

ASSIGNMENT #4

Due: November 6 by midnight 11:59 PM

Assignments submitted (**ONE and ONLY ONE Solution per Team**) via ENCS Website or the deadline is not respected would be discarded and no replacement submission will be allowed

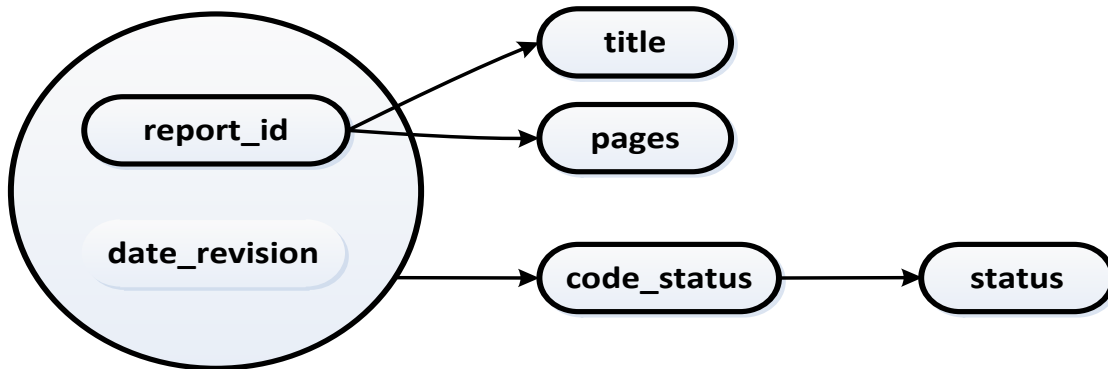
Exercise #1

Provide a relational schema in **3NF** following bubble diagrams. The name given to tables should be more significant.

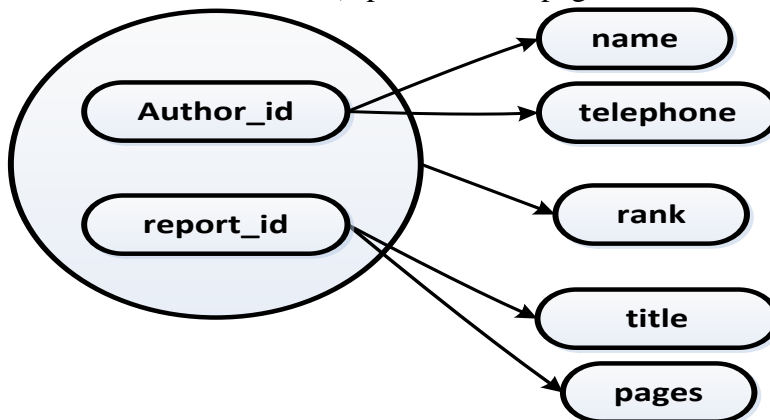
AUTHOR (auteur_id, name, telephone, local)



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Exercise #2

A management organization of shows, concert halls, and ticket sales for shows manages a database with the following relational schema:

Show (show_id, title, start_date, duration, singer, **hall_id**)

Concert (concert_id, date, hour, **show_id**)

Hall (hall_id, name, address, capacity)


Express the following SQL queries in relational algebra:

- 1) What are the dates of the concert of Lionel Richie at the Bell Center?

```
SELECT date
FROM Concert C, Show S, Hall H
WHERE C.show_id = S.show_id
AND S.hall_id = H.hall_id
AND S.singer = 'Lionel Richie'
AND H.name = 'Bell Center'
```

- 2) What are the singers who have never scheduled the concert at Saint-Denis 2?

```
SELECT singer
FROM Show
WHERE singer NOT IN (SELECT singer
                     FROM Show S, Hall H
                     WHERE S.hall_id = H.hall_id
                     AND H.name = 'Saint-Denis 2')
```

- 3) What are the singers who performed at least one concert in all halls? Here you must use the division operator 

```
SELECT singer
FROM Show S1
WHERE NOT EXISTS
  (SELECT *
   FROM Hall H
   WHERE NOT EXISTS
    (SELECT *
     FROM Show S2
     WHERE S2.singer = S1.singer
     AND H.hall_id = S2.hall_id))
```

Submitting Assignment #4

- Naming convention Acrobat file: Create one file .pdf, containing a solution of your assignment using the following naming convention:
The pdf file should be called *A4_TeamName*, where *TeamName* is your student group name.
- Submit your file *.pdf* in the appropriate assignment folder via ENCS Website. The deadline is not respected would be discarded and no replacement submission will be allowed.
- Submit only **ONE version for each team** of your assignment. **It is not an individual submission**. If more than one version is submitted the last one, before the deadline date, will be graded and all others will be disregarded.

Evaluation Criteria of Assignment #4 (50 points)

Activities	Points
Exercise #1: <ul style="list-style-type: none">- Provide a 6 relational schema in 3NF following bubble diagrams:<ul style="list-style-type: none">○ 5 pts. each	30 pts.
Exercise #2: <ul style="list-style-type: none">- Express the three SQL queries in relational algebra:<ul style="list-style-type: none">○ a. 5pts.○ b. 7 pts.○ c. 8 pts.	20 pts.