Project 1

Your task:

You are asked to create a database design that will store information for the business problem described below. The business problem describes the data that we need to store in a logical way. It is up to you to break it up into tables.

You are required to normalize the design to at least the 2nd normal form, possibly 3rd (I'll leave the exact design up to you, but make sure that you can defend your choice of data organization based on what you learned in class).

For project 1 you will submit your design as a Visio/Word/PDF drawing, which will display all tables, columns, keys (primary and foreign), null-ability and relationships between the tables. You also may submit a short description of your design, or to explain any non-obvious design choices (no more than a 1/3 of a page).

Requirements:
1. You **shall** normalize your design to 2nd or 3rd normal form.
2. Your deliverable **shall** contain the following information:
    a) table names
    b) column names
    c) primary keys
    d) foreign keys
    e) relationships between tables
    f) whether the column is required or not
3. You **shall** hand in a Visio or Word/PDF diagram of your design.
4. Your deliverable **shall** contain all data points described in the business problem.
5. You **shall** follow naming standards covered in class for your tables and columns.

Business Problem:

You will create a database for a university. The following is a list of all data that we are interested in storing:

Students
- student ID #
- NTID
- password
- SSN
- first name
- middle name
- last name
- date of birth

- gender
- race/ethnicity (google for new standard if needed)
- email address
- mailing address
- cell phone
- status: active, suspended, in-active
- student type: new freshmen, continue, transfer, re-admitted, new graduate, continue graduate
- major/minor (belong to which college)
- student level: undergraduate, graduate

Employees
- employee ID #
- NTID
- password
- SSN
- first name
- middle name
- last name
- date of birth
- gender
- race/ethnicity (google for new standard if needed)
- email address
- mailing address
- cell phone
- annual salary
- benefits
    o insurance: health, vision, dental
    o cover type includes employee only, employee with children only, employee with spouse only, employee with family
    o employee premium amount
    o employer premium amount
- job information:
    o job code
    o job title: lecturer, assistant prof., associate prof., full prof.
    o job description

- o job type:
  - faculty
  - staff
- o min pay
- o max pay

Semesters
- semester (Fall, Spring, Summer Session I, Summer Session II, Combined Summer Session)
- year
- begin date
- end date

Courses
- course information
  - o course code (e.g. CSE)
  - o course number (e.g. 581)
  - o course title
  - o course department
  - o course description
  - o course level: undergraduate, graduate
  - o credit hours
  - o course prerequisites (pointing to other course(s) – could be 0 – unlimited number of prerequisites)
- course schedule
  - o course semester
  - o CRN (course registration number): e.g. 19261, 19427
  - o course section: e.g. M001, M002
  - o instructor teaching the course
  - o course time:
    - days of the week
    - start, end hours and minutes
  - o classroom
    - building, level, room #
    - classroom type: lab, instruction
    - classroom capacity (seat #)
    - classroom equipment (what projector? White board number?)
  - o actually enrollment #
  - o list of enrolled students:
    - student ID

- status: enrolled, dropped, audit
- mid-term grade
- final grade

Roshan Khandelwal   627771581

DBMS Project 1

Classroom

PK	ClassroomID	Required
	Building	Required
	Level	Required
	RoomNumber	Required
	ClassroomType	Required
	Capacity	Required
	Equipment	Required

CoursesInformation

PK	CourseID	Required
	CourseCode	Required
	CourseNumber	Required
	CourseTitle	Required
	CourseDepartment	Required
	CourseDescription	Required
	CourseLevel	Required

Semesters

PK	SemesterID	Required
	Semester	Required
	Year	Required
	BeginDate	Required
	EndDate	Required

CourseSchedule

PK	ScheduleID	Required
FK	CourseID	Required
FK	SemesterID	Required
	CRN	Required
	CourseSection	Required
FK	InstructorID	Required
	StartTime	Required
	EndTime	Required
FK	ClassroomID	Required
	EnrolmentNumber	Required

EnrolledStudents

PK	EnrollmentID	Required
FK	StudentID	Required
FK	ScheduleID	Required
	Status	Required
	MidTermGrade	Required
	FinalGrade	Required

CoursePrerequisites

FK	CourseID	Required
FK	PrerequisiteCourseID	Required

Employees

PK	EmployeeID	Required
FK	JobCode	Required
	NTID	Required
	Password	Required
	SSN	Required
	FirstName	Required
	MiddleName	
	LastName	Required
	DOB	Required
	Gender	Required
	RaceEthnicity	Required
	Email	Required
	MailingAddress	Required
	Cellphone	
	AnnualSalary	Required
	StudentLevel	Required

MajorMinors

FK	MajorMinorID	Required
	MajorMinorName	Required
	CollegeName	Required

Students

PK	StudetID	Required
FK	MajorMinorID	Required
	NTID	Required
	Password	Required
	SSN	Required
	FirstName	Required
	MiddleName	
	LastName	Required
	DOB	Required
	Gender	Required
	RaceEthnicity	Required
	Email	Required
	MailingAddress	Required
	Cellphone	
	Status	Required
	StudentType	Required
	StudentLevel	Required

Benefits

PK	BenefitID	Required
FK	EmployeeID	Required
	InsuranceType	Required
	CoverType	Required
	EmployeePremium	Required
	EmployerPremium	Required

JobInformation

PK	JobCode	Required
	JobTitle	Required
	JobDescription	Required
	Minpay	Required
	MaxPay	Required