**CSC 572 – Advanced Database Concepts HW #2**

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**USER VIEW DBDLs**

*NOTE: Trivial functional dependencies are not listed.*

**USER VIEW 1**

**Entity:**

Employee, OfficeLocation, Job, Group

**Attributes:**

EmpID, EmpFirstName, EmpLastName, OffLocID, JobID, JobTitle, GroupID, GroupName

**Functional Dependencies:**

EmpID --> EmpID, EmpFirstName, EmpLastName, OffLocID, JobID, GroupID

JobID --> JobID, JobTitle

GroupID --> GroupName

**Primary Key:**

EmpID, OffLocID, JobID, GroupID

**Special Restrictions:**

Unique constraint on JobTitle

Unique constraint on GroupName

**DBDL 3NF:**

Employee(EmpID, EmpFirstName, EmpLastName, OffLocID, JobID, GroupID)

OfficeLocation(OffLocID)

Job(JobID, JobTitle)

Group(GroupID, GroupName)

FK OffLocID --> OfficeLocation

FK JobID --> Job

FK GroupID --> Group

SK JobTitle

SK GroupName

**USER VIEW 2**

**Entity:**

Employee, Project, EmployeeProject

**Attributes:**

EmpID, EmpFirstName, EmpLastName, ProjID, ProjName, EmpPercentTimeAssigned, EmpTotalHoursWorked

**Functional Dependencies:**

EmpID --> EmpID, EmpFirstName, EmpLastName

ProjID --> ProjName

EmpID, ProjID --> EmpPercentTimeAssigned, EmpTotalHoursWorked

**Primary Key:**

EmpID, ProjID

**Special Restrictions:**

Unique constraint on ProjName

**DBDL 3NF:**

Employee(EmpID, EmpFirstName, EmpLastName)

Project(ProjID, ProjName)

EmployeeProject(EmpID, ProjID, EmpPercentTimeAssigned, EmpTotalHoursWorked)

FK EmpID --> Employee

FK ProjID --> Project

**USER VIEW 3**

**Entity:**

Employee, Project, Customer

**Attributes:**

EmpID, EmpFirstName, EmpLastName, ProjID, ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID, CustName, CustContactFirstName, CustContactLastName

**Functional Dependencies:**

EmpID --> EmpID, EmpFirstName, EmpLastName

ProjID --> ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID

CustID --> CustName, CustContactFirstName, CustContactLastName

**Primary Key:**

EmpID, ProjID, CustID

**Special Restrictions:**

Unique constraint on ProjName

ProjType can only contain values 'maintenance', 'database', 'support', or 'reports'

ProjStatus can only contain values 'planning', 'in progress', 'on hold', 'completed'

Unique constraint on CustName

**DBDL 3NF:**

Employee(EmpID, EmpFirstName, EmpLastName)

Project(ProjID, ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID)

Customer(CustID, CustName, CustContactFirstName, CustContactLastName)

FK CustID --> Cust

FK ProjLeaderID --> Employee

SK CustName

SK ProjName

**USER VIEW 4**

**Entity:**

Employee, Job, Group, Project, EmployeeProject

**Attributes:**

EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, JobID, JobTitle, GroupID, GroupName, ProjID, EmpPercentTimeAssigned, EmpTotalHoursWorked

**Functional Dependencies:**

EmpID --> EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, JobID, GroupID

JobID --> JobID, JobTitle

GroupID --> GroupName

EmpID, ProjID --> EmpPercentTimeAssigned, EmpTotalHoursWorked

**Primary Key:**

EmpID, JobID, GroupID, ProjID

**Special Restrictions:**

Unique constraint on EmpWorkPhone

Unique constraint on JobTitle

Unique constraint on GroupName

**DBDL 3NF:**

Employee(EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, JobID, GroupID)

Job(JobID, JobTitle)

Group(GroupID, GroupName)

Project(ProjID)

EmployeeProject(EmpID, ProjID, EmpPercentTimeAssigned, EmpTotalHoursWorked)

FK EmpID --> Employee

FK JobID --> Job

FK GroupID --> Group

FK ProjID --> Project

SK EmpWorkPhone

SK JobTitle

SK GroupName

**CUMULATIVE DBDL**

*NOTE: Trivial functional dependencies are not listed.*

**Entity:**

Employee, OfficeLocation, Job, Group, Project, Customer, EmployeeProject

**Attributes:**

EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, OffLocID, JobID, JobTitle, GroupID, GroupName, ProjID, ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID, CustName, CustContactFirstName, CustContactLastName, EmpPercentTimeAssigned, EmpTotalHoursWorked

**Functional Dependencies:**

EmpID --> EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, OffLocID, JobID, GroupID

JobID --> JobID, JobTitle

GroupID --> GroupName

ProjID --> ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID

CustID --> CustName, CustContactFirstName, CustContactLastName

EmpID, ProjID --> EmpPercentTimeAssigned, EmpTotalHoursWorked

**Primary Key:**

EmpID, OffLocID, JobID, GroupID, ProjID, CustID

**Special Restrictions:**

Unique constraint on EmpWorkPhone

Unique constraint on JobTitle

Unique constraint on GroupName

Unique constraint on ProjName

ProjType can only contain values 'maintenance', 'database', 'support', or 'reports'

ProjStatus can only contain values 'planning', 'in progress', 'on hold', 'completed'

Unique constraint on CustName

**DBDL 3NF:**

Employee(EmpID, EmpFirstName, EmpLastName, EmpWorkPhone, OffLocID, JobID, GroupID)

OfficeLocation(OffLocID)

Job(JobID, JobTitle)

Group(GroupID, GroupName)

Project(ProjID, ProjName, ProjType, ProjStatus, ProjStartDate, ProjEndDate, ProjFundsBudgeted, ProjPersonHoursBudgeted, ProjLeaderID, CustID)

Customer(CustID, CustName, CustContactFirstName, CustContactLastName)

EmployeeProject(EmpID, ProjID, EmpPercentTimeAssigned, EmpTotalHoursWorked)

FK OffLocID --> OfficeLocation

FK JobID --> Job

FK GroupID --> Group

FK ProjLeaderID --> Employee

FK CustID --> Customer

FK EmpID --> Employee

FK ProjID --> Project

SK EmpWorkPhone

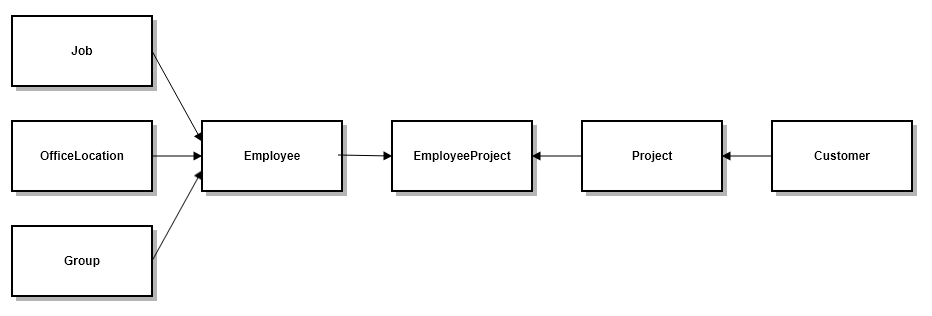
SK JobTitle

SK GroupName

SK ProjName

SK CustName

**DATA STRUCTURE DIAGRAM**

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