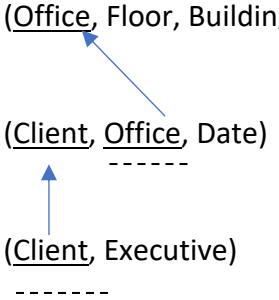
Daniel O'Brien
DSC450
01/17/21

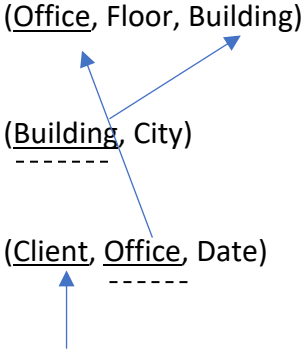
PART 2

a. There is a functional dependency for building and city in the meeting table, because each building refers to which city the building is located in. For instance, if the building is named, "Willis Tower" and is located in "Chicago" every time a meeting takes place at Willis Tower the table will be updated with both Willis Tower as the building and Chicago as the city. This is an example of functional dependency, because every time Willis Tower is referenced, Chicago will also be referenced. In this example, Willis Tower is referred to as the determinant and Chicago is the dependent attribute. This type of redundancy leads to wasted space, and can cause anomalies with modification, deletion or insertion of values. For an example of a potential issue, if a meeting was mistakenly recorded as taking place at Willis Tower instead of the correct location of Terminal Tower (Cleveland) the record would need to be modified, however, every instance of city would also be impacted and need to be adjusted as well. A decomposition would be appropriate to separate these values to avoid the repetition.

b. I removed Client, Office, and date, because client and office determine the date of the meeting. I also removed client and executive, because client determines executive. I kept office, floor, building and city in the original table, because office determines floor, building and city.



c. For part c, I separated city and placed it in a table with building, because building determines city. I separated these values, because there was an issue of transitive dependency where office and building determined the city.



(Client, Executive)

Part 3
a. This schema is in 2NF because every attribute in the table is determined by the entire primary key. Additionally, the two primary keys do not determine any additional information on their own.

b. This table is not in 3NF because there is a violation of transitive dependency, because GPA determines Honors as well as First and Last which are the current primary keys. In order for this schema to meet 3NF expectations, GPA will remain in the original table and join a new table with Honors and Honors will be removed from the first table.

(First, Last, GPA, Credits)

(GPA, Honors
