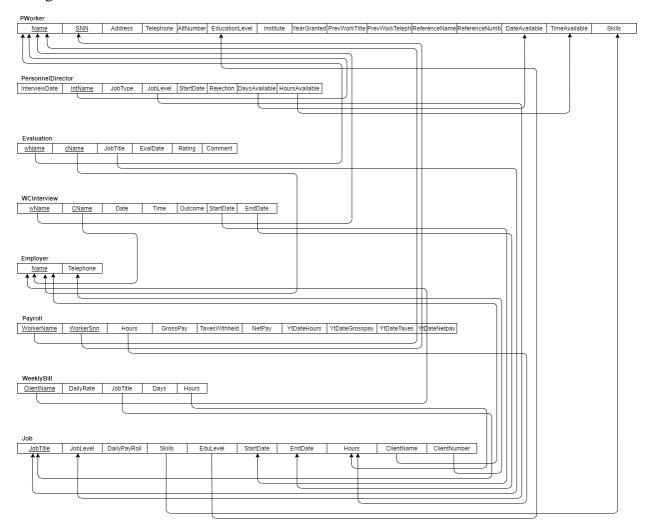
EERD

This small Diagram is just an enhanced version of the previous one showing that the Job table can be split into either a Professional or a Clerical Position.



Relational Schema

The following table is a better representation of why some tables are connected to each other. Many tables will use the names of different workers and the names the clients the workers are doing work for.



Functional Dependencies

SSN -> Name

The Social Security Number (SSN) of every worker will be connected to a different name.

{Name, SNN} -> {Address, Telephone, EducationLevel, Skills}

IntName -> {JobType, JobLevel}

Every interviewee is striving to get to a type of job at its level.

{wName, cName, EvalDate} -> {Rating, Comment}

Depending on the date every worker and client will have a corresponding rating and comment on every evaluation.

{wName, CName, Date} -> {Time, Outcome, StartDate, EndDate}

Every interview between worker and client will have a time, outcome, start date, and end date depending the when the interview took place.

Name -> Telephone

Different employers will have their own telephone number to contact them with.

{WorkerSSN, Hours} -> GrossPay

Every worker social security number and hours will correctly correspond to the gross pay that worker is being paid for.

ClientName -> ClientNumber

Clients have their own number that can be used to contact them.

JobTitle -> {JobLevel, Skills, EduLevel}

Every job title has a matching job level, skills, and education level.

Form

Most if not all the relations are in Second Normal Form. Employer might be the only relation to violate 3NF only because it is in 1NF. The relation Job might be the closest to a 3NF compared to the rest. Since most of the relations can only reach 2NF it is very unlikely any of them can be normalized into BCNF.

Normalized

PWorkerA (Name, SNN, Address, Telephone, EducationLevel, Institute, YearGranted, Skills)

PWorkerB (Name, SNN)

PerDirectorA (IntName, JobType, JobLevel)

PerDirectorB (InterviewDate, IntName, StartDate, Rejection)

Evaluation (wName, cName, JobTitle, EvalDate, Rating, Comment)

WCInterview (WName, Cname, Date, Time, Outcome, StartDate, EndDate)

Employer(Name, Telephone)

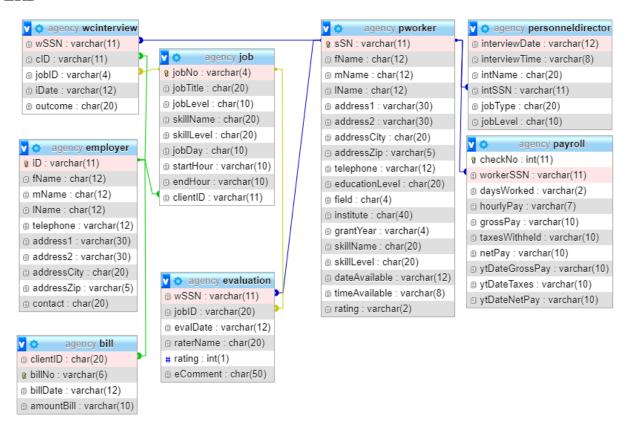
Job1(JobTitle, JobLevel, Skills, EduLevel)

Job2(ClientName, ClientNumber)

XAMPP

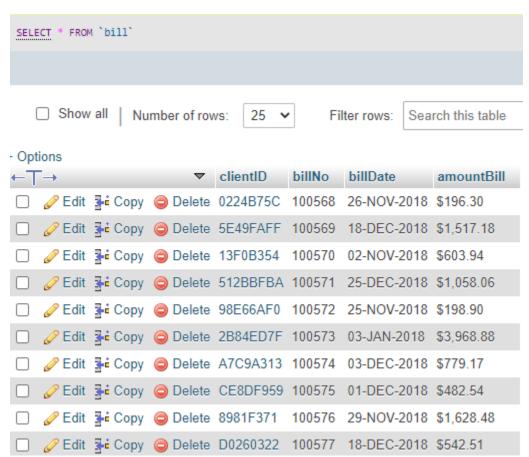
The screenshot here is the ERD that was provided by XAMPP. After it will be screenshots of the populated tables that had information inserted into it. Using the SQL code that will be provided.

ERD

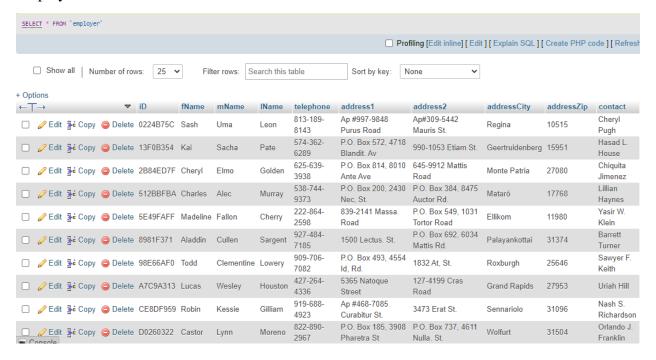


Tables

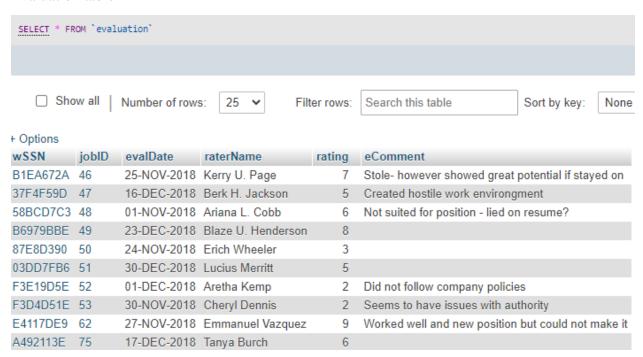
Bill table



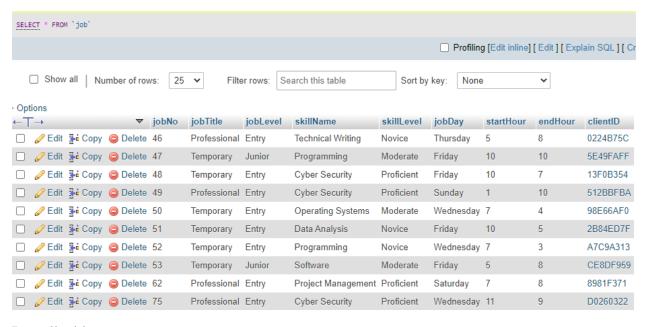
Employer Table



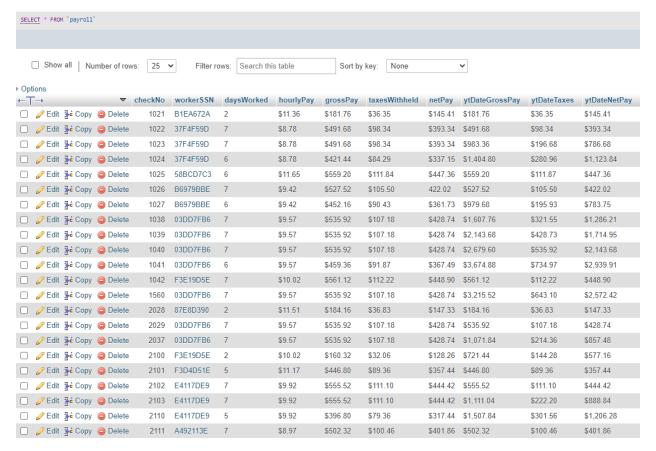
Evaluation table



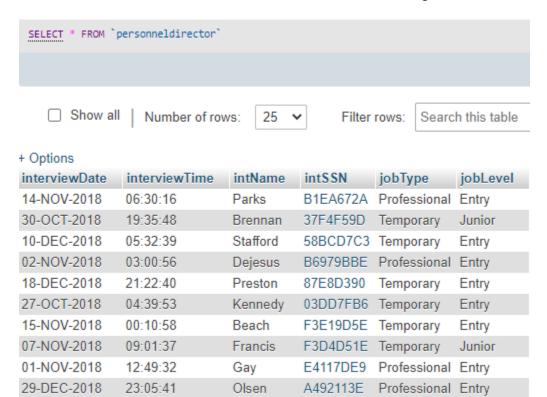
Job tables



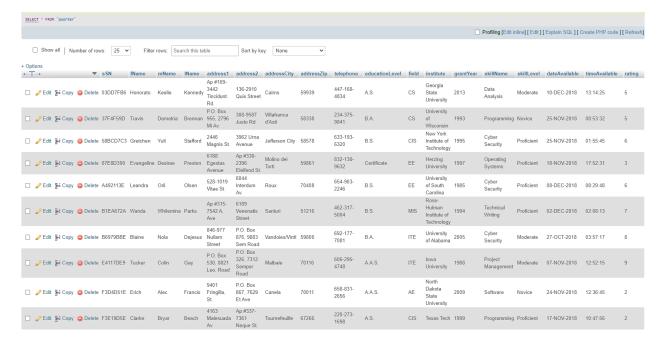
Payroll table



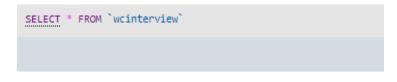
Personnel director table



Pworker table



Weinterview table



☐ Show all Number of rows: 25 ➤ Filter ro

+ Options

wSSN	cID	jobID	iDate	outcome
B1EA672A	0224B75C	46	20-NOV-2018	hired
37F4F59D	5E49FAFF	47	23-NOV-2018	hired
58BCD7C3	13F0B354	48	22-OCT-2018	hired
B6979BBE	98E66AF0	50	18-NOV-2018	not qualified
87E8D390	98E66AF0	50	21-NOV-2018	hired
03DD7FB6	98E66AF0	50	19-NOV-2018	not qualified
F3E19D5E	A7C9A313	52	20-NOV-2018	hired
F3D4D51E	CE8DF959	53	20-NOV-2018	hired
E4117DE9	8981F371	62	04-NOV-2018	hired
A492113E	D0260322	75	05-DEC-2018	hired

Queries

This is a weekly paystub report. It shows the check number, days worked, gross pay, taxes withheld, net pay along with the Year-to-Date gross pay, taxes withheld, and net pay. It also provides the Name, SSN, and Address of the worker

checkNo	workerSSN	IName	fName	mName	address1	address2	addressCity	addressZip	daysWorked	grossPay	taxesWithheld	netPay	ytDateGrossPay	ytDateTaxes	ytDateNetPay
1038	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	7	\$535.92	\$107.18	\$428.74	\$1,607.76	\$321.55	\$1,286.21
1039	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Caims	59939	7	\$535.92	\$107.18	\$428.74	\$2,143.68	\$428.73	\$1,714.95
1040	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	7	\$535.92	\$107.18	\$428.74	\$2,679.60	\$535.92	\$2,143.68
1041	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	6	\$459.36	\$91.87	\$367.49	\$3,674.88	\$734.97	\$2,939.91
1560	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	7	\$535.92	\$107.18	\$428.74	\$3,215.52	\$643.10	\$2,572.42
2029	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	7	\$535.92	\$107.18	\$428.74	\$535.92	\$107.18	\$428.74
2037	03DD7FB6	Kennedy	Honorato	Keelie	Ap #169-3442 Tincidunt. Rd.	136-2910 Quis Street	Cairns	59939	7	\$535.92	\$107.18	\$428.74	\$1,071.84	\$214.36	\$857.48
1022	37F4F59D	Brennan	Travis	Demetria	P.O. Box 955, 2796 Mi Av.	308-9587 Justo Rd.	Villafranca d'Asti	58338	7	\$491.68	\$98.34	\$393.34	\$491.68	\$98.34	\$393.34
1023	37F4F59D	Brennan	Travis	Demetria	P.O. Box 955, 2796 Mi Av.	308-9587 Justo Rd.	Villafranca d'Asti	58338	7	\$491.68	\$98.34	\$393.34	\$983.36	\$196.68	\$786.68
1024	37F4F59D	Brennan	Travis	Demetria	P.O. Box 955, 2796 Mi Av.	308-9587 Justo Rd.	Villafranca d'Asti	58338	6	\$421.44	\$84.29	\$337.15	\$1,404.80	\$280.96	\$1,123.84
1025	58BCD7C3	Stafford	Gretchen	Yuli	2446 Magnis St.	3962 Urna Avenue	Jefferson City	58578	6	\$559.20	\$111.84	\$447.36	\$559.20	\$111.87	\$447.36
2028	87E8D390	Preston	Evangeline	Desirae	6188 Egestas Avenue	Ap #330-2396 Eleifend St.	Molino dei Torti	59861	2	\$184.16	\$36.83	\$147.33	\$184.16	\$36.83	\$147.33
2111	A492113E	Olsen	Leandra	Orli	528-1019 Vitae St.	6044 Interdum Av.	Roux	70408	7	\$502.32	\$100.46	\$401.86	\$502.32	\$100.46	\$401.86
1021	B1EA672A	Parks	Wanda	Whilemina	Ap #315-7542 A, Ave	6189 Venenatis Street	Sanluri	51216	2	\$181.76	\$36.35	\$145.41	\$181.76	\$36.35	\$145.41
1026	B6979BBE	Dejesus	Blaine	Nola	846-977 Nullam Street	P.O. Box 876, 9883 Sem Road	Vandoies/Vintl	59806	7	\$527.52	\$105.50	422.02	\$527.52	\$105.50	\$422.02
1027	B6979BBE	Dejesus	Blaine	Nola	846-977 Nullam Street	P.O. Box 876, 9883 Sem Road	Vandoies/Vintl	59806	6	\$452.16	\$90.43	\$361.73	\$979.68	\$195.93	\$783.75
2102	E4117DE9	Gay	Tucker	Colin	P.O. Box 530, 8821 Leo, Road	P.O. Box 326, 7312 Semper Road	Malbaie	70116	7	\$555.52	\$111.10	\$444.42	\$555.52	\$111.10	\$444.42
2103	E4117DE9	Gay	Tucker	Colin	P.O. Box 530, 8821 Leo, Road	P.O. Box 326, 7312 Semper Road	Malbaie	70116	7	\$555.52	\$111.10	\$444.42	\$1,111.04	\$222.20	\$888.84
2110	E4117DE9	Gay	Tucker	Colin	P.O. Box 530, 8821 Leo, Road	P.O. Box 326, 7312 Semper Road	Malbaie	70116	5	\$396.80	\$79.36	\$317.44	\$1,507.84	\$301.56	\$1,206.28
2101	F3D4D51E	Francis	Erich	Alec	9401 Fringilla, St.	P.O. Box 867, 7629 Et Ave	Canela	70011	5	\$446.80	\$89.36	\$357.44	\$446.80	\$89.36	\$357.44
1042	F3E19D5E	Beach	Clarke	Bryar	4163 Malesuada Av.	Ap #337-7361 Neque St.	Tournefeuille	67266	7	\$561.12	\$112.22	\$448.90	\$561.12	\$112.22	\$448.90
2100	F3E19D5E	Beach	Clarke	Bryar	4163 Malesuada Av.	Ap #337-7361 Neque St.	Tournefeuille	67266	2	\$160.32	\$32.06	\$128.26	\$721.44	\$144.28	\$577.16

```
SELECT checkNo, workerSSN, lName, fName, mName, addressl, address2, addressCity, addressZip, daysWorked, grossPay, taxesWithheld, netPay, ytDateGrossPay, ytDateTaxes, ytDateNetPay FROM payroll, pworker
WHERE payroll.workerSSN = pworker.sSN;
```

This is a Worker Jobs Report the first table is matching skill level with job level for each worker.

Iname	fName	mName	telephone	skillName	skillLevel	jobNo	skillLevel	dateAvailable	rating
Beach	Clarke	Bryar	220-273-1698	Programming	Proficient	47	Moderate	17-NOV-2018	2
Beach	Clarke	Bryar	220-273-1698	Programming	Proficient	52	Novice	17-NOV-2018	2
Brennan	Travis	Demetria	234-375-9841	Programming	Novice	47	Moderate	25-NOV-2018	5
Brennan	Travis	Demetria	234-375-9841	Programming	Novice	52	Novice	25-NOV-2018	5
Dejesus	Blaine	Nola	692-177-7081	Cyber Security	Moderate	48	Proficient	27-OCT-2018	8
Dejesus	Blaine	Nola	692-177-7081	Cyber Security	Moderate	49	Proficient	27-OCT-2018	8
Dejesus	Blaine	Nola	692-177-7081	Cyber Security	Moderate	75	Proficient	27-OCT-2018	8
Francis	Erich	Alec	658-831-2656	Software	Novice	53	Moderate	24-NOV-2018	2
Gay	Tucker	Colin	606-295-4748	Project Management	Moderate	62	Proficient	07-NOV-2018	9
Kennedy	Honorato	Keelie	447-168-4834	Data Analysis	Moderate	51	Novice	10-DEC-2018	5
Olsen	Leandra	Orli	654-903-2246	Cyber Security	Proficient	48	Proficient	08-DEC-2018	6
Olsen	Leandra	Orli	654-903-2246	Cyber Security	Proficient	49	Proficient	08-DEC-2018	6
Olsen	Leandra	Orli	654-903-2246	Cyber Security	Proficient	75	Proficient	08-DEC-2018	6
Parks	Wanda	Whilemina	462-317-5004	Technical Writing	Proficient	46	Novice	02-DEC-2018	7
Preston	Evangeline	Desirae	832-138-9632	Operating Systems	Proficient	50	Moderate	18-NOV-2018	3
Stafford	Gretchen	Yuli	633-193-6320	Cyber Security	Proficient	48	Proficient	25-NOV-2018	6
Stafford	Gretchen	Yuli	633-193-6320	Cyber Security	Proficient	49	Proficient	25-NOV-2018	6
Stafford	Gretchen	Yuli	633-193-6320	Cyber Security	Proficient	75	Proficient	25-NOV-2018	6

SELECT lname, fName, mName, telephone, pworker.skillName, pworker.skillLevel, jobNo, job.skillLevel, dateAvailable, rating FROM job, pworker
WHERE (pworker.skillName = job.skillName)
ORDER BY 1Name ASC

Reference Page

[1] D. Holland, *Finding the Building Blocks of Wood*, The University of Melbourne, June 6, 2018. Accessed on: June 13, 2018. [Online]. Available: https://pursuit.unimelb.edu.au/articles/finding-the-building-blocks-of-wood?utm_source=linkedin.com&utm_medium=social&utm_content=story

[2] <u>Www.techonthenet.com</u>, SQL: Comments. [Online]. Available: https://www.techonthenet.com/sql/comments.php. [Accessed: 30-Nov-2020].