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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 Type	Length	Description	Source
Name	Character	20	Name of the Potential Worker	PWorker
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 Interview	WCInterview
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 Name	Data Type	Length	Description	Source
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 Type	Length	Description	Source
ClientName	Character	20	Name of the Client	Employer
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 Type	Length	Description	Source
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 Withheld	Payroll
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 Application Form	X							
Personnel Director Interview Form	X	X						
Job Requisition			X	X				
Worker Evaluation Form						X		

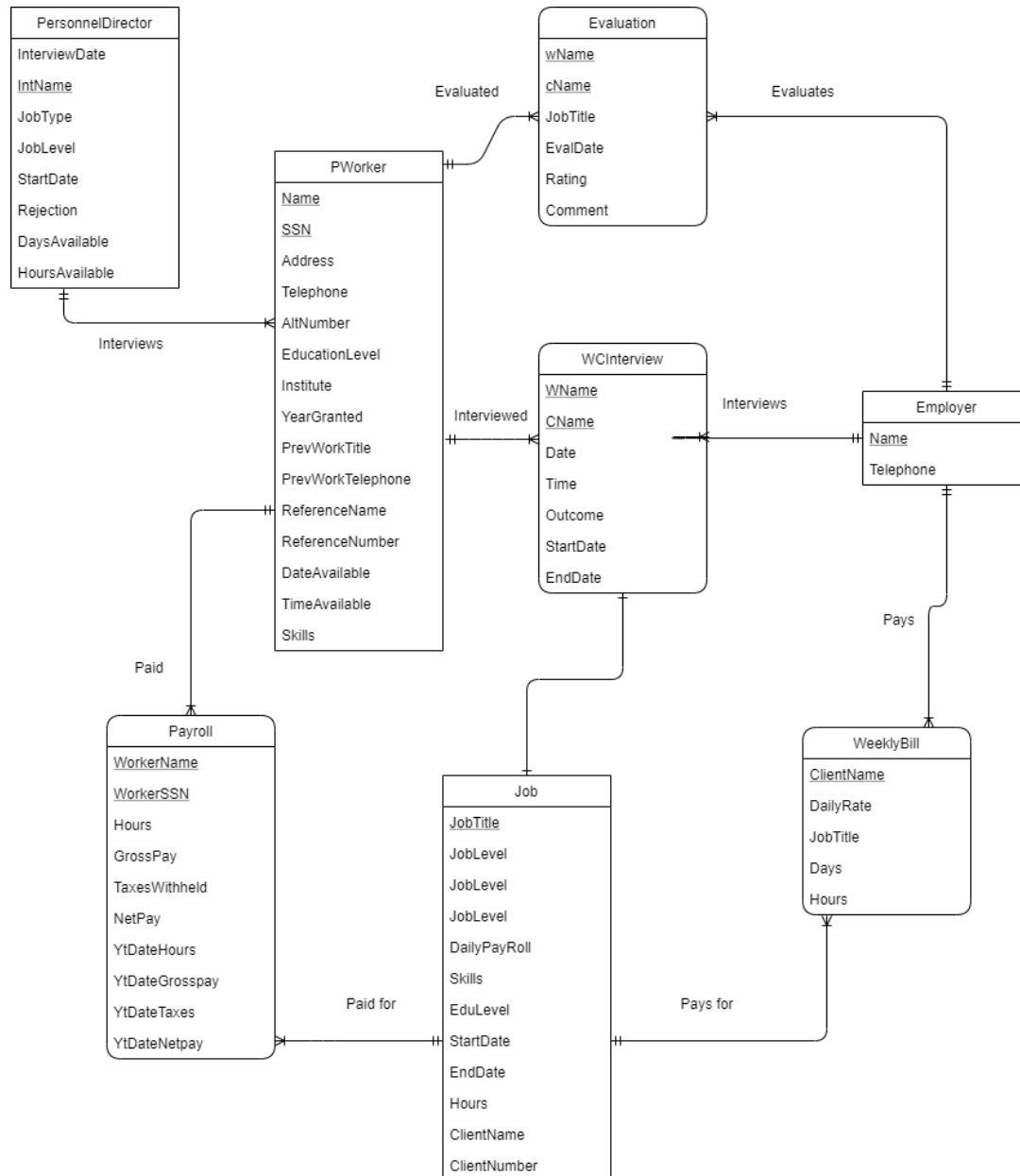
Report Table

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 Client Bill			X				X	
Weekly Pay Stub	X							X
Weekly Payroll Report								X
Client Account Receivable s Report			X				X	
Worker Jobs Report	X		X		X	X		
Report of Current Assignmen ts	X		X	X				
End-of-Year Wage and Tax Statement								X

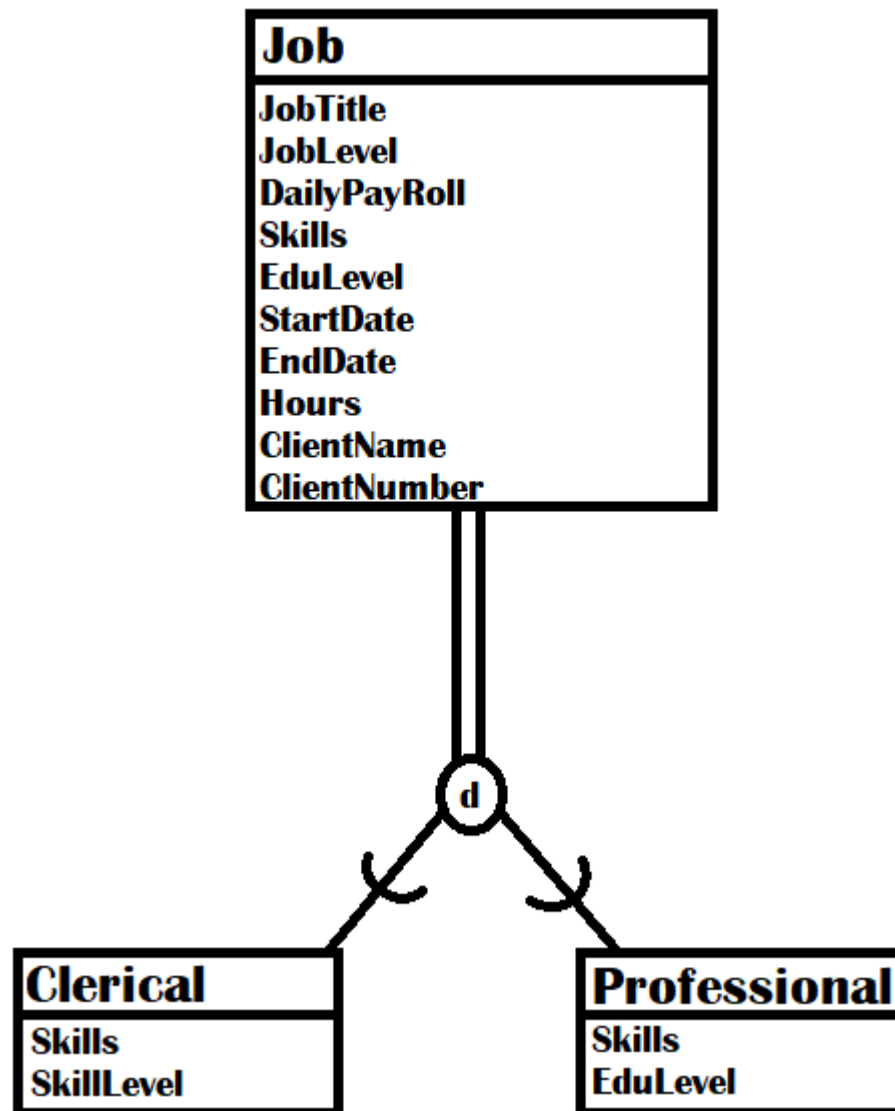
ERD

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



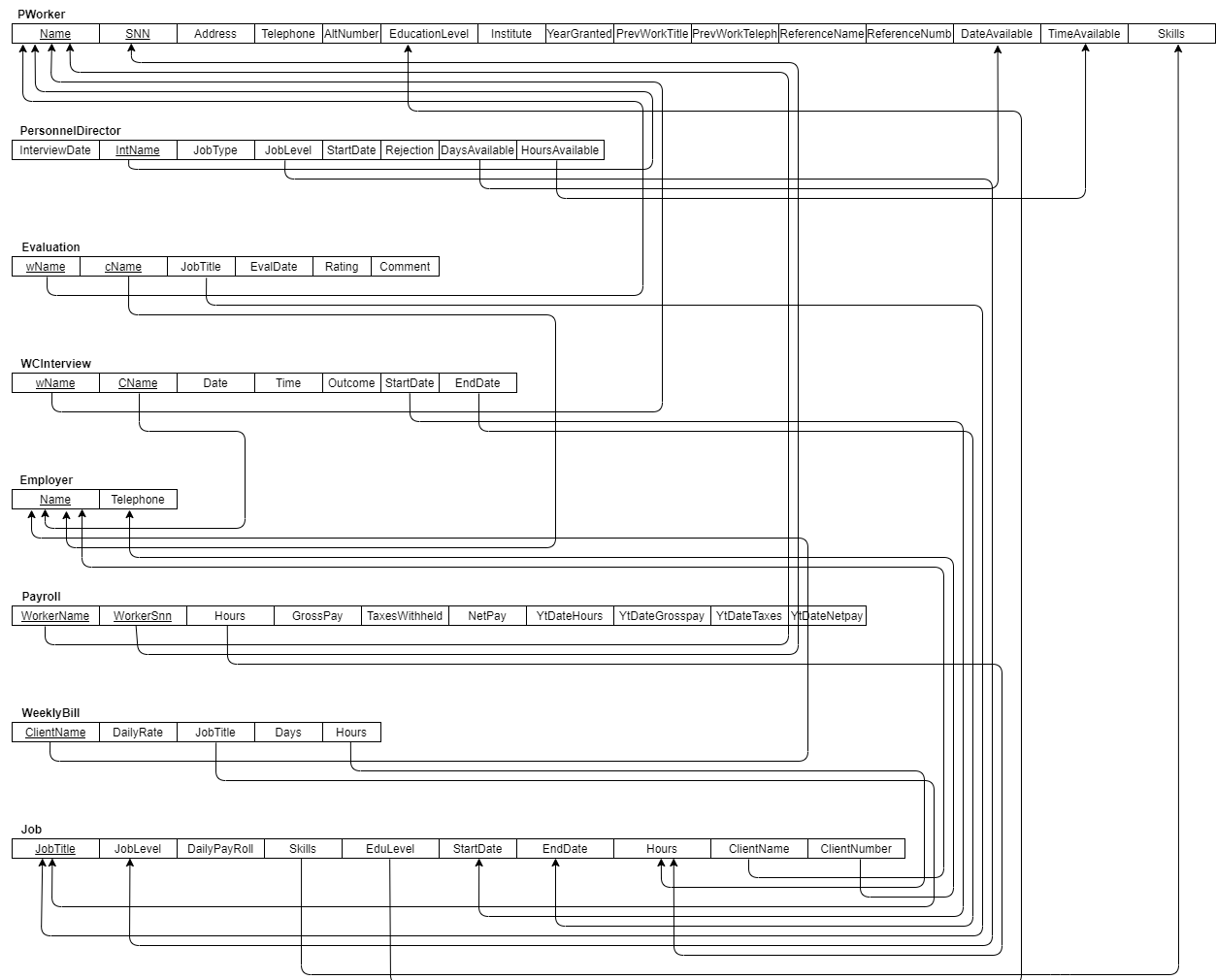
EERD

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)

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