

Homework Due 2022-02-17 by 23:59 New York Time

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1 General Instructions

1. You need to follow carefully the instructions for the assignment as written below.

It is advisable to print out this document and check off various points as they are addressed. It is easy to miss something when switching between the assignment and the solution on a single screen, especially on a laptop with a relatively small screen.

If you do not have access to a printer, at least review your solution before the submission to make sure that you followed the instructions and that you did all that you were requested to do and only what you were requested to do.

2. If you want to refer to a specific line in this document, refer to the small numbers in the left margin.

3. If you have questions concerning this homework email Nancy Nigam, <mailto:nn2163@nyu.edu>, *in the way specified in the course description*. Note, however, that you should not ask for help in producing your submission. If you need help in understanding the material required, contact Zvi Kedem, <mailto:zk1@nyu.edu> *in the way specified in the course description*.

To be sure that you get an answer to your question before the submission deadline, *do not delay your question to the date on which the assignment is due*.

If you still have unresolved questions, email Zvi Kedem, <mailto:zk1@nyu.edu>, including all relevant correspondence with the assistant(s) listed above, *in the way specified in the course description*.

4. Submit your homework in an electronic form by uploading it to NYU Classes by the due date and time. Use only permitted software and format. E.g., if you are asked for a relational database specification using SQL Power Architect than that's what you must submit.

Do not package the files you need to submit in an archive unless specifically asked to do that.

5. If you submit a scanned, handwritten assignment when permitted, it has to be written neatly, that is, it should be neatly divided into lines just as a typeset document, etc. You may submit a handwritten assignment only when that is explicitly allowed. And, unless stated otherwise, you must submit such a handwritten assignment as a file in PDF format only.

6. It is important that you follow the directions precisely. Also, please *check* that you submitted what you intended to submit, as you are responsible for making sure of that. The best way to do is to download what you submitted to check that.

And the best way to manage your work is to dedicate a folder/directory to each assignment.

7. Until the deadline you may resubmit your homework as many times as you like and you may want to submit it relatively frequently in case something happens to your partial work on your machine. If you submit your

homework after the deadline, it may not be noticed or evaluated.

8. Do not email your submission to any of the assistants. If you did not submit your solution on time, please email Zvi Kedem, <mailto:zk1@nyu.edu>, *in the way specified in the course description* with an explanation of what has happened, and if you have a solution (possibly partial), email the solution also.

If you do need to submit the solution by email, and *only* if you need to submit by email because you are late or for other reasons, please follow the format as described next. Assuming that you are submitting your solution to Homework due 2034-02-15 and your Net ID is abc123, all the files of your homework should be emailed as a zip file named 20340215abc123.zip. Of course you need to specify the correct date and the correct Net ID.

Do not communicate with any of the graders concerning a late submission.

9. Be sure to follow the academic integrity rules listed in the posted syllabus. The department, the GSAS, and NYU treat academic integrity very seriously and we are required to report all possible violations.
10. Under some circumstance, we may be able to extend a deadline on request, but generally only on a one-by-one case. All such requests need to be addressed to Zvi Kedem, <mailto:zk1@nyu.edu> *in the way specified in the course description*, as soon as possible and preferably before the deadline, and with a reason for such a request.

2 Homework

Reminder: If you are not officially registered in the class and the class does not show on Albert for you, do not submit any assignments.

Please read and follow carefully the instructions in [Section 1](#).

2.1 Description

There are three assignments. To review some course material; to create an ER diagram and a text file; to install SQL Power Architect.

Precise submission details are given in [Section 3](#).

2.2 Assignments

1. Please re-read the file `University01.pdf` and review the implementation of that application as an ER diagram in Unit 2 and the rest of the Unit as it pertains to the creation of ER diagrams.

2. For the third-person singular pronoun I will generally use “it” and its declensions.

Some words are in bold. This has no semantic implications and they are written in this way to make the reading easier.

Consider the application described in [Section 2.2.1](#). Do *not* make any assumptions about the application beyond the specifications listed; do not make any assumptions about the “real world.”

Following the notation we used in class, using draw.io and the shapes provided by it, produce an ER diagram for the application. Do not use any other notation. For example, you may not use cardinality constraints in your diagram. Start with the given `ER03.drawio` and put your own Net ID under the stick figure there.

Because the software you will use has slight differences compared to what we did, please consult the file `NotationForER.pdf` so that you know how to produce your diagram.

While producing your diagram and your text annotations, follow the specification given. They are not necessarily the best for the applications, but your job in this assignment to translate them in a straightforward manner to produce your solution.

Do not optimize your design, just follow the specification given.

If there is anything that cannot be specified in your ER diagram, put as annotations in `text03.txt` file, as described in [Item 1 of Section 3](#), starting with 1. and continuing as needed.

Do *not* put anything in the annotations that can be reflected in the ER diagram, but make sure that the diagram reflects that. The idea is for you to think what’s needed and where to put it: the diagram or the annotations. Make your annotations as concise as you can, and use the term UNIQUE when applicable.

2.2.1 The Application

Note that you cannot make any assumptions that are not forced by the specifications. For example, if the value of an attribute is not required to be known, you cannot assume that it is always known.

There are **Students**. A **Student** has a **NetID**. No two **Students** can have the same **NetID**. **NetID** is always known.

There are **Dogs**. Each **Dog** has a **SerialNum**, which is always known. Each **Dog** **Belongs** to exactly one **Student**. No two **Dogs** **Belonging** to the same **Student** can have the same **SerialNum**. A **Dog** has an attribute **Date**, to specify when the **Dog** started **Belonging** to the **Student** it **Belongs** to.

A **Student** has at most one other **Student** who serves as its **Mentor**.

Each **Dog** **Bites** 2 or more **Dogs**. A **Dog** may be **Bitten** by any number (0 or more) **Dogs**. A **Dog** may not **Bite** itself.

A **Student** may **Introduce** a **Student** to a **Student**. If **Student0** **Introduces** **Student1** to **Student2**, all these **Students** are different. And if **Student1** is **Introduced** to **Student2**, then exactly one **Student0** does that.

A **Student** may **Approve** at most one “biting pair,” where **Dog1** **Bites** **Dog2**.

The domains of the attributes have not been specified.

Start with the given ER03.drawio but put your own NetID under the stick figure there.

2.2.2 SQL Power Architect

1. You will need to use SQL Power Architect to specify relational databases in a future assignment. Please download and install the latest version of the community edition from http://www.bestofbi.com/page/architect_download_os. Make sure that you can open it.

You may encounter some difficulties running the software so here are possible workarounds.

- (a) A number of students in a previous class could not make the Mac version work on Mac, but the Unix/Generic version did work. Please use the link for direct download : <http://www.bestofbi.com/downloads/architect/1.0.9/SQL-Power-Architect-generic-1.0.9.tar.gz>.

Detailed steps can be found here : <http://www.bestofbi.com/page/architect-start>

Also, if your Java version is too old you may need to update it. Please see <https://www.java.com/en/download/manual.jsp>.

- (b) Sometimes it is not possible to save a new file. This bug is intermittent. However, it was always possible to open an existing file, modify it, and just save it. Therefore a blank file `relationalDatabase.architect` is enclosed. You can just copy it to a directory of your choice and work with it.

State in text03.txt whether you have installed SQL Power Architect and were able to open it.

3 What to submit

Please upload 3 files, named *exactly* as specified and in the format *exactly* as specified.

1. text03.txt in the text format, by modifying the file in this assignment.

In that file

- Replace the Metadata with your information.
- State the required (and only the required) Annotations.
- State your responses by placing appropriate text after the item label as listed below (so your first item will be labeled “(a)”):

- (a) Have you done what’s requested in **Item 1** of **Section 2.2**? If yes, just write “Yes”.

If not, explain why.

- 129 (b) Have you done what's requested in Item 1 of Section 2.2.2? If yes, just write "Yes".
- 130 If not, explain why.
- 131 2. A file with a diagram in the native format as produced by draw.io. The file should be called ER03.drawio.
- 132 3. A file with a PDF version of the diagram you have produced. The file should be called ER03.pdf.