CLASS 03 – Homework

## UNNORMALIZED

Project = (ProjectNum, ProjectName, Status, StartDate, {EmployeeNum, EmployeeName, Title, DeptNum, DeptName, EmployeeProjectHours} )

**Note:**

* Each employee has only one job title.
* Each employee belongs to only one department.
* Each employee may be assigned to more than one project.
* EmployeeProjectHours is the number of hours the employee was assigned to that project.

## Conceptual

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ProjectNum | ProjectName | Status | StartDate |  |
| 1 | Database | Active | 27/03/23 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | EmployeeNum | EmployeeName | TItle | DeptNum | DeptName | EmployeeProjectHours | | 1 | Steph | Teacher | 1 | Comp Sci | 90 | | 2 | Pete | Student | 1 | Comp Sci | 70 | |
| 2 | Design | Upcoming | 30/04/23 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | EmployeeNum | EmployeeName | TItle | DeptNum | DeptName | EmployeeProjectHours | | 1 | Steph | Teacher | 1 | Comp Sci | 75 | |
| 3 | Java | Upcoming | 15/05/23 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | EmployeeNum | EmployeeName | TItle | DeptNum | DeptName | EmployeeProjectHours | | 3 | Jack | Student | 2 | Arts | 45 | |

## 1NF

Project = (ProjectNum, ProjectName, Status, StartDate, EmployeeNum, EmployeeName, Title, DeptNum, DeptName, EmployeeProjectHours )

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ProjectNum | ProjectName | Status | StartDate | EmployeeNum | EmployeeName | TItle | DeptNum | DeptName | EmployeeProjectHours |
| 1 | Database | Active | 27/03/23 | 1 | Steph | Teacher | 1 | Comp Sci | 90 |
| 1 | Database | Active | 27/03/23 | 2 | Pete | Student | 1 | Comp Sci | 70 |
| 2 | Design | Upcoming | 30/04/23 | 1 | Steph | Teacher | 1 | Comp Sci | 75 |
| 3 | Java | Upcoming | 15/05/23 | 3 | Jack | Student | 2 | Arts | 45 |

## 2NF

Project = (ProjectNum, ProjectName, Status, StartDate)

Employee = (EmployeeNum, EmployeeName, Title, DeptNum, DeptName)

EmployeeProject = (ProjectNum, EmployeeNum, EmployeeProjectHours)

PROJECT

|  |  |  |  |
| --- | --- | --- | --- |
| ProjectNum | ProjectName | Status | StartDate |
| 1 | Database | Complete | 27/03/23 |
| 2 | Design | Upcoming | 30/04/23 |
| 3 | Java | Upcoming | 15/05/23 |

EMPLOYEE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EmployeeNum | EmployeeName | TItle | DeptNum | DeptName |
| 1 | Steph | Teacher | 1 | Comp Sci |
| 2 | Pete | Student | 1 | Comp Sci |
| 3 | Jack | Student | 2 | Arts |

EMPLOYEEPROJECT

|  |  |  |
| --- | --- | --- |
| ProjectNum | EmployeeNum | EmployeeProjectHours |
| 1 | 1 | 90 |
| 1 | 2 | 70 |
| 2 | 1 | 75 |
| 3 | 3 | 45 |

## 3NF

Project = (ProjectNum, ProjectName, Status, StartDate)

Employee = (EmployeeNum, EmployeeName, Title, DeptNum)

EmployeeProject = (ProjectNum, EmployeeNum, EmployeeProjectHours)

Department = (DeptNum, DeptName)

PROJECT

|  |  |  |  |
| --- | --- | --- | --- |
| ProjectNum | ProjectName | Status | StartDate |
| 1 | Database | Complete | 27/03/23 |
| 2 | Design | Upcoming | 30/04/23 |
| 3 | Java | Upcoming | 15/05/23 |

EMPLOYEE

|  |  |  |  |
| --- | --- | --- | --- |
| EmployeeNum | EmployeeName | TItle | DeptNum |
| 1 | Steph | Teacher | 1 |
| 2 | Pete | Student | 1 |
| 3 | Jack | Student | 2 |

EMPLOYEEPROJECT

|  |  |  |
| --- | --- | --- |
| ProjectNum | EmployeeNum | EmployeeProjectHours |
| 1 | 1 | 90 |
| 1 | 2 | 70 |
| 2 | 1 | 75 |
| 3 | 3 | 45 |

DEPARTMENT

|  |  |
| --- | --- |
| DeptNum | DeptName |
| 1 | Comp Sci |
| 2 | Arts |

## E/R Diagram

Diagram

Description automatically generated

# Exploring Other Scenarios – Not part of the normalization

PROJECT

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ProjectNum | ProjectName | Status | DeptNum | StartDate |
| 1 | Database | Complete | 1 | 27/03/23 |
| 2 | Design | Upcoming | 2 | 30/04/23 |
| 3 | Java | Upcoming | 1 | 15/05/23 |

EMPLOYEE

|  |  |  |  |
| --- | --- | --- | --- |
| EmployeeNum | EmployeeName | TItle | DeptNum |
| 1 | Steph | Teacher | 1 |
| 2 | Pete | Student | 1 |
| 3 | Jack | Student | 2 |

EMPLOYEE\_DEPTARTMENT

|  |  |  |
| --- | --- | --- |
| EDNum | DeptNum | EmployeeNum |
| 1 | 1 | 1 |
| 2 | 1 | 2 |
| 3 | 2 | 1 |
| 4 | 3 | 3 |

EMPLOYEEPROJECT

|  |  |  |
| --- | --- | --- |
| ProjectNum | EDNum | EmployeeProjectHours |
| 1 | 1 | 90 |
| 1 | 2 | 70 |
| 2 | 1 | 75 |
| 3 | 3 | 45 |

DEPARTMENT

|  |  |
| --- | --- |
| DeptNum | DeptName |
| 1 | Comp Sci |
| 2 | Arts |