

**Northeastern Illinois University**  
**CS315, Modern Database Management**  
**Homework 7**

Submission: Type all your SQL code for each step AND output, then save it in a .pdf file.  
Submit the **PDF** file to the dropbox on D2L.

All your work should be unique and done by yourself. **DO NOT** copy answers from other students or from the internet. plagiarism is **NOT** tolerated.

**Normalization**

The table below represents employees working on various contracts.

| empID | contractNo | hours | lastName | firstName | state    | branchNo |
|-------|------------|-------|----------|-----------|----------|----------|
| 1135  | C1024      | 16    | Smith    | John      | Illinois | 1        |
| 1057  | C1024      | 16    | Smith    | Harry     | Illinois | 1        |
| 1058  | C0006      | 20    | Simpson  | Maggie    | Illinois | 2        |
| 1068  | C1025      | 20    | Peters   | Linda     | Maryland | 3        |
| 1135  | C1025      | 20    | Smith    | John      | Maryland | 3        |
| 1068  | C5321      | 40    | Peters   | Linda     | Maryland | 3        |
| 1234  | C6651      | 15    | Potter   | Harry     | New York | 4        |
| 1234  | C5321      | 40    | Potter   | Harry     | Maryland | 3        |

- 1- What is the primary key?
- 2- Please list all functional dependencies that violate 2NF?
- 3- Please list all functional dependencies that violate 3NF?
- 4- Fix any 2NF violations and draw the new tables you have and their attributes. Fill in the rows. Remember to remove redundant rows. Specify the primary key by underlining the appropriate attribute(s) for each table.
- 5- Using the latest updated tables, fix any 3NF violations and draw the new tables you have and their attributes. Fill in the rows. Remember to remove redundant rows. Specify the primary key by underlining the appropriate attribute(s) for each table.

**General Instructions:**

- Do not send your files through the email!
- You should submit your work by the due date, **No** extensions will be given. (See syllabus for late homework policy).

**What to turn in:**

You should turn in **ONE PDF** file that contains all your answers. Submit the PDF file to the proper dropbox on D2L.