Assignments

Assignment 1 - 2023 - Not Started

Assignment Details

Title	Assignment 1 - 2023
Student	Yulun Feng
Grade Scale	Points (max 100.00)

Instructions

Assignment 1

Objectives:

Upon completion of this assignment, you should be able to:

- read a situation/scenario that describes data and then represent a model of the data and the relationships between the data using and ER diagram
- map your ER diagram to a relational database.
- insert nodes into a B+ tree given the order of the B+ tree

NOTE: You MUST have signed up with kritik.io in order to complete this assignment!

Part 1:

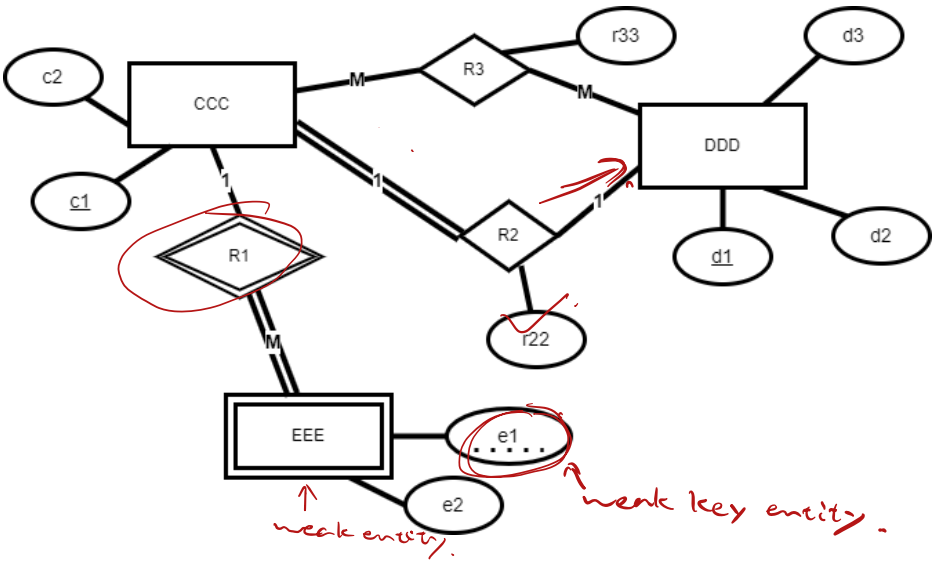
Draw the complete Entity Relation Diagram for the following scenario

Consider the following set of requirements for a hockey database that is used to keep track of the hockey schedule during the regular season:.

- There are several teams. Each team has a unique name, a mascot, city, province and 2 or 3 team colours.
- A team consists of 24 players. Each player is assigned to a team, no player is a free agent. A player has a unique playerid, a shirt number, a first and last name, a position and a birthdate. A player plays for the same team all season.
- One of the players on each team is the captain of the team and the date that they started as captain should be kept.
- A team plays in 16 regular games during the season. A game has a unique game number and a date that it was played and a time it is played. The score of the team for each game should be kept. Every team must play in 16 games. Teams do not default on games in this league
- A game is played at an arena. The arena has a unique arena id, a name, a city, a province and a seat capacity. Depending on the schedule, arenas may or may not have games assigned to them.
- Keep track of which players played in which games. For this relationship, keep track of their goals per game and their assists per game. A player might not play in every game but a game would always have at least 6 players starting on the ice.

If I have not explicitly stated something, then there is an obvious choice. Do not add any extra relationships that you assume should exist, just include the ones mentioned above.

Show both the cardinality of the relationships (the 1:M notation on the lines) and the participation (include both the (min, max) constraints AND the double line/single line notation). You must use the notation for the



CCC

c1 c2.

R3

c1* d1* r3}

R1

c1* e1*

DDD

d1 d2 d3. r22*.

EEE

e1 e2 c1*.

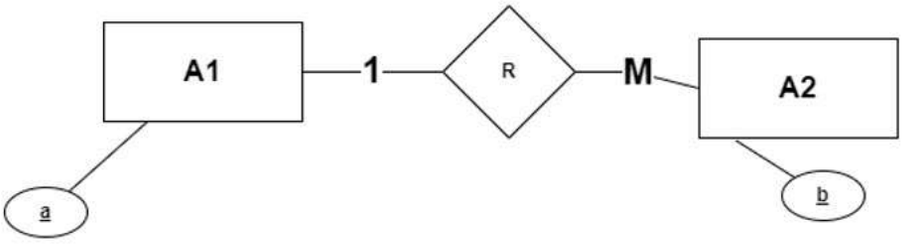
ER diagrams that I have showed in my videos (Entities(Rectangles), Attributes(Ovals), Relationships (Diamonds)...etc). Do NOT include any extra information than is given above to illustrate the above database. For each entity, underline the attribute you would pick to be the primary key (if it is a weak entity, remember to use a dashed underline). I have given you enough information to be VERY specific on each of the (min,max) values.

You will be marked on choosing the best solution, some solutions may work but may not be the best. Do NOT use the Crows Foot Notation.

Use draw.io, MS Visio, or some other software that create E-R diagrams to create your E-R Diagram. Do NOT hand draw your solution. If you use draw.io, to create a pdf do File>Print and then select the .pdf.

Part 2:

Map **this given Entity Relationship Diagram (click on this link to see the ER diagram you are to map)** to a Relational Database ***conceptually*** (you don't have to make it in an actual DBMS, just visually represent it), showing all tables, column heading, keys (primary and foreign, indicate if the key is primary with an underline and/or foreign with a star *). You may use MS Word to draw the tables, or MS Access and then take screenshots of the tables. Do NOT hand draw it. Just give the names you would give to each table and the names for the fields. It should basically be the top row of each of the tables required to turn the given ER diagram into a relational database. You do not need to include any sample data, just include the column/field headings. For example, if you were making a relational database for this ER diagram:



then your answer would look like this:

A1

a

A2

b	a*

Make sure you include ALL the tables required to map the given ER diagram to the relational database.

Part 3:

NOTE: This part can be hand drawn. First, write down the numbers 1 to 10 and write your answers to the following 10 questions next to the numbers at the top of a sheet. Then start to show the insertion of your answers into the tree as you insert your answers into the tree IN THE ORDER YOU ANSWERED THE QUESTIONS AS SHOWN BELOW. You must go to left for <= in the tree and to the right for > . Use the first

letter(s) of each word (and then second letter and third letter and so on, if necessary, e.g. Ant comes before Apple) to decide where in the tree they should go and ignore the case. Start with an an initially empty B+-tree with 2 keys and 3 pointers per node. As you start the steps to insert your answers into the tree, in step 1, you should show the root node with the your answer to question 1 into the root node, then in step 2, you should show you inserting the word that is the answer to question 2, etc...You must show each step as the tree is being built. Put a horizontal line between each step. Make sure you show the tree with the actual word(s) in it at each step, NOT a numerical representation of the words. Show the tree after the insertion of each item. Remember to show ALL pointers on every step (show NULL pointers as an O with a line through it, ie. Ø) and show the Hard Disk on every step.

1. What is your first name?
2. What is your favourite dessert?
3. What is your favourite fish (to look at OR to eat!)?
4. What is the name of the country where your mother's mother (your grandmother) was born?
5. What is the month of your birthday?
6. What is your favourite vegetable?
7. What is the course code of your favourite course at Western (e.g. CALC1000)
8. What is your favourite flower?
9. What is the name of the movie that scared you the most as a child?
10. What is the last name of the person (living or dead, real or imaginary) that would you most like to have a coffee with?

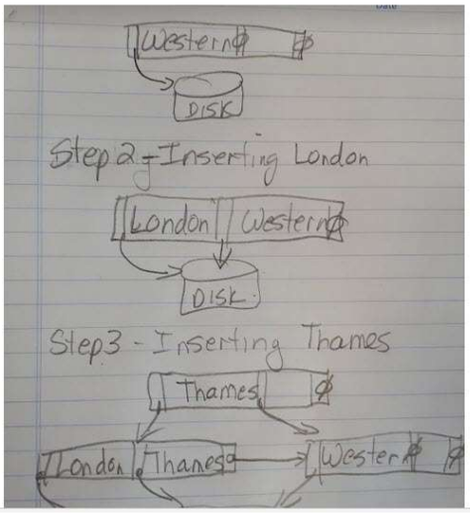
Here is a the start to a sample answer assuming the questions were: 1. what university do you go to? 2. what city is it in? 3. what river is the university on?

Sample part 3 (this is not the answer, just a sample of what you should be doing.

My answers to the 10 questions:

1. Western
2. London
3. Thames
4. ...

Step 1 – Inserting Western



Late Penalty:

You may submit the assignment at most 3 days later than the due date. For each day that you are late, you will lose 5% from your final mark.

STEP 1: Submission Instructions (Worth 80% of your grade for assignment 1):

Part 3 above can be hand-drawn, however it must be neat. Marks will be given for legibility and neatness and following instructions.

- Scan in your answer OR use a phone/camera to take digital pictures of your answers.
- Collect the images together in the appropriate order into 3 PDF files called:
  - Last2digitsofyourstudentnumber_part1.pdf (e.g. if my student number was 251112345 then I would call the file: 45_part1.pdf)
  - Last2digitsofyourstudentnumber_part2.pdf
  - Last2digitsofyourstudentnumber_part3.pdf
- Submit the 3 files to your kritik.io account for assignment 1 here: https://kritik.io. NOTE: you can see the actual rubric for this assignment in kritik BEFORE you hand in the assignment, so you might want to look it over to see how you will be graded.

STEP 2: GRADING THE FIVE ASSIGNMENTS ASSIGNED TO YOU (Worth 15% of your grade for assignment 1):

1. You will be sent an email from Kritik.io after the last day to hand in the assignment that the 5 - 6 (6 if the distribution doesn't work out evenly among all the students) assignments assigned to you can now be graded. It will give you information on the 5 assignments you have been given to mark.

2. Mark each of the 5-6 assignments according to the rubric in kritik.io. This step should NOT take more than 2 hours, maybe not even 1 hour. It takes a bit longer to mark the first assignment because you are learning the rubric but by the time you get to the 5th assignment, the grading will go much quicker! Make sure you explain to the student why you took the marks off if it is not obvious.

3. **REMEMBER: YOU HAVE ONLY THREE DAYS TO DO THIS STEP AND IT CANNOT BE LATE!**

STEP 3: EVALUATING THE GRADES YOU WERE GIVEN (Worth 5% of your grade for assignment 1):

You will be sent an email from Kritik.io after the Evaluation period is over and your assignment has been graded by the five other students. At this point you must read over the written comments they gave you, read over what areas you lost marks and then you will let the grader know how motivational the comments were and how helpful the comments were. This step should take about 3 minutes.

REMEMBER YOU ONLY GET ONE DAY TO DO THIS STEP AND IT CANNOT BE LATE!

STEP 4: DISPUTES

If you feel like you severely marked incorrectly, then identity the incorrectly marked item(s) by using the giving the row numbers for the items where you feel like you were marked incorrectly, put those numbers in the dispute box in kritik.io and submit your dispute. If you dispute, we will only look at rubric items that are fairly non-subjective, we will not change rubric item marks that are subjective, such as neatness. Thus do not bother creating a dispute if the only rubric item grades that you disagree with are the subjective ones. Then a t.a. or your professor will check the rubric items that you list in the dispute box for you. After the professor finalizes the assignment, no more disputes will be accepted. You may also flag comments that were offensive. Note though there might be that comments from a marker that you disagree with, only comments containing swearing or derogatory remarks should be flagged. I.e. Flagging is to be used if you are offended by the comments, not if you disagree or do not like a comment. If you disagree with a mark, then you can dispute it. **Also note that any files changed/reuploaded AFTER the due date are not eligible for disputes.**

This assignment does not accept online submissions. Contact your instructor for additional instructions.

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