# Homework 3

Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Q1. Look at the data table below. Convert it to BCNF. Show the steps for 1NF, 2NF, 3NF, BCNF. In each step, explain why it is in or not in a specific normal form, and discuss your solutions to transform them into the corresponding normal form [20 points]**

表格

描述已自动生成

**Q2. Given the tables below, figure out super keys, candidate keys, primary keys, secondary keys and foreign keys [10 points]**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| EmpID | Name | BirthYear | Gender | Address | SSN | DeptID | Email |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| DeptID | Name | Address | DeptHead |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Q3. Below is the diagram for a university dinning service [20 points]**

**In this scenario, we assume that the work schedule is defined for each specific event, and one staff may work for different positions on different events.**

**a). identify the relationships for STAFF-STAFF, and explain why**

**b). determine the normal form for each entity, if it is not in 3NF, convert it to 3NF**

图示

描述已自动生成

**Q4. DB Design [50 points]**

Text

Description automatically generated

Note: you can directly give the ERD in physical DB design, but you must make sure it is in 3NF.