

Tabular representation of the report format

project_id	project_name	employee_id	employee_name	job_title	charge_hour	hours_billed
15	Lakeview	103	June Arbough	Lead Programmer	\$85.50	23.8
		101	John News	Database Designer	\$105.00	19.4
		105	Alice Johnson *	Database Designer	\$105.00	35.7
		106	William Smith	Programmer	\$35.75	12.6
		102	David Senior	Systems Analyst	\$96.75	23.8
18	Web App	114	Annelise Jones	Programmer	\$35.75	25.6
		118	James Frommer	General Support	\$18.36	45.3
		104	Anne Ramoras *	Systems Analyst	\$96.75	32.4
		112	Darlene Smithson	DDS Analyst	\$45.95	45.0
22	Blue Light	105	Alice Johnson	Database Designer	\$105.00	65.7
		104	Anne Ramoras	Systems Analyst	\$96.75	48.4
		113	Jen Clarke	Programmer	\$35.75	23.6
		111	Geoff Wabash	Clerical Support	\$26.87	22.0
		106	William Smith	Programmer	\$35.75	12.8
25	Power Lite	107	Maria Alonzo	Programmer	\$35.75	25.6
		115	Travis Bawangi	Systems Analyst	\$96.75	45.8
		101	John News *	Database Designer	\$105.00	56.3
		114	Annelise Jones	Programmer	\$35.75	33.1
		108	Ralph Washington	Systems Analyst	\$96.75	23.6
		118	James Frommer	General Support	\$18.36	30.5
		112	Darlene Smithson	DDS Analyst	\$45.95	41.4
Note: * indicates project leader						

1NF:

Bluewater						
<u>project_id</u>	project_name	<u>employee_id</u>	employee_name	job_title	billing_rate	hours_billed
15	Lakeview	103	June Arbough	Lead Programmer	\$85.50	23.8
15	Lakeview	101	John News	Database Designer	\$105.00	19.4
15	Lakeview	105	Alice Johnson *	Database Designer	\$105.00	35.7
15	Lakeview	106	William Smith	Programmer	\$35.75	12.6
15	Lakeview	102	David Senior	Systems Analyst	\$96.75	23.8
18	Web App	114	Annelise Jones	Programmer	\$35.75	25.6
18	Web App	118	James Frommer	General Support	\$18.36	45.3
18	Web App	104	Anne Ramoras *	Systems Analyst	\$96.75	32.4
18	Web App	112	Darlene Smithson	DDS Analyst	\$45.95	45.0
22	Blue Light	105	Alice Johnson	Database Designer	\$105.00	65.7
22	Blue Light	104	Anne Ramoras	Systems Analyst	\$96.75	48.4
22	Blue Light	113	Jen Clarke	Programmer	\$35.75	23.6
22	Blue Light	111	Geoff Wabash	Clerical Support	\$26.87	22.0
25	Power Lite	106	William Smith	Programmer	\$35.75	12.8
25	Power Lite	107	Maria Alonzo	Programmer	\$35.75	25.6
25	Power Lite	115	Travis Bawangi	Systems Analyst	\$96.75	45.8
25	Power Lite	101	John News *	Database Designer	\$105.00	56.3
25	Power Lite	114	Annelise Jones	Programmer	\$35.75	33.1
25	Power Lite	108	Ralph Washington	Systems Analyst	\$96.75	23.6
25	Power Lite	118	James Frommer	General Support	\$18.36	30.5
25	Power Lite	112	Darlene Smithson	DDS Analyst	\$45.95	41.4

BLUEWATER(project_id, project_name, employee_id, employee_name, job_title, billing_rate, hours_billed)

2NF:

PROJECT		
<u>project_id</u>	project_name	<u>leader_id</u>
15	Lakeview	105
18	Web App	104
22	Blue Light	NULL
25	Power Lite	101

EMPLOYEE			
<u>employee_id</u>	employee_name	job_title	billing_rate
103	June Arbough	Lead Programmer	\$85.50
101	John News	Database Designer	\$105.00
105	Alice Johnson *	Database Designer	\$105.00
106	William Smith	Programmer	\$35.75
102	David Senior	Systems Analyst	\$96.75
114	Annelise Jones	Programmer	\$35.75
118	James Frommer	General Support	\$18.36
104	Anne Ramoras *	Systems Analyst	\$96.75
112	Darlene Smithson	DDS Analyst	\$45.95
113	Jen Clarke	Programmer	\$35.75
111	Geoff Wabash	Clerical Support	\$26.87
107	Maria Alonzo	Programmer	\$35.75
115	Travis Bawangi	Systems Analyst	\$96.75
108	Ralph Washington	Systems Analyst	\$96.75

PROJECT_EMPLOYEE		
<u>projecct_id</u>	<u>employee_id</u>	hours_billed
15	103	23.8
15	101	19.4
15	105	35.7
15	106	12.6
15	102	23.8
18	114	25.6
18	118	45.3
18	104	32.4
18	112	45.0
22	105	65.7
22	104	48.4
22	113	23.6
22	111	22.0
25	106	12.8
25	107	25.6
25	115	45.8
25	101	56.3
25	114	33.1
25	108	23.6
25	118	30.5
25	112	41.4

PROJECT(**project_id**, project_name, **leader_id**)
 FK leader_id -> EMPLOYEE
 EMPLOYEE(**employee_id**, employee_name, job_title, billing_rate)
 PROJECT_EMPLOYEE(**project_id**, **employee_id**, hours_billed)
 FK project_id -> PROJECT
 FK employee_id -> EMPLOYEE

3NF:

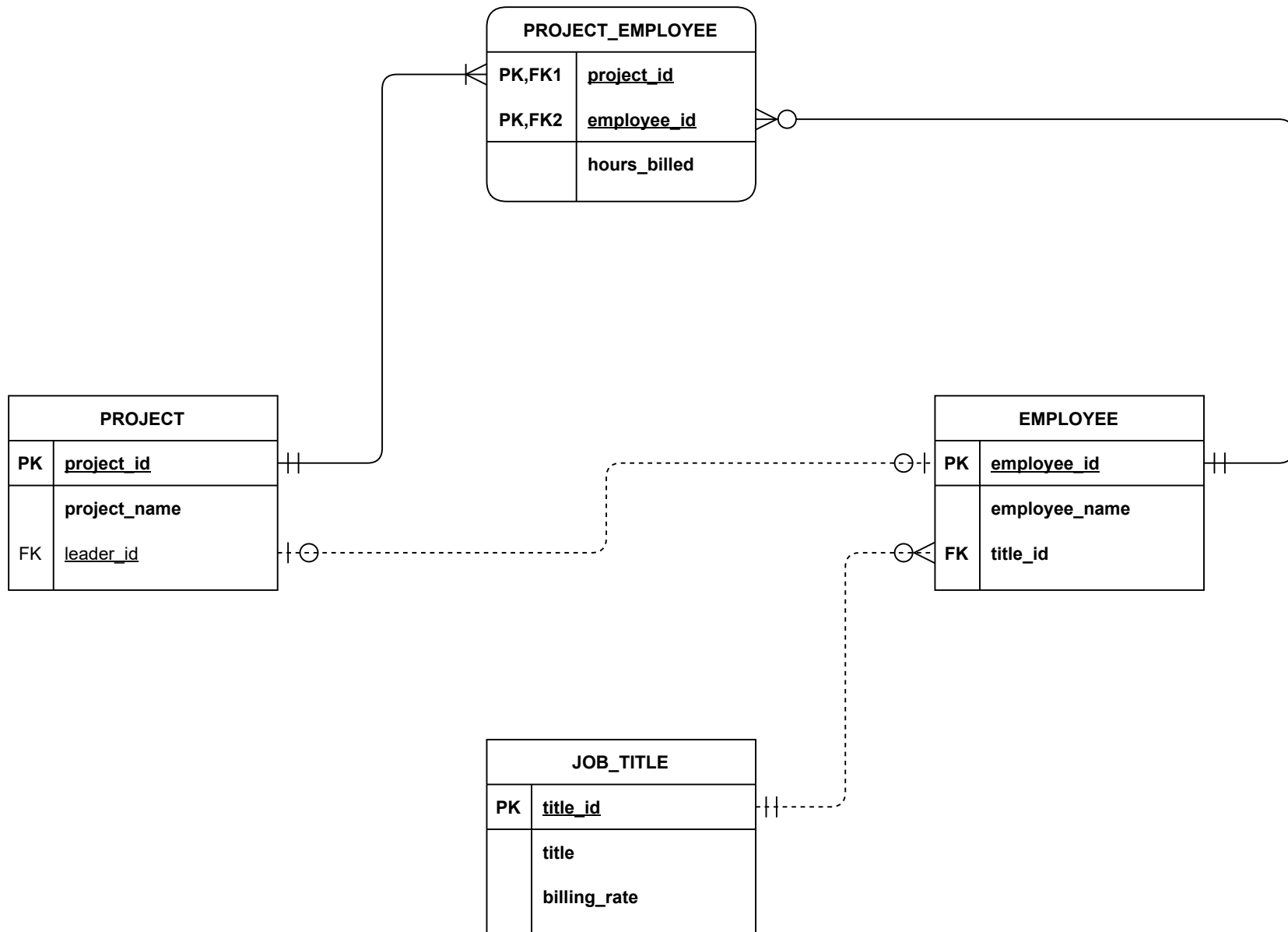
PROJECT		
<u>project_id</u>	project_name	<u>leader_id</u>
15	Lakeview	105
18	Web App	104
22	Blue Light	NULL
25	Power Lite	101

EMPLOYEE		
<u>employee_id</u>	employee_name	<u>title_id</u>
103	June Arbough	1001
101	John News	1002
105	Alice Johnson *	1002
106	William Smith	1003
102	David Senior	1007
114	Annelise Jones	1003
118	James Frommer	1004
104	Anne Ramoras *	1007
112	Darlene Smithson	1005
113	Jen Clarke	1003
111	Geoff Wabash	1006
107	Maria Alonzo	1003
115	Travis Bawangi	1007
108	Ralph Washington	1007

JOB_TITLE		
<u>title_id</u>	title	billing_rate
1001	Lead Programmer	\$85.50
1002	Database Designer	\$105.00
1003	Programmer	\$35.75
1004	General Support	\$18.36
1005	DDS Analyst	\$45.95
1006	Clerical Support	\$26.87
1007	Systems Analyst	\$96.75

PROJECT_EMPLOYEE		
<u>project_id</u>	<u>employee_id</u>	hours_billed
15	103	23.8
15	101	19.4
15	105	35.7
15	106	12.6
15	102	23.8
18	114	25.6
18	118	45.3
18	104	32.4
18	112	45.0
22	105	65.7
22	104	48.4
22	113	23.6
22	111	22.0
25	106	12.8
25	107	25.6
25	115	45.8
25	101	56.3
25	114	33.1
25	108	23.6
25	118	30.5
25	112	41.4

PROJECT(**project_id**, project_name, **leader_id**)
 FK leader_id -> EMPLOYEE
 EMPLOYEE(**employee_id**, employee_name, **title_id**)
 FK title_id -> JOB_TITLE
 JOB_TITLE(**title_id**, title, billing_rate)
 PEOJECT_EMPLOYEE(**project_id**, **employee_id**, hours_billed)
 FK project_id -> PROJECT
 FK employee_id -> EMPLOYEE



PROJECT				
Key Type	Optionality	Column Name	Datatype	Length
PK	*	project_id	INTEGER	
	*	project_name	VARCHAR	30
FK	0	leader_id	INTEGER	

EMPLOYEE				
Key Type	Optionality	Column Name	Datatype	Length
PK	*	employee_id	INTEGER	
	*	employee_name	VARCHAR	30
FK	*	title_id	INTEGER	

JOB_TITLE				
Key Type	Optionality	Column Name	Datatype	Length
PK	*	title_id	INTEGER	
	*	title	VARCHAR	30
	*	billing_rate	DECIMAL	5,2

PROJECT_EMPLOYEE				
Key Type	Optionality	Column Name	Datatype	Length
PK,FK	*	project_id	INTEGER	
PK,FK	*	employee_id	VARCHAR	30
	*	hours_billed	Decimal	3,1

PROJECT(**project_id**, project_name, **leader_id**)

FK leader_id -> EMPLOYEE

EMPLOYEE(**employee_id**, employee_name, **title_id**)

FK title_id -> JOB_TITLE

JOB_TITLE(**title_id**, title, billing_rate)

PROJECT_EMPLOYEE(**project_id**, **employee_id**, hours_billed)

FK project_id -> PROJECT

FK employee_id -> EMPLOYEE