

Un-normalized Bluewater Consulting Inc. table

Bluewater Consulting Inc. Employee Billing Report						
Project ID	Project Name	Employee ID	Employee Name	Job Title	Billing Rate	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
25	Power Lite	106	William Smith	Programmer	\$35.75	12.8
		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						

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						

1: Fist Normalizaiton table form (1NF)

<u>project_id</u>	project_name	<u>employee_id</u>	employee_name	job_title	charge_hour	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
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
22	Blue Light	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
Note: * indicates project leader						

Table: **EmployeeReport** (project_id, project_name, employee_id, employee_name, job_title, charge_hour, charge_hour, hours_billed).

Primary Key >> (Project_id, employee_id).

2: Second Normalization table form (2NF)

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

Table: PROJECT (project_id, project_name projecLeader_id)

Primary Key >> project_id

EMPLOYEE			
<u>employee_id</u>	employee_name	job_title	charge_hour
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
104	Anne Ramoras	Systems Analyst	\$96.75
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

Table: EMPLOYEE (employee_id, employee_name, job_title, charge_hour)

Primary Key >> employee_id

EMPLOYEE_PROJECT		
<u>project id</u>	hours_billed	<u>employee id</u>
15	23.8	103
15	19.4	101
15	35.7	105
15	12.6	106
15	23.8	102
18	25.6	114
18	45.3	118
18	32.4	104
18	45	112
22	65.7	105
22	48.4	104
22	23.6	113
22	22	111
22	12.8	106
25	25.6	107
25	45.8	115
25	56.3	101
25	33.1	114
25	23.6	108
25	30.5	118
25	41.4	112

Table: EMPLOYEE_PROJECT (project id, hours_billed, employee id)

Primary Key and Foreign Key >> project id, employee id)

3: Third Normalization table form (3NF)

PROJECT		
<u>project id</u>	project_name	<i>ProjectLeader_id</i>
15	Lakeview	105
18	Web App	104
22	Blue Light	NULL
25	Power Lite	101

Table: PROJECT (project id, project_name *projecLeader_id*)

Primary Key >> project id

EMPLOYEE		
<u>employee id</u>	employee_name	<i>Job_id</i>
103	June Arbough	1
101	John News	2
105	Alice Johnson *	2
106	William Smith	3
102	David Senior	4
114	Annelise Jones	3

118	James Frommer	5
104	Anne Ramoras *	4
112	Darlene Smithson	6
104	Anne Ramoras	4
113	Jen Clarke	3
111	Geoff Wabash	7
107	Maria Alonzo	3
115	Travis Bawangi	4
108	Ralph Washington	4

Table: **EMPLOYEE** (employee_id, employee_name, job_id)

Primary Key >> employee_id

Foreign Key >> job_id

JOB		
<u>Job_id</u>	job_title	charge_hour
1	Lead Programmer	\$85.50
2	Database Designer	\$105.00
3	Programmer	\$35.75
4	Systems Analyst	\$96.75
5	General Support	\$18.36
6	DDS Analyst	\$45.95
7	Clerical Support	\$26.87

Table: **JOB** (Job_id, job_title, charge_hour)

Primary key >> job_id

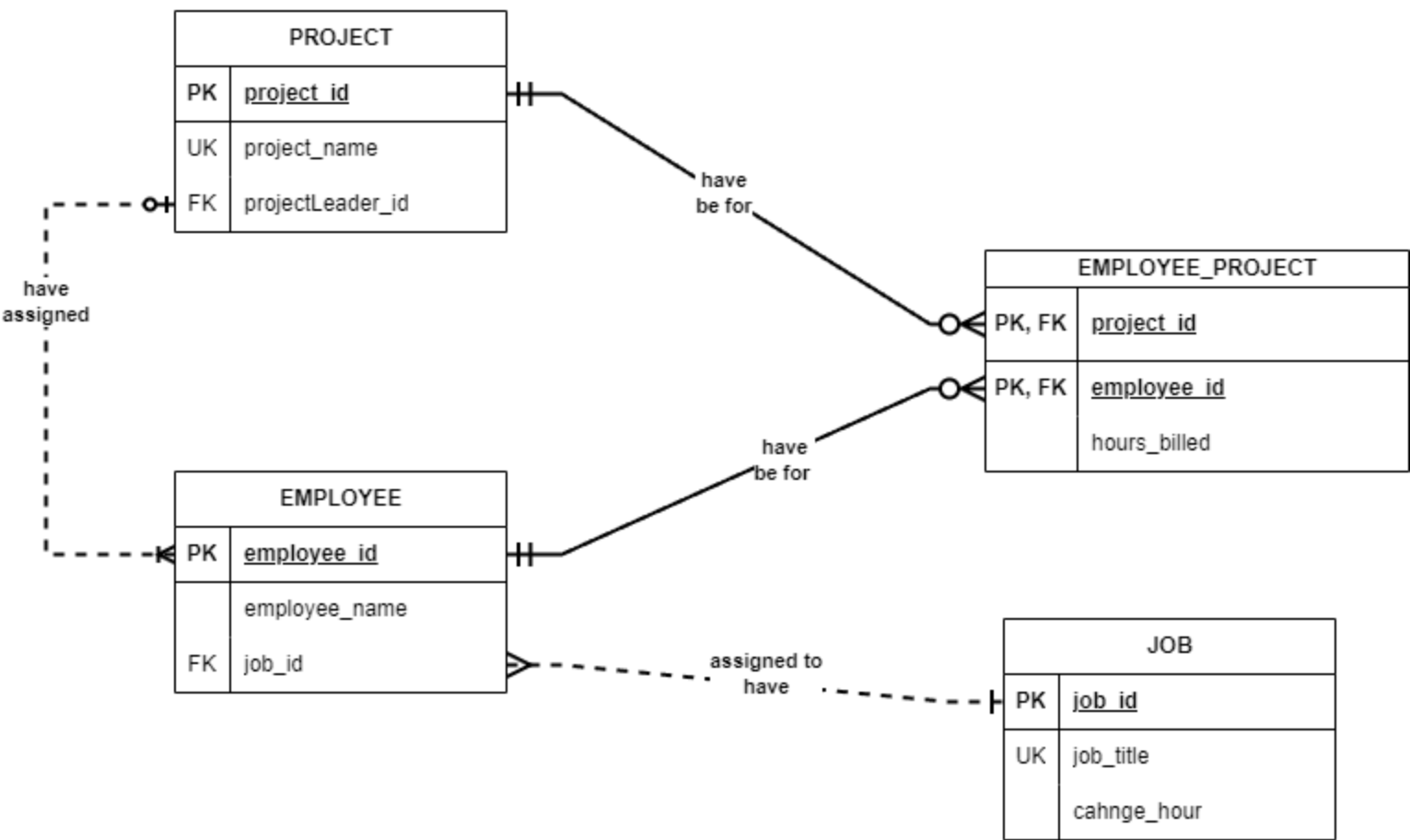
EMPLOYEE_PROJECT		
<u>project_id</u>	hours_billed	<u>employee_id</u>
15	23.8	103
15	19.4	101
15	35.7	105
15	12.6	106
15	23.8	102
18	25.6	114
18	45.3	118
18	32.4	104
18	45	112
22	65.7	105
22	48.4	104
22	23.6	113
22	22	111
22	12.8	106
25	25.6	107
25	45.8	115
25	56.3	101
25	33.1	114
25	23.6	108
25	30.5	118
25	41.4	112

Table: EMPLOYEE_PROJECT (project_id, hours_billed, employee_id)

Primary Key and Foreign Key >> project_id, employee_id)

Erd Diagram:

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Each PROJECT must be for zero or more EMPLOYEE_PROJECT.
Each EMPLOYEE_PROJECT must have one and only one PROJECT.

EACH EMPLOYEE may have zero or one PROJECT.
Each PROJECT must assigned one or more EMPLOYEE.

Each EMPLOYEE must have only one JOB
Each JOB may assigned to many EMPLOYEE.

