

Homework Due 2017-11-10 by 11:55 pm

1 General Instructions

Please read these instructions carefully for each assignment, though they are generally do not vary between the assignments.

1. You need to follow carefully the specific instructions for the assignment as written below.
2. If you have questions concerning this homework email Guang Yang, <mailto:gy552@nyu.edu>. The course assistant is ready to help you understand the assignment but cannot modify the assignment in any way unless a change is posted on NYU Classes.

If you still need to follow up and communicate with the course instructor please email Zvi Kedem *in the way specified in the course description*.

Of course, Zvi is available to help you understand the course material as you need it, so you should meet him if you need help. Meeting in person is more effective for this than communicating by email.

3. Submit your homework in 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 Visio diagram produced using Visio 2016, that is what you must submit.
4. If you submit a scanned, handwritten assignment, it has to be written neatly, that is, it should be neatly divided into lines just as a typeset document, etc.
5. Show *all* your applicable work (other than for reading assignments, if any).
6. If you want to refer to a specific line in this document, refer to the small numbers in the left margin.
7. Your solution should be uploaded as a single **zip** file. Assuming that your N-number is 12345678 and you are submitting your solution to Homework due 2034-02-15, your zip file should be named **20340215N12345678.zip**, of course you need to specify the correct date.
8. **Be sure to follow the academic integrity rules listed in the course description posted on NYU Classes.** The department and the GSAS treat academic integrity very seriously and I am required to report all possible violations.

2 Assignments

1. Instructions:

First review the instruction about how to use Oracle that have been previously uploaded.

Then look at the database depicted in Homework04Relation.pdf. It describes tables of **Person**, **Member**, **Manager**, **Coach**, **Course**, **Project**, **Prize**, **Equipment**, **Teaches**, **Borrows**. The database is very similar to the one in Homework 2.

Please also read the script N12345678_Homework04Script.sql carefully. It defines and creates the sample database and has placeholders for putting in your solutions. You need to produce the queries listed in **item 3** below; put your solutions in N12345678_Homework04Script.sql and rename the file as yourNnumber_Homework04Script.sql. You also need to change the name of the spool file from N12345678_Homework04Spool.txt to yourNnumber_Homework04Spool.txt, towards the end of the script file.

For each query listed in **item 3** below, *unless stated otherwise*,

(a) *Explicitly* sort the results in ascending order

(b) *Explicitly* remove duplicates from the answer

Do not rely on the system to do it for you, even if it does so.

So assuming you are going to select a and b, you should actually use:

```
SELECT DISTINCT a, b
...
ORDER BY a ASC, b ASC;
```

Please use only those SQL operations that are listed in the class presentations.

You may use intermediate tables while producing your answers. In order to run your queries without getting errors, please use TEMP1, TEMP2, ..., TEMP20 as your intermediate table names. There is no assumption that you will need that many intermediate tables or even one. If you do use such tables, start use them in order, that is first TEMP1, then TEMP2, etc. The temporary tables will be explicitly DROPPed them before your queries so that their old values, if any, will not create problems.

After filling your solutions in yourNnumber_Homework04Script.sql, you need then run your script on Oracle and it will automatically save the spool records in a file called yourNnumber_Homework04Spool.txt. You need to hand in both yourNnumber_Homework04Script.sql and yourNnumber_Homework04Spool.txt, in a way stated in **item 4** below.

2. Files in this zip archive:

(a) The file you are reading.

(b) Homework04Relation.pdf, an SQL Power Architect implementation of the database as described before.

- 67 (c) N12345678_Homework04Script.sql, a script that will produce the database in Oracle
68 and also contains placeholder to put your solutions to **item 3**.
- 69 3. **Queries:** Produce queries for the following questions and put your answer into
70 Homework04Script.sql.
- 71 (a) Look at the structure of Person table, and insert a person called 'David Bowie' with
72 ID-number '121'.
- 73 (b) Look at the structure of Prize table, and delete the prizes with prizeID '1005'.
- 74 (c) Produce table Answer01 (Project_Name, Person_ID) which contains all the projects which
75 don't win any prizes and which borrow at least two equipments, and their leader's ID.
- 76 (d) Produce table Answer02 (Person_Name) which contains all the people with two identities:
77 The person is a member who leads a project with two or more prizes, and also a coach
78 who teaches at least one course.
- 79 (e) Produce table Answer03 (Person_ID) which contains all the members who lead projects
80 that borrow all the equipments with amount greater than 35.
- 81 (f) Suppose that the attribute supervisor of coach is transitive. That is, because a person can
82 be both a coach and a manager, the supervisor of a manager(coach) is also the supervisor
83 of the coach he or she supervised. Produce table Answer04 (Coach_ID, Supervisor_ID)
84 which contains all the coaches and their supervisors as defined above.
- 85 (g) Create view Answer05(Project_Name, Membership_Type) which contains the project
86 names a member leads, and their membership types. Now, by running the existing script,
87 from which you should not remove the existing update of the view, it should give you an
88 error saying that *cannot modify a column which maps to a non key-preserved table*.
- 89 To resolve this, create a trigger Trigger01 that is triggered when you try to update an
90 entry of the view. Any update of the view must also be reflected in the base tables using
91 this trigger.
- 92 4. **What to Submit:** A file as described in **item 7** of **section 1** containing
- 93 (a) yourNnumber_Homework04Script.sql
- 94 (b) yourNnumber_Homework04Spool.txt