Deliverable 1: Knowing Your Own Data

Karishma Patel, Emily Boyes, Linden Walus, Truth Iyiewuare

Property Rental System Database Requirements

1. **Minutes of the Meeting of the Property Rental System Group**

Meeting 1 Minutes

**February 7th, 2017**

**Leyburn Library: Main Floor**

**Linden Walus, Presiding Officer**

**Karishma Patel, Recording Officer**

**Truth Iyiewuare**

**Emily Boyes**

**Walus called the meeting to order at 2:30 pm. After informal introductions, the group decided to lay out a plan for the meeting, as this was the first time the group met as a team.**

***Business Agenda:***

**Iyiewuare proposed that the meeting start by reviewing the scenario individually and noting significant fields. All members voted in favor, and proceeded to reread the case.**

**Patel proposed that the meeting tasks be laid out for clarity, and suggested completing tasks in the following order:**

* **Compose a set of fields to make the system function as specified**
  + **List potential questions for CTO Jason T. Mickel, as requirements are discovered**
* **Develop two queries that show understanding of database**
* **Compose a list of business requirements**
* **Create possible revisions for the scenario**

**All members voted in favor.**

**After reading the scenarios, Walus presented a list of fields from the first paragraph. Patel suggested splitting up the fields for the property owners into two entities to distinguish between business owners and individual owners, because each owner type has a different set of associated fields. All members voted in favor.**

**Boyes suggested that the team create the list of fields for the properties next. All members voted in favor.**

**All property-related fields were listed, but the team was confused exactly how the database relations would work for the property. Boyes suggested that the property table may be connected by a relationship “Managed By” to determine who managed the property. Walus brought up the point that our IT team was only responsible for creating a list of the fields, and the consulting team would be responsible for establishing relationships between various tables. Iyiewuare proposed setting this aside as a question for the CTO. All members voted in favor, and Patel highlighted the relation for further review.**

**Patel then suggested creating fields related to the advertisements. She suggested starting with an advertisementID. Boyes questioned whether an advertisementID field was needed and stated her interpretation of the paragraph on advertisements. The group could not figure out if there would only be one advertisement for a given property that was distributed to various newspapers on varying dates or if a property could have multiple advertisements of various types. Patel suggested to add this question to the list for the CTO to review, and all members voted in favor. Iyiewuare added the question to the list.**

**Walus suggested making the fields related to the rental agreement and the renter (divided into individual and business). All members voted in favor and worked together to create a list.**

**Iyiewuare proposed a possible list of fields related to the staff. Boyes suggested separating the fields based on those attributed to a staff member and those attributed to a company branch. All members voted in favor and created the two separate sets of attributes.**

**Patel then suggested writing the queries. All members voted in favor. Patel proposed a potential query, to which Boyes provided a modification to show a better understanding of the database. All members voted in favor. Iyiewuare proposed a potential query, to which Walus provided a modification to show a better understanding of the database. All members voted in favor.**

**Walus then suggested moving on to the business requirements. All members voted in favor. Patel pulled up a past example and Iyiewuare presented a textbook example. All members worked together to create a list of requirements that would tie the hypothetical entities together.**

**Throughout this whole process, various other questions were added to the list of questions to present the CTO.**

**Walus adjourned the meeting at 4:00 pm. The next meeting time is to be decided and scheduled over the weekend. Patel is to email the list of questions to the CTO for clarity and set up a meeting with him for next week.**

**Signed, Linden Walus, chairman Karishma Patel recording officer**

Meeting 2 Minutes

Date: February 11, 2018

Location: Leyburn Library, Main Floor

Emily Boyes, Presiding Officer

Truth Iyiewuare, Recording Officer

Karishma Patel

Linden Walus

Boyes called the meeting to order at 2:30pm. All members were present. This is the second time the team has met for the project. Using the additional information about how to revise the project scenario based on our questions to the CTO, the group decided to carry out revisions of the project scenario first.

*Business Agenda:*

First, the group decided to clarify the kinds of properties that could be rented out by a renter. Patel retrieved a list of property types from Wikipedia to get an idea of what kinds of properties we want the company to manage. Based on that list, all members voted in favor of using the following types: Commercial, Residential, Industrial, Religious.

The group then worked together on revising the first paragraph of the scenario, with everyone giving suggestions and Patel also writing the actual revisions. Many of the revisions were based on the answers to the questions we were given by the CTO, and are detailed below.

After looking at the part in the scenario that said the type of business should be recorded, the group wondered what exactly constituted as a type of business. Boyes brought up a list of business industries, again, to get an idea of potential business categories. All members discussed the information found by Boyes and Patel detailed the chosen business types in the scenario revision.

The group then moved on to revising the required fields related to properties. Walus recommended making sure all the possible property types listed above were put in the scenario for consistency. All members voted in favor and Patel made the additions in the scenario.

Then, the group decided to clarify the rules about advertisements and newspapers. Boyes and Walus proposed that each property have one advertisement that can be posted in various newspapers, so long as only one advertisement is posted per day per property. All members voted in favor.

The CTO mentioned that it may be helpful to store the contact information for a person at each newspaper company that manages ad sales. The team decided to store the newspaper’s website, phone number(s), email address, and address for the contact person. Patel proposed making the website an optional field, and all members voted in favor.

The team then moved on to the second paragraph, about renters, owners, and rental agreements. The team has a discussion and clarified that for simplicity, there is one responsible party for making rentals – a single person or a single business.

In terms of rental agreements, the team decided that the database should track the date the agreement was signed, the start date of the agreement, and the end date. The team discussed if the rental agreements should have signatures from both the renter and owner or if just a signature from the renter would suffice. After some deliberation, the group decided that only a signature from the renter would be necessary, which would signify the date that the agreement was signed.

The team also deliberated at what point a renter would be entered into the database. Iyiewuare thought maybe renters would be entered once they sign up for the property rental service. The team figured the consultants would have input on how to organize the renters and realized that this was a question to be decided in a later process.

The team also wondered what was meant by “branch” – a location or a business type? Boyes suggested that it might refer to the type of business (Sales Branch, for example), and Iyiewuare mentioned that it may also refer to location (DC Branch, for example). Patel suggested we put this as one of the questions to ask the CTO. All members voted in favor.

The team noticed some ambiguity in the original scenario on who exactly each renter is in contact with from the overseeing branch. Each property is in care of one branch, and a unique staff member from the branch oversees each property. Boyes proposed that perhaps this means that the renter is only in contact with the unique staff member that oversees the property. Because the team could not determine the specifics, Patel added the question to the list for the CTO.

For the staff portion of the scenario, the team decided that each staff member should have a unique staff id, address, name, email address, at least one phone number, position, and salary. The team clarified that each staff member is either a manager of a branch or has someone that manages them.

The team then set out to revise some of the previous business requirements. Patel suggested adding a couple business requirements clarifying that each renter is in contact with only the branch overseeing their property or properties. Walus mentioned adding the requirement that each property can only have one ***active*** rental agreement at a time, and not just one agreement at a time, just for clarification. All members voted in favor of these changes.

The group compiled a few more questions to ask the CTO for Patel to ask him during their meeting on Monday.

Boyes moved to adjourn the meeting at 3:55pm. The group voted in favor.

Signed, Emily Boyes, Presiding Officer, and Truth Iyiewuare, Recording Officer

Meeting 3 Minutes

**February 13th, 2017**

**Science Building, classroom A214**

**Linden Walus, Presiding Officer**

**Emily Boyes, Recording Officer**

**Truth Iyiewuare**

**Karishma Patel**

**Walus called the meeting to order at 1:35 pm. The meeting began with a review of the questions from the previous meeting and responses from the CTO.**

***Business Agenda:***

**The agenda for this meeting solely consisted of making final changes and finishing touches. The team’s goal was to have the deliverable ready for turn in by the end of the meeting.**

**Patel shared the information she learned from CTO Jason T. Mickel with the rest of the team. After hearing the CTO’s take on the business owner’s name, the team voted in favor of including the business owner’s name as a required field.**

**The team discussed whether to use the business’s address or the business owner’s address for the address field. Based on information from the CTO and a proposal from Boyes, the group voted in favor of using the business’s address. Patel clarified that this made the most sense, as the CTO informed her that a business would only have one location (address) for the business for simplicity.**

**The team continued to revise the scenario for the property rental system for absolute clarity, with Patel leading the discussion. The group decided to divided and label the branches according to location as opposed to by business function. Patel questioned whether a branch should have a branch name in addition to a branch ID. Boyes made the point that a branch name should be added for clarity, because identifying a branch by address location does not always work. The location of an address does not necessarily encompass the greater metropolitan area. The team agreed and voted in favor of including a branch name as well as a branch address and branch ID.**

**Patel then brought up the next point of discussion from her meeting with the CTO. The group discussed the question of how contact should work between staff member(s), branch(es), and the renter. The group decided it was redundant to say that a renter should only be in contact with the property manager AND only the branch that oversees their property, so it was proposed that the clause regarding the branch contact should be removed. A renter communicating with only the manager of their property or properties implies that a renter is only communicating with the branch or branches that manage those property or properties.**

**From the requirements list, Patel mentioned that the proposed relations the group had come up with during the first meeting may not be necessary. Walus agreed that the proposed relations should be taken out because this is for the project team to decide and figure out. Giving input on relations may be limiting for the consultants. All members voted in favor.**

**The group eliminated one of the three ideas for the two queries, based on input from the CTO.**

**To finish up, all members of the group read the document again for a final review. Patel noted for clarity the document should include that** **a business/individual owner could be a renter and a renter could also be a business/individual owner. All members voted in favor and the team made the change. Similarly, the field names for these categories were further edited for complete clarity**

**The group had extensive discussions on the naming of the fields in order to make them more clear, specifically focusing on the business owner and business renter and the individual owner and individual renter. All members proposed a variety of ideas. In the end, for the sake of clarity, the team decided to refer to the two types of owners and renters (business or individual) as TypeB for businesses and TypeI for individuals. All members voted in favor and worked together to make the changes.**

**Patel moved to adjourn the meeting as all necessary items were complete. Walus adjourned the meeting at 2:30 pm. This concludes the meetings for Deliverable 1. The next meeting time is to be decided and scheduled over the break. Patel is to submit the document before this Friday, February 16, 2018.**

**Signed, Linden Walus, chairman Emily Boyes recording officer**

1. **Business Requirements**
2. A renter can rent one or more properties
3. An owner can own one or more properties
4. A business owner can also be a business renter
5. An individual owner can also be an individual renter
6. Each property is managed by one and only one branch
7. Each renter communicates with only the staff member or staff members that oversee their property or properties
8. Each renter may view a property zero or more times
9. Each property is overseen by only one staff member
10. Each property can have only one advertisement that can be displayed in one or more newspapers on one or more dates
11. Each property can its advertisement placed in one and only one newspaper each day
12. Each rental agreement consists of one renter and one owner and one property
13. Each staff member works at one and only one branch
14. Each renter can have one or more rental agreements
15. Each owner can have one or more rental agreements
16. Each property can only have one active rental agreement at a time
17. Each property is owned by one and only one owner (a business or an individual)
18. Each property is rented by one and only one renter (a business or an individual)
19. See the following set of required fields for the information desired on each entity
    1. Unless otherwise noted below, assume all fields are mandatory.
    2. Owners are split into Type B and Type I, which denote whether the property is owned by a business (Type B) or an individual (Type I)
    3. Renters are split into Type B and Type I, which denote where the renter is a business (Type B) or an individual (Type I)
20. **Set of Required Fields**

**Owner Type B    (property owner is a business)**

ownerTypeBID (*Unique*)

ownerTypeBAddress (*Composite*)

* ownerTypeBStreet
* ownerTypeBStreetNumber
* ownerTypeBCity
* ownerTypeBState
* ownerTypeBZipCode

ownerTypeBBusinessName

ownerTypeBCEOName (*Composite)*

* ownerTypeBCEOFName
* ownerTypeBCEOMName
* ownerTypeBCEOLName

ownerTypeBCEOEmail (*Multivalued*)

ownerTypeBCEOPhoneNumber (*Multivalued*)

ownerTypeBBusinessType

**Individual Owner (property owner is an individual)**

ownerTypeIID (*Unique*)

ownerTypeIName (*Composite*)

* ownerTypeIFName
* ownerTypeIMName
* ownerTypeILName

ownerTypeIAddress (*Composite*)

* ownerTypeIStreet
* ownerTypeIStreetNumber
* ownerTypeICity
* ownerTypeIState
* ownerTypeIZipCode

ownerTypeIEmail(*Multivalued*)

ownerTypeIPhoneNumber(*Multivalued*)

**Property**

propertyID (*Unique*)

propertyAddress (*Composite*)

* propertyStreet
* propertyStreetNumber
* propertyCity
* propertyState
* propertyZipCode

propertyType

**Advertisement**

propertyID

advertisementDate *(unique for each propertyID--see note)*

* *Note: multiple properties can have the same advertisementDate, but a date can only correspond with a specific property once.*

**Newspaper**

newspaperName (*Unique*)

newpaperContactName  (*Composite*)

* newspaperContactFName
* newspaperContactLName

newspaperContactPhone (*Multivalued)*

newspaperContactEmail

newspaperContactWorkAddress  (*Composite*)

* newspaperContactStreet
* newspaperContactStreetNumber
* newspaperContactCity
* newspaperContactState
* newspaperContactZipCode

newspaperWebsite (*Optional)*

**RentalAgreement**

agreementID (*Unique*)

renterID

ownerID

propertyID

agreementDateSigned

agreementStartDate

agreementEndDate

*\*\*\*Also account for the field dateOfViewing (it does not necessarily need to be a part of this entity), which is related to a renter, a property, and the date. A renter can view a property multiple times.*

**Renter Type I  (renter is an individual)**

renterTypeIID (*Unique*)

renterTypeIName (*Composite*)

* renterTypeIFName
* renterTypeIMName
* renterTypeILName

renterTypeIAddress (*Composite*)

* renterTypeIStreet
* renterTypeINumber
* renterTypeICity
* renterTypeIState
* renterTypeIZipCode

renterTypeIEmail (*Multivalued*)

renterTypeIPhoneNumber (*Multivalued*)

**Renter Type B  (renter is a business)**

renterTypeBID (*Unique*)

renterTypeBAddress (*Composite*)

* renterTypeBStreet
* renterTypeBStreetNumber
* renterTypeBCity
* renterTypeBState
* renterTypeBZipCode

renterTypeBCEOName (*Composite)*

* renterTypeBCEOFName
* renterTypeBCEOMName
* renterTypeBCEOLName

renterTypeBBusinessName

renterTypeBEmail (*Multivalued*)

renterTypeBPhoneNumber (*Multivalued*)

renterTypeBBusinessType

**Staff**

staffID (*Unique*)

staffName (Composite)

* staffFName
* staffMName
* staffLName

staffAddress (Composite)

* staffStreet
* staffStreetNumber
* staffCity
* staffState
* staffZipCode

staffEmail

staffPhone *(Multivalued*)

staffPosition

staffSalary

staffBranchID

managerID (*Optional)*

**Branch**

branchID (Unique)

branchName

branchWebsite (*Optional)*

branchPhone (*Multivalued)*

branchAddress (*Composite*)

* branchStreet
* branchStreetNumber
* branchCity
* branchState
* branchZipCode

1. **Ten Given Queries**
2. List the staff id and salary of each of the staff members whose salary is greater than 5000. Sort by the staff number.
3. List the renter number and name of each of the renters who has a viewing record. Avoid duplicates.
4. List the unique dates of all the advertisements posted in The *News Leader* in 2016.
5. List all email addresses and the renter number for all private renters. Sort by the renter number.
6. Find properties that are advertised but not yet rented.
7. List the names and the branch numbers of all the staff members working in the branch which is located in Roanoke. The names should be listed in alphabetical order by last, then first, then middle name.
8. List the staff id and the names of all the workers who live on the same street, city, and state as their manager. Names should be listed in alphabetical order.
9. Find the branch number and the average salary of the branch that has the highest average salary.
10. Find the owners and renters who have 2 or more phone numbers. Only list the customer number and type of customer.
11. Assuming that each advertisement costs $150, give the branch number and the amount spent on the advertisements for each branch.
12. **Two Additional Queries**
13. Find all properties for which an advertisement was placed in any newspaper between August and October 2013.
14. List the phone numbers of each of the top three branches that manage the most properties. Sort in descending order by number of properties managed.