

SQL PROJECT

CONSTRUCTION COMPANY MANAGEMENT SYSTEM

ABSTRACT:

Construction is the process of constructing a building or infrastructure. Construction differs from manufacturing. Manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client. Construction is directly tied to the fields of civil engineering and architecture. A construction company is responsible for building structures in the commercial and private sectors. In simple words, we can say that a construction company is a type of business, enterprise, or similar organization created and operating to construct a wide variety of buildings, developments, housing, path, pavement, roads, motorways, and other types of construction projects. A construction company involves lot of parameters like details of projects, employees, machinaries and raw materials.

Introduction:

Construction management (CM) is a professional service that uses specialized, project management techniques and software to oversee the planning, design, and construction of a project, from its beginning to its end. The purpose of Construction management is to control a project's time / delivery, cost and quality—sometimes referred to as a project management triangle or "triple constraints." CM is compatible with all project delivery systems, including design-bid-build, design-build, CM At-Risk and Public Private Partnerships. Professional construction managers may be reserved for lengthy, large-scale, high budget undertakings (commercial real estate, transportation infrastructure, industrial facilities, and military infrastructure), called capital projects.

OBJECTIVE:

1. The company will be able to easily track the details of projects, employees, machinaries and raw materials.
2. It will give a proper relation regarding which employees are working in which projects.
3. It will give details regarding how many raw materials are being allocated to each project.

1. Create Database: -

```
MariaDB [(none)]> create database projects;
```

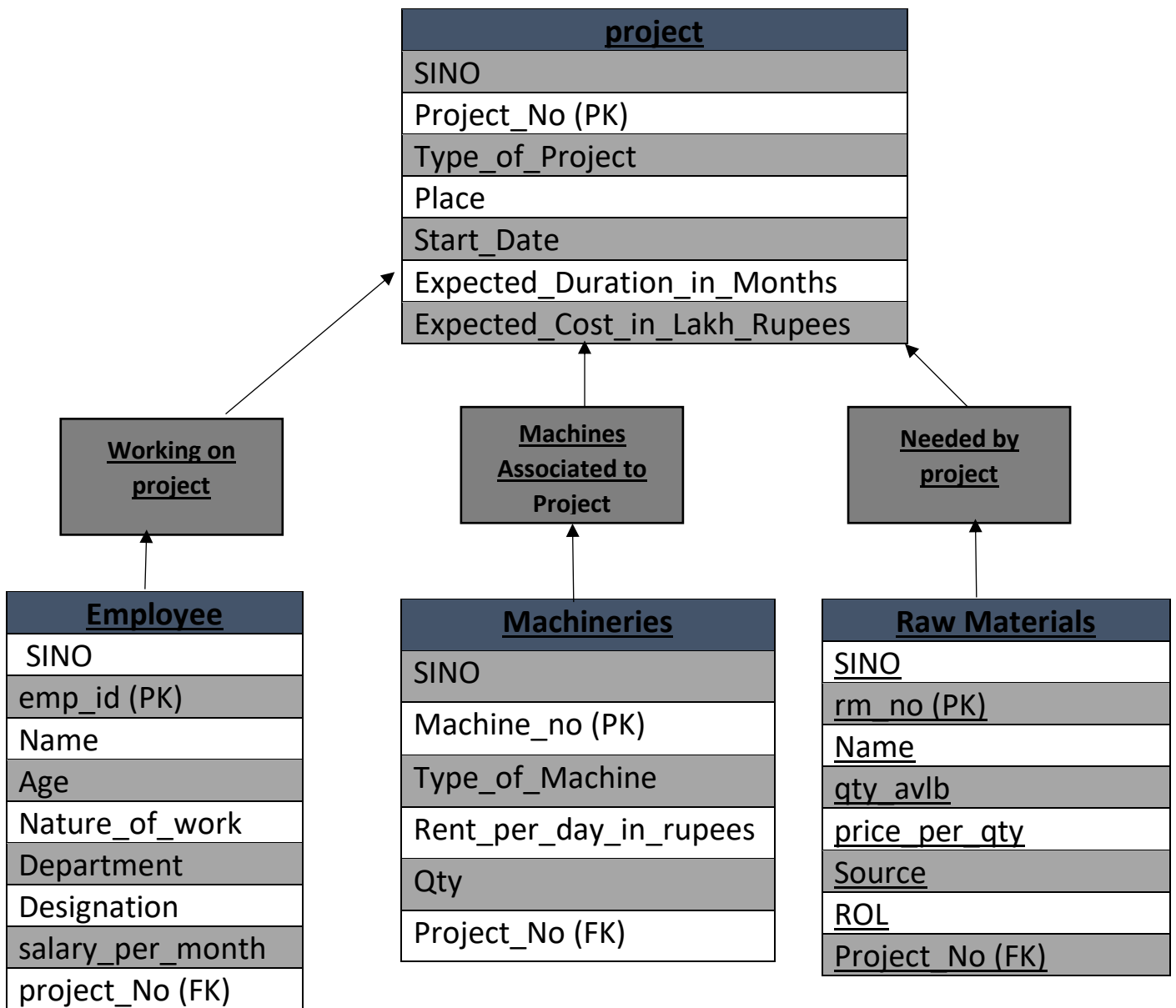
```
Query OK, 1 row affected (0.078 sec)
```

2. use the database: -

```
MariaDB [(none)]> use projects;
```

```
Database changed
```

ER DIAGRAM



STRUCTURE OF TABLE

1. project:

```
MariaDB [projects]> desc project;
```

Field	Type	Null	Key	Default	Extra
SINO	int(11)	YES		NULL	
Project_No	int(11)	NO	PRI	NULL	
Type_of_Project	varchar(40)	YES		NULL	
Place	varchar(40)	YES		NULL	
Start_Date	varchar(20)	YES		NULL	
Expected_Duration_in_Months	int(11)	YES		NULL	
Expected_Cost_in_Lakh_Rupees	int(11)	YES		NULL	

7 rows in set (0.104 sec)

2. employee:

```
MariaDB [projects]> desc employee;
```

Field	Type	Null	Key	Default	Extra
SINO	int(11)	YES		NULL	
emp_id	int(11)	NO	PRI	NULL	
Name	varchar(40)	YES		NULL	
Age	int(11)	YES		NULL	
Nature_of_work	varchar(20)	YES		NULL	
Department	varchar(20)	YES		NULL	
designation	varchar(20)	YES		NULL	
salary_per_month	int(11)	YES		NULL	
project_No	int(11)	YES	MUL	NULL	

9 rows in set (0.054 sec)

```
MariaDB [projects]>
```

3. machineries:

```
MariaDB [projects]> desc machineries;
```

Field	Type	Null	Key	Default	Extra
SINO	int(11)	YES		NULL	
Machine_no	int(11)	NO	PRI	NULL	
Type_of_Machine	varchar(30)	YES		NULL	
Rent_per_day_in_rupees	int(11)	YES		NULL	
qty	int(11)	YES		NULL	
Project_No	int(11)	YES	MUL	NULL	

6 rows in set (0.055 sec)

4. Raw materials:

```
MariaDB [projects]> desc raw_materials;
```

Field	Type	Null	Key	Default	Extra
SINO	int(11)	YES		NULL	
rm_no	int(11)	NO	PRI	NULL	
Name	varchar(30)	YES		NULL	
qty_avlb	int(11)	YES		NULL	
price_per_qty	int(11)	YES		NULL	
Source	varchar(20)	YES		NULL	
ROL	int(11)	YES		NULL	
Project_No	int(11)	YES	MUL	NULL	

8 rows in set (0.066 sec)

CONTENTS OF TABLE

1.project

```
MariaDB [projects]> select * from project;
```

SINO	Project_No	Type_of_Project	Place	Start_Date	Expected_Duration_in_Months	Expected_Cost_in_Lakh_Rupees
1	101	commercial_building	thane	1987	48	5000
2	102	station	mumbai	1978	30	6600
3	103	school	pune	1993	35	7000
4	104	hostel	indore	1996	36	1000
5	105	hotel	Navi_mumbai	1983	40	1500
6	106	bus_depot	mulund	2004	24	2500
7	107	college	jaipur	1995	30	5500
8	108	complex	surat	1990	25	1800
9	109	hospital	solapur	1996	10	8000
10	110	embassy	bangalore	1985	35	2800

```
10 rows in set (0.020 sec)
```

2.Employee

```
MariaDB [projects]> select * from employee;
```

SINO	emp_id	Name	Age	Nature_of_work	Department	designation	salary_per_month	project_No
1	101	Raju	35	on_site	labour	cement_work	9500	101
2	102	chetan	29	on_site	labour	water_work	11200	109
3	103	mayur	25	off_site	engineering	manager	75000	108
4	104	harshit	30	off_site	engineering	sr_manager	85000	102
5	105	rajesh	26	on_site	tech	supervisor	50000	106
6	106	manish	29	on_site	tech	surveyor	20000	110
7	107	pakya	34	on_site	labour	paint_work	10000	107
8	108	raj	32	on_site	labour	brick_work	8500	105
9	109	bharat	27	on_site	tech	engineer	25000	103
10	110	karan	36	off_site	finance	jr_account	22000	104

```
10 rows in set (0.004 sec)
```

3.Machineries

```
MariaDB [projects]> select * from machineries;
```

SINO	Machine_no	Type_of_Machine	Rent_per_day_in_rupees	qty	Project_No
1	101	concrete_mixer_1_ton	5000	8	101
2	102	garbage_dumper_1_ton	7000	20	103
3	103	grinder_200_watt	10000	50	102
4	104	leveller_20_cm	1000	10	105
5	105	bar_cutting_machine	2000	35	104
6	106	tower_crane_40m	30000	10	106
7	107	welding_machine	2500	25	108
8	108	sand_mesher	500	50	107
9	109	shovel	250	150	109
10	110	excavator_10_10_kg	15000	45	110

```
10 rows in set (0.001 sec)
```

4.raw materials

```
MariaDB [projects]> select * from raw_materials;
```

SINO	rm_no	Name	qty_avlb	price_per_qty	Source	ROL	Project_No
1	101	cement_20_kg_pack	1000	3000	ambuja_cement	200	101
2	102	white_red_paint_30_lit_pack	200	10000	asian_paints	50	110
3	103	fine_sand_50kg	500	900	goa_sand_company	100	109
4	104	aggregate_light_50kg_pack	600	4000	kolar_agg	200	108
5	105	bricks_heavy_30nos_pack	400	5000	tata_bricks	200	102
6	106	beige_tile_2x2_20_pack	150	8500	kajaria	30	103
7	107	structure_steel_10kg_pack	800	20000	willy_steels	130	104
8	108	pop_48kg_pack	200	25000	laxmi_pop	50	105
9	109	grill_style1_10_pack	900	19000	sj_works	100	106
10	110	limestone_white_50kg_pack	100	10000	ilkal_line_works	200	107

10 rows in set (0.013 sec)

VIEWS

1.Create a table for employee and raw materials associated with hospital project.

Query

```
MariaDB [projects]> create view hospital_rm_emp as select employee.emp_id,employee.name,
employee.salary_per_month, raw_materials.rm_no, raw_materials.Rol from employee,raw_materials where
employee.project_no in (105,107) and raw_materials.project_no in (105,107);
```

Query OK, 0 rows affected (0.025 sec)

emp_id	name	salary_per_month	rm_no	Rol
108	raj	8500	108	50
107	pakya	10000	108	50
108	raj	8500	110	200
107	pakya	10000	110	200

4 rows in set (0.067 sec)

2.Create a table for the raw materials and machineries associated with residential building.

Query

```
MariaDB [projects]> create view rb_rm_mc as select
raw_materials.rm_no,raw_materials.name,raw_materials.Rol,
machineries.machine_no,machineries.type_of_machine,machineries.qty from raw_materials,
machineries where raw_materials.project_no in(103,109) and machineries.project_no in(103,109);
```

Query OK, 0 rows affected (0.005 sec)

rm_no	name	Rol	machine_no	type_of_machine	qty
106	beige_tile_2x2_20_pack	30	102	garbage_dumper_1_ton	20
103	fine_sand_50kg	100	102	garbage_dumper_1_ton	20
106	beige_tile_2x2_20_pack	30	109	shovel	150
103	fine_sand_50kg	100	109	shovel	150

4 rows in set (0.646 sec)

3.Show the employee and machineries associated with commercial buildings.

Query

```
MariaDB [projects]> create view cb_mc_emp as select  
employee.name,employee.emp_id,employee.Department,employee.project_no,machineries.mac  
hine_no,machineries.type_of_machine,machineries.qty from employee,machineries where  
employee.project_no in(101,110) and machineries.project_no in(101,110);
```

Query OK, 0 rows affected (0.007 sec)

name	emp_id	Department	project_no	machine_no	type_of_machine	qty
Raju	101	labour	101	101	concrete_mixer_1_ton	8
manish	106	tech	110	101	concrete_mixer_1_ton	8
Raju	101	labour	101	110	excavator_10_10_kg	45
manish	106	tech	110	110	excavator_10_10_kg	45

4 rows in set (0.047 sec)

4. show the details eng

Query

```
create view eng as select machineries.machine_no,machineries.type_of_machine,machineries.qty from  
machineries;
```

Query OK, 0 rows affected (0.008 sec)

```
MariaDB [projects]> select * from eng;
```

machine_no	type_of_machine	qty
101	concrete_mixer_1_ton	8
102	garbage_dumper_1_ton	20
103	grinder_200_watt	50
104	leveller_20_cm	10
105	bar_cutting_machine	35
106	tower_crane_40m	10
107	welding_machine	25
108	sand_mesher	50
109	shovel	150
110	excavator_10_10_kg	45

10 rows in set (0.001 sec)

Joins

1.Left join

Query

MariaDB [projects]> select * from employee left join hospital_rm_emp on
employee.emp_id=hospital_rm_emp.emp_id;

```
MariaDB [projects]> select * from employee left join hospital_rm_emp on employee.emp_id=hospital_rm_emp.emp_id;
```

SINO	emp_id	Name	Age	Nature_of_work	Department	designation	salary_per_month	project_No	emp_id	name	salary_per_month	rm_no	RoI
1	101	Raju	35	on_site	labour	cement_work	9500	101	NULL	NULL	NULL	NULL	NULL
2	102	chetan	29	on_site	labour	water_work	11200	109	NULL	NULL	NULL	NULL	NULL
3	103	mayur	25	off_site	engineering	manager	75000	108	NULL	NULL	NULL	NULL	NULL
4	104	harshit	30	off_site	engineering	sr_manager	85000	102	NULL	NULL	NULL	NULL	NULL
5	105	rajesh	26	on_site	tech	supervisor	50000	106	NULL	NULL	NULL	NULL	NULL
6	106	manish	29	on_site	tech	surveyor	20000	110	NULL	NULL	NULL	NULL	NULL
7	107	pakya	34	on_site	labour	paint_work	10000	107	107	pakya	10000	108	50
7	107	pakya	34	on_site	labour	paint_work	10000	107	107	pakya	10000	110	200
8	108	raj	32	on_site	labour	brick_work	8500	105	108	raj	8500	108	50
8	108	raj	32	on_site	labour	brick_work	8500	105	108	raj	8500	110	200
9	109	bharat	27	on_site	tech	engineer	25000	103	NULL	NULL	NULL	NULL	NULL
10	110	karan	36	off_site	finance	jr_account	22000	104	NULL	NULL	NULL	NULL	NULL

12 rows in set (0.025 sec)

2.Right join

Query

MariaDB [projects]> select * from hospital_rm_emp right join employee on
hospital_rm_emp.emp_id=employee.emp_id;

```
MariaDB [projects]> select * from hospital_rm_emp right join employee on hospital_rm_emp.emp_id=employee.emp_id;
```

emp_id	name	salary_per_month	rm_no	RoI	SINO	emp_id	Name	Age	Nature_of_work	Department	designation	salary_per_month	project_No
NULL	NULL	NULL	NULL	NULL	1	101	Raju	35	on_site	labour	cement_work	9500	101
NULL	NULL	NULL	NULL	NULL	2	102	chetan	29	on_site	labour	water_work	11200	109
NULL	NULL	NULL	NULL	NULL	3	103	mayur	25	off_site	engineering	manager	75000	108
NULL	NULL	NULL	NULL	NULL	4	104	harshit	30	off_site	engineering	sr_manager	85000	102
NULL	NULL	NULL	NULL	NULL	5	105	rajesh	26	on_site	tech	supervisor	50000	106
NULL	NULL	NULL	NULL	NULL	6	106	manish	29	on_site	tech	surveyor	20000	110
107	pakya	10000	108	50	7	107	pakya	34	on_site	labour	paint_work	10000	107
107	pakya	10000	110	200	7	107	pakya	34	on_site	labour	paint_work	10000	107
108	raj	8500	108	50	8	108	raj	32	on_site	labour	brick_work	8500	105
108	raj	8500	110	200	8	108	raj	32	on_site	labour	brick_work	8500	105
NULL	NULL	NULL	NULL	NULL	9	109	bharat	27	on_site	tech	engineer	25000	103
NULL	NULL	NULL	NULL	NULL	10	110	karan	36	off_site	finance	jr_account	22000	104

12 rows in set (0.005 sec)

3.Cross join

Query

MariaDB [projects]> select * from employee cross join hospital_rm_emp on
employee.emp_id=hospital_rm_emp.emp_id;

```
MariaDB [projects]> select * from employee cross join hospital_rm_emp on employee.emp_id=hospital_rm_emp.emp_id;
```

SINO	emp_id	Name	Age	Nature_of_work	Department	designation	salary_per_month	project_No	emp_id	name	salary_per_month	rm_no	RoI
8	108	raj	32	on_site	labour	brick_work	8500	105	108	raj	8500	108	50
7	107	pakya	34	on_site	labour	paint_work	10000	107	107	pakya	10000	108	50
8	108	raj	32	on_site	labour	brick_work	8500	105	108	raj	8500	110	200
7	107	pakya	34	on_site	labour	paint_work	10000	107	107	pakya	10000	110	200

4 rows in set (0.017 sec)

SUBQUERIES

1. Show the all the details of all the employee associated with hostel project having salary> 2000

Query

MariaDB [projects]> select * from employee where project_no in (select project_no from project where type_of_project="hostel") having salary_per_month>2000;

```
MariaDB [projects]> select * from employee where project_no in (select project_no from project where type_of_project="hostel") having salary_per_month>2000;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| SINO | emp_id | Name | Age | Nature_of_work | Department | designation | salary_per_month | project_No |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 10 | 110 | karan | 36 | off_site | finance | jr_account | 22000 | 104 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.009 sec)
```

2. Show all the raw materials for college project where qty available is more than 50.

Query

MariaDB [projects]> select * from raw_materials where project_no in (select project_no from project where type_of_project="college") having qty_avlb>50;

```
MariaDB [projects]> select * from raw_materials where project_no in (select project_no from project where type_of_project="college") having qty_avlb>50;
+-----+-----+-----+-----+-----+-----+-----+-----+
| SINO | rm_no | Name | qty_avlb | price_per_qty | Source | ROL | Project_No |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 10 | 110 | limestone_white_50kg_pack | 100 | 10000 | ilkal_line_works | 200 | 107 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.002 sec)
```

3. Show all the details of machineries and raw materials associated with project having estimation > 5000 lakh crores.

Query

MariaDB [projects]> select * from machineries where project_no in (select project_no from project where Expected_Cost_in_Lakh_Rupees>5000);

```
MariaDB [projects]> select * from machineries where project_no in (select project_no from project where Expected_Cost_in_Lakh_Rupees>5000);
+-----+-----+-----+-----+-----+-----+
| SINO | Machine_no | Type_of_Machine | Rent_per_day_in_rupees | qty | Project_No |
+-----+-----+-----+-----+-----+-----+
| 2 | 102 | garbage_dumper_1_ton | 7000 | 20 | 103 |
| 3 | 103 | grinder_200_watt | 10000 | 50 | 102 |
| 8 | 108 | sand_mesher | 500 | 50 | 107 |
| 9 | 109 | shovel | 250 | 150 | 109 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.003 sec)
```

Query

MariaDB [projects]> select * from raw_materials where project_no in (select project_no from project where Expected_Cost_in_Lakh_Rupees>5000);

```
MariaDB [projects]> select * from raw_materials where project_no in (select project_no from project where Expected_Cost_in_Lakh_Rupees>5000);
+-----+-----+-----+-----+-----+-----+-----+-----+
| SINO | rm_no | Name | qty_avlb | price_per_qty | Source | ROL | Project_No |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 3 | 103 | fine_sand_50kg | 500 | 900 | goa_sand_company | 100 | 109 |
| 5 | 105 | bricks_heavy_38nos_pack | 400 | 5000 | tata_bricks | 200 | 102 |
| 6 | 106 | beige_tile_2x2_20_pack | 150 | 8500 | kajaria | 30 | 103 |
| 10 | 110 | limestone_white_50kg_pack | 100 | 10000 | ilkal_line_works | 200 | 107 |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.004 sec)
```