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** | | | | | | |
| **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 |
| 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** | | |
| **project\_id** | project\_name | **leader\_id** |
| 15 | Lakeview | 105 |
| 18 | Web App | 104 |
| 22 | Blue Light | NULL |
| 25 | Power Lite | 101 |

|  |  |  |  |
| --- | --- | --- | --- |
| **EMPLOYEE** | | | |
| **employee\_id** | 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** | | |
| **projecct\_id** | **employee\_id** | 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** | | |
| **project\_id** | project\_name | **leader\_id** |
| 15 | Lakeview | 105 |
| 18 | Web App | 104 |
| 22 | Blue Light | NULL |
| 25 | Power Lite | 101 |

|  |  |  |
| --- | --- | --- |
| **EMPLOYEE** | | |
| **employee\_id** | employee\_name | **title\_id** |
| 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** | | |
| **title\_id** | 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** | | |
| **projecct\_id** | **employee\_id** | 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