Case1: Company system – UNF table

EmployeeID	EmployeeName	Department	Projects	Manager
E001	Ahmed	IT	P101:Website, P102:Mobile App	Eng. Khalid
E002	Salim	HR	P103:Recruitment	Ms. Amal
E003	Aisha	IT	P102:Mobile App, P104:Database Upgrade	Eng. Khalid

▪ Convert to 1NF (atomic values only)

Company				
EmployeeID	EmployeeName	Department	Projects	Manager
E001	Ahmed	IT	P101: Website	Eng. Khalid
E001	Ahmed	IT	P102: Mobile App	Eng. Khalid
E002	Salim	HR	P103: Recruitment	Ms. Amal
E003	Aisha	IT	P102: Mobile App	Eng. Khalid
E003	Aisha	IT	P104: Database Upgrade	Eng. Khalid

▪ Convert to 2NF (no partial dependency)

Employee	
EmployeeID	EmployeeName
E001	Ahmed
E002	Salim
E003	Aisha

Department

DepartmentID	Department	Manager
1	IT	Eng. Khalid
2	HR	Ms. Amal

Projects

ProjectID	ProjectName
P101	Website
P102	Mobile App
P103	Recruitment
P104	Database Upgrade

Employee_Department

EmployeeID	DepartmentID
E001	1
E002	2
E003	1

Employee_Project

EmployeeID	ProjectID
E001	P101
E001	P102
E002	P103
E003	P102
E003	P104

- Convert to 3NF (no transitive dependency)

Employee

EmployeeID	EmployeeName
E001	Ahmed
E002	Salim
E003	Aisha

Department

DepartmentID	Department	Manager
1	IT	Eng. Khalid
2	HR	Ms. Amal

Projects

ProjectID	ProjectName
P101	Website
P102	Mobile App
P103	Recruitment
P104	Database Upgrade

Employee_Department

EmployeeID	DepartmentID
E001	1
E002	2
E003	1

Employee_Project

EmployeeID	ProjectID
E001	P101, P102
E002	P103
E003	P102, P104