PROGRESS REPORT

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SE-2002

NOTATION FOR PROGRESS

Choosing the Chat WebPage(09.11.2020)

Creating the Basic HTML and CSS carcass for webpage (10.11.2020)

Changing the topic to Construction company DMBS and identifying Aim and Background(11.11.2020)

ERD (12.11.2020)

TABLES SQL (13.11.2020)

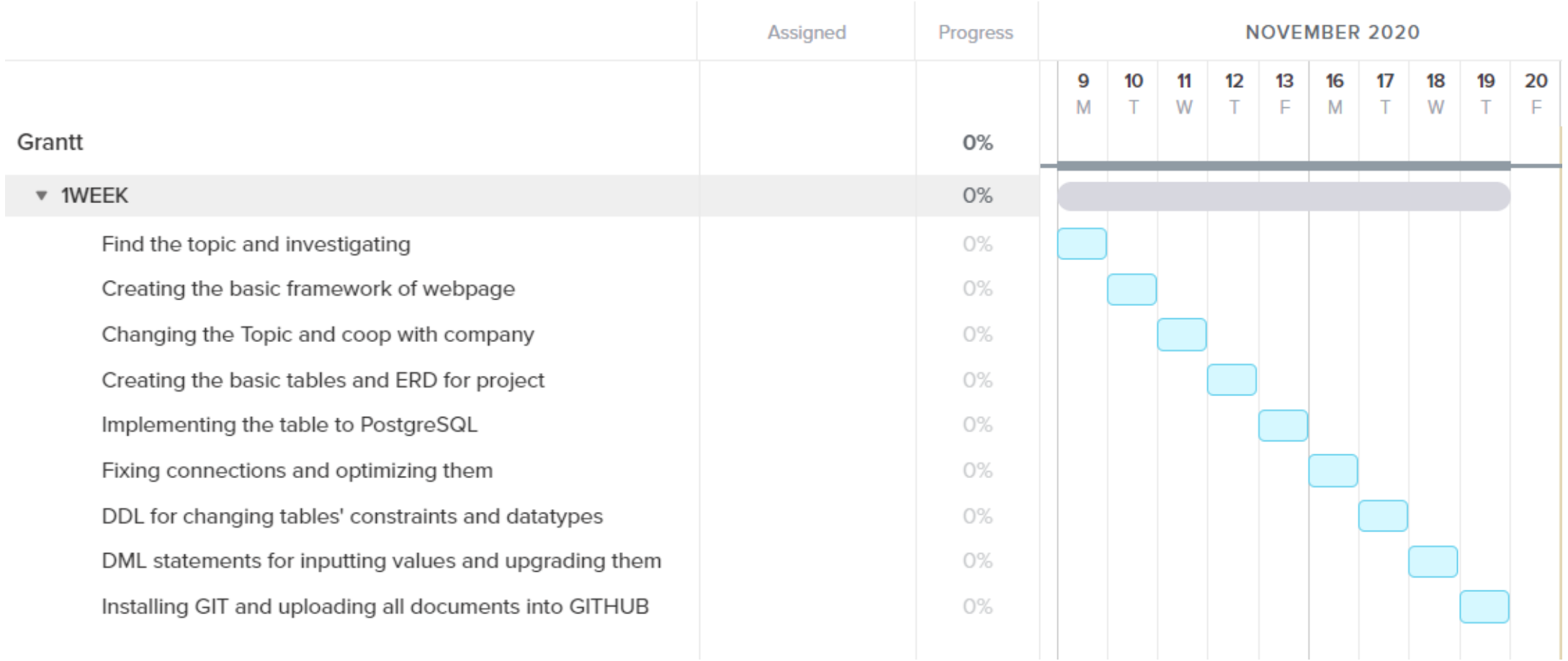
Fixing some connections in ERD diagram with FK and PK(16.11.2020)

DDL for changing constraints and datatypes of my database(17.11.2020)

DML statements for filling the tables with values and upgrading them(18.11.2020)

Installing GIT and preparing files for uploading, like the full code of my SQL project(19.11.2020)

GANTTCHART


Assigned
Progress
NOVEMBER 2020
9 M
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Find the topic and investigating
0%
Creating the basic framework of webpage
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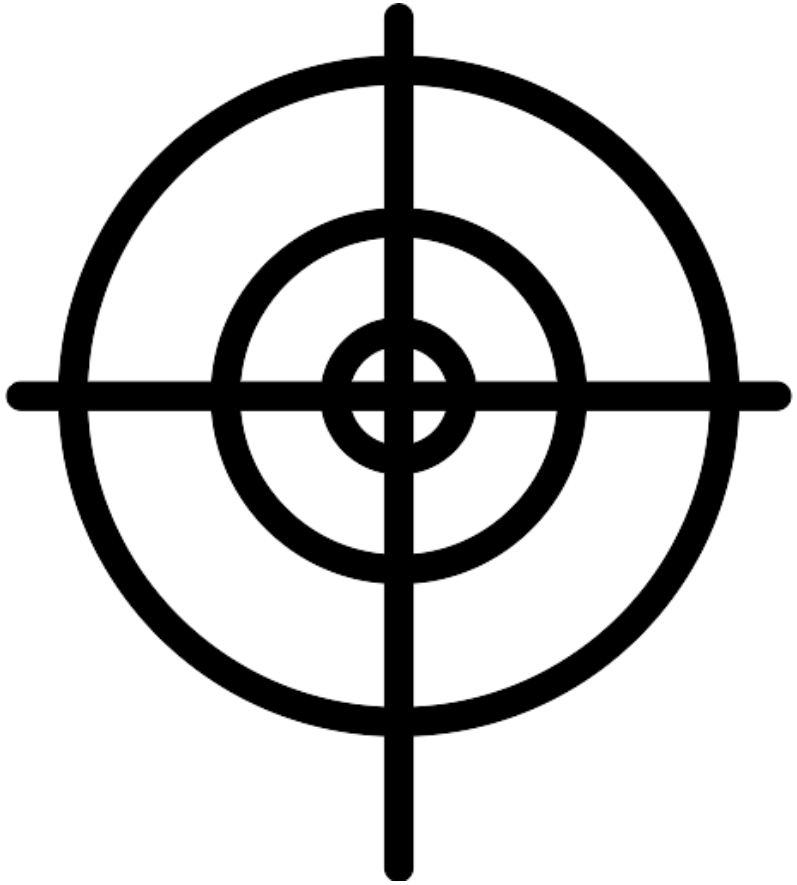
Changing the Topic and coop with company
0%
Creating the basic tables and ERD for project
0%
Implementing the table to PostgreSQL
0%
Fixing connections and optimizing them
0%
DDL for changing tables' constraints and datatypes
0%
DML statements for inputting values and upgrading them
0%
Installing GIT and uploading all documents into GITHUB
0%

AIM

The purpose of the work, is to shorten the work of Secretary or Director, who works with papers, by implementing the DMBS. The new system must include all key data and be capable to edit, manage, delete, and add new data. The system must guide and must have clear and understandable operating principle.

The essence of the project is to make DBMS on POSTGRESQL, in order to make a capable database for further works of company.



OBJECTIVE OF THE PROJECT:

The main objective of the project, is to make a paperwork of company more reliable and easier. Here is some specific objective which will guide further work:

To create a Database, which would be capable with DDL and DML.

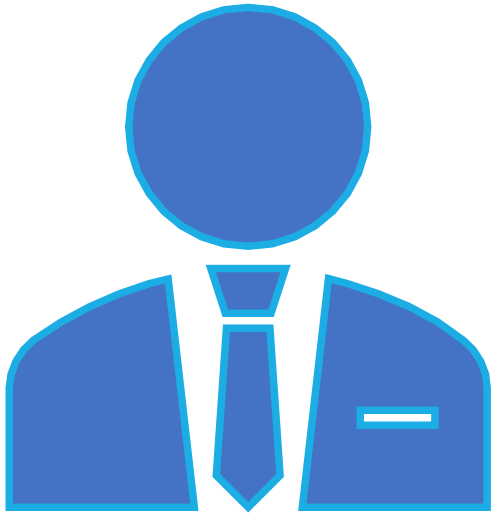
To connect table with each other, to make a full system of tables.

To achieve a normalization of tables, for effectiveness of DBMS.

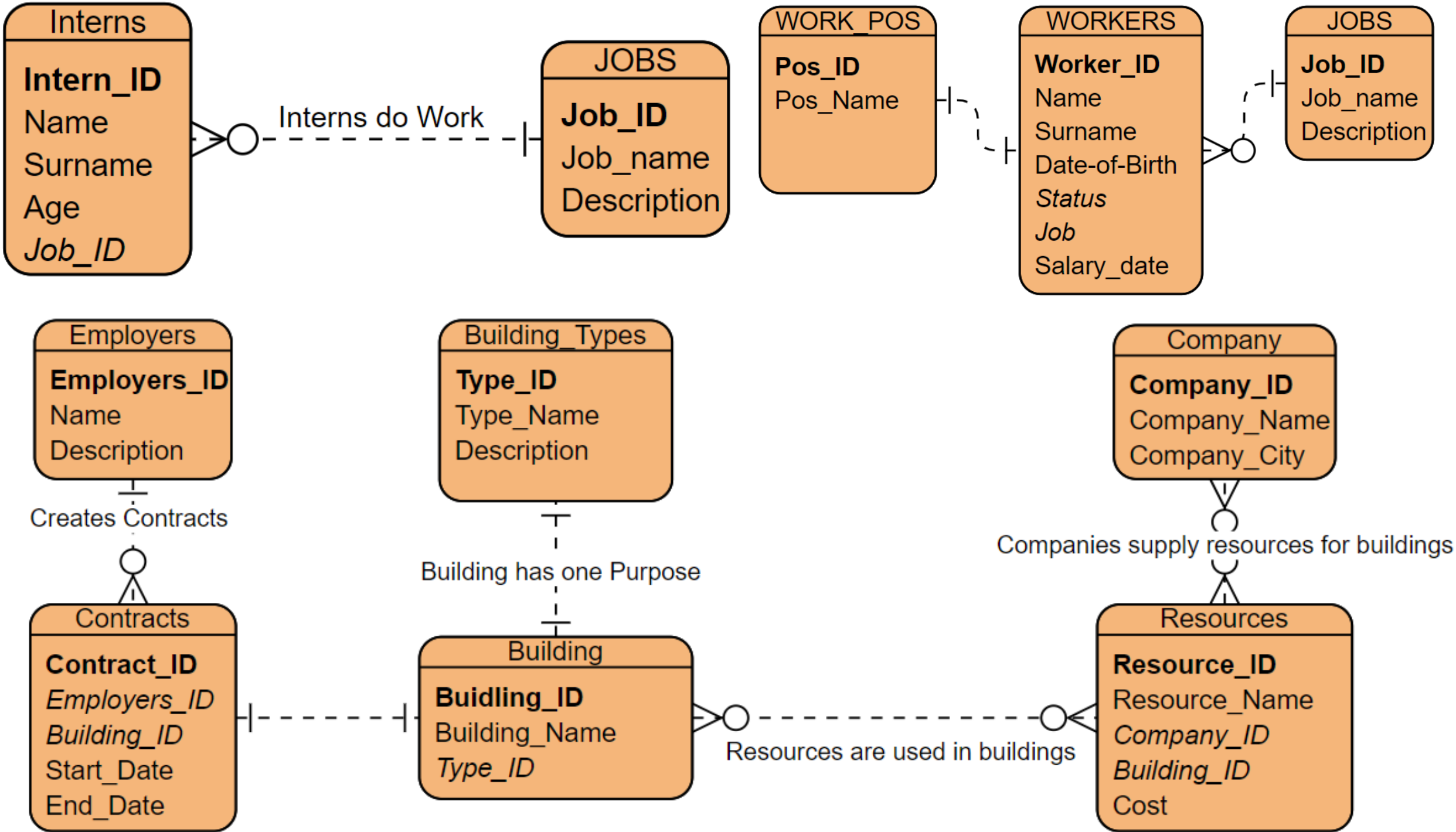
To create some instruction for further uses of Company.

To make a framework for integrated system for company with their workers, If its needed.

BUSINESS RULES:

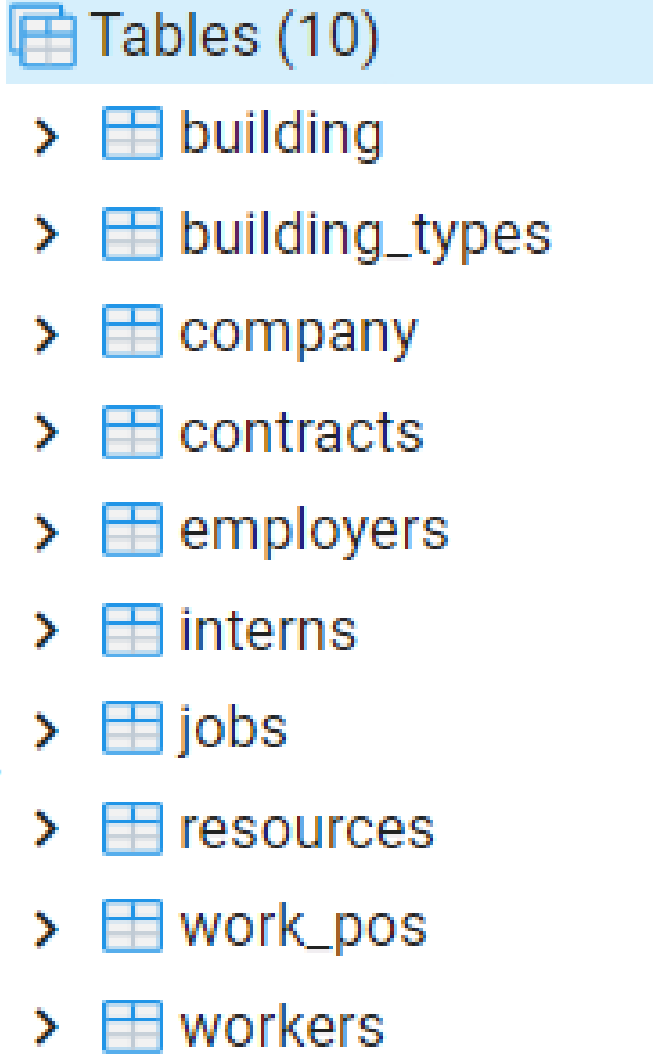


- Registered Interns could have only one work to do, which could be repeated among Interns
- Interns could be aligned and replaced to Workers' list.
- Every Worker have only one work, which could be repeated among other Workers.
- Each worker has their own position among other workers, they could not have such position.
- Each employer, who orders a company for building could manage to align many contracts and each contract must be aligned between LLP "AkSatok" and one Employer only.
- Each contract must be addressed to only one building
- Each building could have only one type and purpose.
- In building of every project could be used many types of resources and materials, which could be used in other buildings too
- Every type of resource could be supplied by any company, alongside with other resources of that company.


Interns
Intern_ID
Name
Surname
Age
Job_ID
Interns do Work
JOBS
Job_ID
Job_name
Description
WORK_POS
Pos_ID
Pos_Name
WORKERS
Worker_ID
Name
Surname
Date-of-Birth
Status
Job
Salary_date
JOBS
Job_ID
Job_name
Description
Employers
Employers_ID
Name
Description
Creates Contracts
Contracts
Contract_ID
Employers_ID
Building_ID
Start_Date
End_Date
Building_Types
Type_ID
Type_Name
Description
Building has one Purpose
Building
Buidling_ID
Building_Name
Type_ID
Resources are used in buildings
Company
Company_ID
Company_Name
Company_City
Companies supply resources for buildings
Resources
Resource_ID
Resource_Name
Company_ID
Building_ID
Cost

```
CREATE TABLE Company (
Company_ID INT PRIMARY KEY,
Company_name VARCHAR(255) NOT NULL,
Company_City VARCHAR(255) NOT NULL
)
CREATE TABLE Building_Types (
Type_ID INT PRIMARY KEY,
Type_name VARCHAR(255) NOT NULL,
description TEXT
)
CREATE TABLE Building (
Building_ID INT PRIMARY KEY,
Building_name VARCHAR(255) NOT NULL,
type_ID INT references building_types
)
CREATE TABLE Contracts (
Contract_ID INT PRIMARY KEY,
Employers_ID INT NOT NULL REFERENCES Employers,
Building_ID INT NOT NULL REFERENCES Building,
Start_Date DATE NOT NULL,
End_Date DATE NOT NULL
)
CREATE TABLE Resources (
Resource_ID INT PRIMARY KEY,
Resource_name VARCHAR(255) NOT NULL,
Company_ID INT NOT NULL REFERENCES Company,
Building_ID INT NOT NULL REFERENCES Building,
Cost VARCHAR(255) NOT NULL
)
```

```
CREATE TABLE JOBS (
Job_ID INT PRIMARY KEY,
Job_name VARCHAR(255) NOT NULL,
description TEXT
)
CREATE TABLE Interns (
Intern_ID INT PRIMARY KEY,
Name VARCHAR(255) NOT NULL,
Age DATE NOT NULL,
job_id INT REFERENCES jobs
)
CREATE TABLE WORK_POS (
Pos_ID INT PRIMARY KEY,
Pos_Name VARCHAR(255) NOT NULL
)
CREATE TABLE WORKERS (
Worker_ID INT PRIMARY KEY,
Name VARCHAR(255) NOT NULL,
Surname VARCHAR(255) NOT NULL,
Date_of_Birth DATE NOT NULL,
Status INT UNIQUE REFERENCES work_pos(pos_id),
Job INT NOT NULL REFERENCES jobs(job_id),
Salary_date DATE NOT NULL
)
CREATE TABLE Employers (
Employers_ID INT PRIMARY KEY,
Name VARCHAR(255) NOT NULL,
description TEXT NOT NULL
)
```



Tables were implemented in PGADMIN with POSTGRESQL. All 10 entities that were used in ERD, were disposed in this system.

TABLES

DDL

CHANGING THE CONSTRAINTS AND DATATYPES

Some datatypes of tables were not applicable and usable for DML statements. For example, the date of birth of inters were renamed form age, to “date of birth”, in order to synchronize columns in workers’ and interns’ tables.

worker_id [PK] integer	name character varying (255)	surname character varying (255)	date_of_birth date	status integer	job integer	salary_date date

intern_id [PK] integer	name character varying (255)	date_of_birth date	job_id integer	surname character varying (255)

Also, the table of resources → column cost were changed from VARCHAR to INT, because the cost could rise and in order to use is, we must use summing, which is not capable with VARCHAR

```
ALTER TABLE interns
ADD COLUMN surname VARCHAR(255) NOT NULL

Adding column for “work_pos” table:
ALTER TABLE work_pos
ADD COLUMN description text NOT NULL

Adding column in “company” table:
ALTER TABLE company
ADD COLUMN description TEXT

Dropping constraint for “workers” table:
ALTER TABLE workers
ALTER COLUMN salary_date DROP NOT NULL;

Adding constraint to “building_types”:
ALTER TABLE building_types
ALTER COLUMN description SET NOT NULL

Changing datatype in “resources” table:
ALTER TABLE resources
ALTER COLUMN cost TYPE INT
USING cost::integer;

Renaming the columns in “interns” table:
ALTER TABLE interns
RENAME COLUMN age TO date_of_birth

Dropping column in “company” table:
ALTER TABLE company
DROP COLUMN company_city RESTRICT
```

DML: INSERT

I have inserted minimum 10 values for each table, in order to have qualitative values from QUERY statements. Each Value is informative and logically supported for testing the system. Here are some example of full-filled tables.

	resource_id [PK] integer	resource_name character varying (255)	company_id integer	building_id integer	cost character varying (255)
1	1	wooden beam	2	12	2000
2	2	metal plate	3	11	7000
3	3	concrete	4	10	12500
4	4	fence	4	7	300
5	5	beton	2	6	5000
6	6	attachment	3	9	15000
7	7	plastic	1	3	62000
8	8	bamboo	1	6	35000
9	9	rammed earth	3	2	29000
10	10	sand	2	1	12000
11	11	probe	1	5	3000
12	12	brick	4	3	100
13	13	glass	1	4	7500
14	14	ceramics	2	5	6300
15	15	steel	4	3	2000
16	16	carbon fiber	3	1	1600
17	17	copper	1	2	8400
18	18	aluminium	2	10	19400
19	19	stone	4	8	3600
20	20	paper	3	7	21000

	employers_id [PK] integer	name character varying (255)	description text
1	1	StroyCity	The company works on erssettlement of citizens
2	2	ZhailyAuil	The company works on improving the architecture of villages
3	3	NurBolashak	The company works on dissemination of cities
4	4	ZhiloiMassive	The company works on building the residentials
5	5	ZhilBatys	Works on apartments for individuals
6	6	Kanagat	Works on village expansion
7	7	MedWorks	Work on bedical support by buidling medical places
8	8	YarkiyDvor	Focuses on yards in cities apartaments
9	9	MarketZhilStroy	Places shops and other store-bought centres
10	10	ArtLifeStroy	Works on new wave of arhitecture buildings

	type_id [PK] integer	type_name character varying (255)	description text
1	1	Apartment	Common type for living/Residential
2	2	Cultural	Building appinted for cultural aims
3	3	Asrtistic	Scene or other podiums built for cultural and art objective
4	4	Athletic	Building related to sports and competitives
5	5	Personal	Registered for short range of use
6	6	Store	Shops and Markets type
7	7	Club-Oriented	For short-range of use for some group
8	8	Institutional	Lessons and Knowledge oriented type
9	9	Storage	Used as safes and place for saving the resources and other items
10	10	Industrial	Works on creation and Managing the resources

	company_id [PK] integer	company_name character varying (255)	description text
1	1	WoodPany	The company which focuses on wooden resource types or its replacments
2	2	Concet	Creates a fundaments and main resources used in buildings
3	3	Metalblue	Sell the metal foundations for floors and walls
4	4	ComStone	Creates a custom resources for companies like paints and others
5	5	WoodenLife	Works on wooden fundaments and fastening
6	6	MetalFun	Creates resources with metal of different forms
7	7	ConreteCentre	Produces high-qualified concrete from sand and dirt
8	8	Bricking Bad	A large company who produces bricks of different sizes and forms
9	9	GlassCamp	Woks with glass and its creation
10	10	PlasticWorld	Creates a substitution of any material with plastic and its reproducements

SOME QUERIES THAT COULD BE USED:

SELECT employers.employers_id, employers.name, building.building_id, building.building_name

FROM employers

INNER JOIN contracts ON employers.employers_id=contracts.employers_id

INNER JOIN building ON contracts.building_id=building.building_id

ORDER BY employers.employers_id

	employers_id integer	name character varying (255)	building_id integer	building_name character varying (255)
1	1	StroyCity	20	Chemistry producement
2	1	StroyCity	2	Comfort Live
3	1	StroyCity	3	Orchestra centre
4	1	StroyCity	5	Football Style
5	2	ZhailyAuil	9	Night Stars
6	2	ZhailyAuil	12	StadGym
7	3	NurBolashak	8	Kurmangazy school
8	3	NurBolashak	10	For you
9	3	NurBolashak	1	National Art Museum
10	4	ZhiloiMassive	7	Peace Resident
11	4	ZhiloiMassive	17	Kurmangazy centre of music
12	4	ZhiloiMassive	6	Living good
13	6	Kanagat	19	Teen Cafe
14	7	MedWorks	13	Mayor House
15	8	YarkiyDvor	18	Ayna dance club
16	9	MarketZhilStroy	15	School of engineering
17	10	ArtLifeStroy	14	Happy Yard

The Query selects Employer and Buildings that this Employer have ordered.

	building_id [PK] integer	building_name character varying (255)	resources_number bigint
1	2	Comfort Live	2
2	3	Orchestra centre	2
3	5	Football Style	2

```
SELECT building.building_id, building.building_name,
COUNT(resources.building_id) AS resources_number

FROM employers

INNER JOIN contracts ON
employers.employers_id=contracts.employers_id

INNER JOIN building ON
contracts.building_id=building.building_id

INNER JOIN resources ON
building.building_ID=resources.building_id

WHERE employers.employers_id=1

GROUP BY building.building_id
```

The Query shows the buildings of Employer and the name of the building. Also, it show the number of resources used in this building.

	building_id [PK] integer	building_name character varying (255)	sum bigint
1	1	National Art Museum	14100
2	2	Comfort Live	37900
3	3	Orchestra centre	64000
4	4	Sport is live	7500
5	5	Football Style	9300
6	6	Living good	40000
7	7	Peace Resident	21500
8	8	Kurmangazy school	3600
9	9	Night Stars	15500
10	10	For you	31900
11	11	KazHist	7500
12	12	StadGym	2000

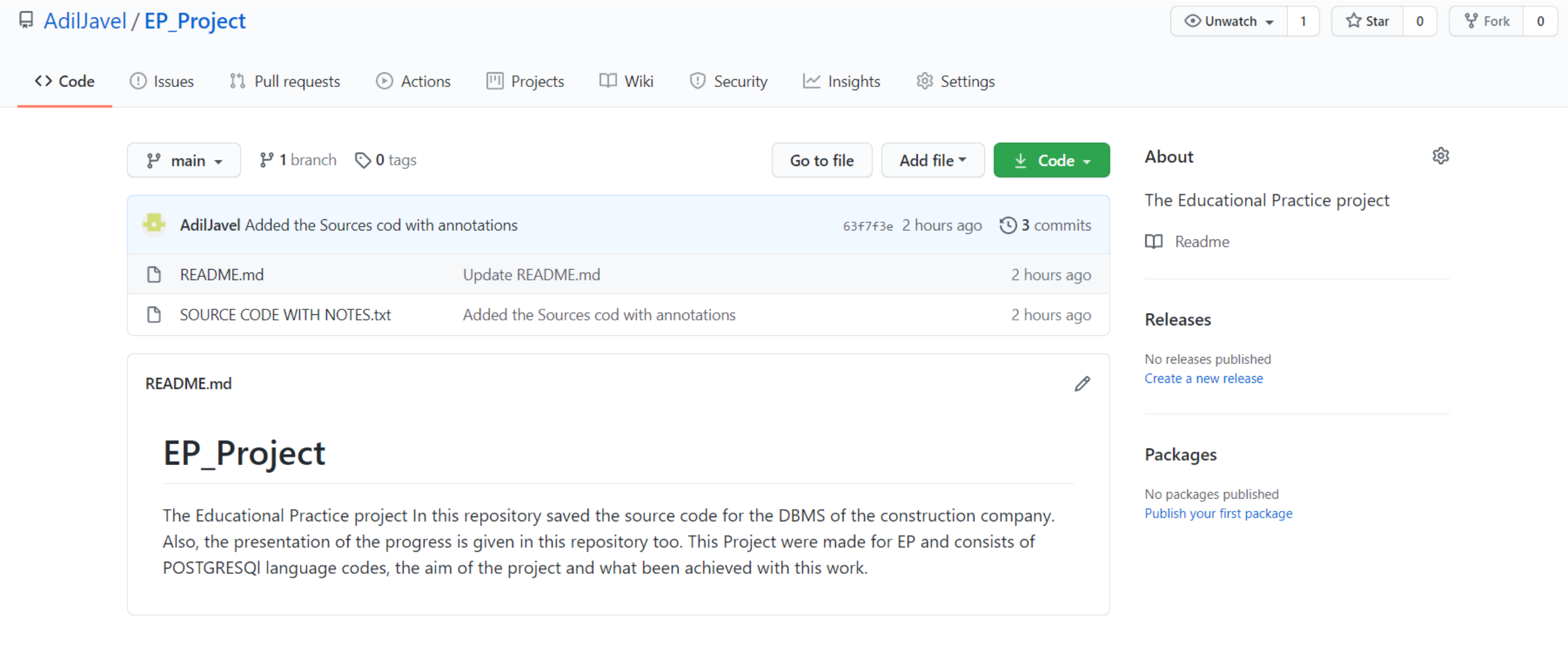
```
SELECT building.building_id,
building.building_name,
SUM(resources.cost)

FROM building

INNER JOIN resources ON
building.building_ID=resources.building_id

GROUP BY building.building_id

ORDER BY building.building_id
```

The Query shows the building IDs and names, with the cost of all resources used in this building.

GITHUB

In the GITHUB I have created a README file, which gives general information about the work.

Also, I have uploaded my sources code, were all system-query-language is given, with annotations of its purpose



CONCLUSION

I have made a DMBS for the construction company, which could be used for saving the data of interns, workers, constructions and all data related to it(employer, resources and short info). The table could be modified and filled with queries and account for fully linked system of tables.

In next slide → all tables that been created with modified changes

	employers_id [PK] integer	name character varying (255)	description text
1	1	StroyCity	The company works on erssettlement of citizens
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3	3	NurBolashak	The company works on dissemination of cities
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	type_id [PK] integer	type_name character varying (255)	description text
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	company_id [PK] integer	company_name character varying (255)	description text
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8	8	Bricking Bad	A large company who produces bricks of different sizes and forms
9	9	GlassCamp	Woks with glass and its creation
10	10	PlasticWorld	Creates a substitution of any material with plastic and its reproducements

	contract_id [PK] integer	employers_id integer	building_id integer	start_date date	end_date date
1	1	3	1	2015-09-25	2018-09-27
2	2	1	2	2019-05-01	2020-10-12
3	3	1	3	2014-03-27	2015-05-10
4	4	2	4	2009-01-20	2010-07-27
5	5	1	5	2019-12-15	2020-03-20
6	6	4	6	2020-10-07	2022-01-09
7	7	4	7	2020-08-06	2025-04-19
8	8	3	8	2017-05-13	2021-04-17
9	9	2	9	2016-03-27	2017-06-05
10	10	3	10	2016-04-20	2018-12-30
11	11	4	11	2010-07-15	2011-10-24
12	12	2	12	2012-08-13	2015-06-13
13	13	7	13	2016-11-25	2018-03-27
14	14	10	14	2019-06-12	2022-09-27
15	15	9	15	2021-08-13	2024-07-27
16	16	5	16	2010-09-21	2011-08-27
17	17	4	17	2014-02-10	2015-03-27
18	18	8	18	2015-05-05	2018-04-27
19	19	6	19	2019-04-09	2020-02-27
20	20	1	20	2013-01-14	2017-01-27

	building_id [PK] integer	building_name character varying (255)	type_id integer
1	1	National Art Museum	2
2	2	Comfort Live	1
3	3	Orchestra centre	3
4	4	Sport is live	4
5	5	Football Style	4
6	6	Living good	1
7	7	Peace Resident	2
8	8	Kurmangazy school	3
9	9	Night Stars	3
10	10	For you	1
11	11	KazHist	2
12	12	StadGym	4
13	13	Mayor House	10
14	14	Happy Yard	7
15	15	School of engineering	10
16	16	Capital House	5
17	17	Kurmangazy centre of music	2
18	18	Ayna dance club	6
19	19	Teen Cafe	8
20	20	Chemistry producement	9

	pos_id [PK] integer	pos_name character varying (255)	description text
1	1	administrative	Works more with managing workers
2	2	Director	One of main principles of company
3	3	Supervisor	Analyzez the work of others
4	4	Manager	Works more with papers
5	5	Coordinator	Leader of group of workers
6	6	Analyst	Sorts the resources and workers job
7	7	Dev. Manager	Helps Manager
8	8	Contributor	A common worker, who contacts with Manager from all common workers
9	9	Agent	Searches for interns
10	10	Specialist	Master of his job and helps others

	job_id [PK] integer	job_name character varying (255)	description text
1	1	Builder	do a simple brick and concrete job
2	2	glazier	doworks with glass
3	3	tile setter	works with floor creating and tiling them
4	4	roofer	builds a roof of building
5	5	carpenter	does a finishing job of a building by managing the floors
6	6	plumber	manages the pipeline and conducts it
7	7	Crane Operator	manages the crane
8	8	Inspector	observes the work and safety
9	9	engineer	makes a carcas of a construction
10	10	Electrician	conducts a electricity in building

	intern_id [PK] integer	name character varying (255)	date_of_birth date	job_id integer	surname character varying (255)
1	1	Askar	1997-09-26	4	Maratov
2	13	Bekarys	2001-09-26	3	Anuarbekov
3	14	Zhandos	1975-01-12	7	Kozhin
4	15	Meirzhan	1988-05-13	6	Abitov
5	16	Asan	1997-01-12	5	Ermek
6	17	Alymkhan	2000-01-12	4	Zhadigerov
7	18	Karen	1999-01-12	1	Zhailaubayev
8	19	Dastan	2003-01-12	8	Samatovich
9	20	Kenzhehan	2004-01-12	10	Serikov
10	2	Marat	1899-01-12	3	Kaliev
11	3	Kaisar	1991-07-19	8	Ibragimov
12	4	Azamat	1994-08-13	7	Abdrahmanov
13	5	Dostyk	1998-09-20	6	Iskakov
14	6	Kairat	1998-10-24	5	Suleimenov
15	7	Usen	2000-12-19	9	Aliev
16	8	Erkebulan	1999-04-21	10	Ivanov
17	9	Sanzhar	2001-02-20	3	Ospanov
18	10	Meiramber	1995-01-17	5	Kim
19	11	Madiyar	1984-03-14	4	Omarov
20	12	Adilet	2004-05-13	7	Akhmetov

	worker_id [PK] integer	name character varying (255)	surname character varying (255)	date_of_birth date	status integer	job integer	salary_date date
1	1	Alton	Lynch	1990-06-19	10	1	2020-11-20
2	2	Sunil	Sumner	1991-08-09	2	1	2019-09-25
3	3	Ariyan	Folney	1992-08-31	[null]	2	2020-11-20
4	4	Cohan	Anthony	1993-10-17	7	3	2020-11-20
5	5	Edgar	Armstrong	1996-01-23	8	9	2020-07-12
6	6	Caolan	Hernandez	1997-02-18	5	4	2020-11-20
7	7	Jody	Yates	1997-05-12	3	8	2020-10-05
8	8	Cassian	Rodriguez	1999-06-02	4	5	2020-11-20
9	9	Mylo	Kent	2002-09-15	1	7	2020-11-01
10	10	Faris	Bowler	2003-04-02	9	6	2020-09-20
11	11	Stewart	Bowler	2003-05-14	6	7	2020-10-12
12	12	Carmen	Boyd	2004-01-31	[null]	10	2020-10-20

	resource_id [PK] integer	resource_name character varying (255)	company_id integer	building_id integer	cost character varying (255)
1	1	wooden beam	2	12	2000
2	2	metal plate	3	11	7000
3	3	concrete	4	10	12500
4	4	fence	4	7	300
5	5	beton	2	6	5000
6	6	attachment	3	9	15000
7	7	plastic	1	3	62000
8	8	bamboo	1	6	35000
9	9	rammed earth	3	2	29000
10	10	sand	2	1	12000
11	11	probe	1	5	3000
12	12	brick	4	3	100
13	13	glass	1	4	7500
14	14	ceramics	2	5	6300
15	15	steel	4	3	2000
16	16	carbon fiber	3	1	1600
17	17	copper	1	2	8400
18	18	aluminium	2	10	19400
19	19	stone	4	8	3600
20	20	paper	3	7	21000