

Homework 01

Due: Sept 18, 2019 by 11:00 pm

Upload to Canvas

Submission Directions: Complete the questions below. For questions that require diagrams, create the diagrams on your computer (no hand-drawn/scanned diagrams). This can be achieved with a piece of software specifically for diagramming (Dia, Visio, etc.) or with something like PowerPoint or related software. However, copy-and-paste the diagrams into the correct place in the document you submit. Please submit a **PDF** file of your solutions.

Use the following scenario to answer questions 1 – 10.

This schema represents a portion of a photographer's database. It allows storage of information about people that are in each picture. The Picture table stores the picture id (pict_id), location the picture was taken (location) and the camera with which the picture was taken. The Tags table represents the relationship between Picture and Friend. The Friends table represents the people that are tagged in photos.

Pictures (**pict_id**, location, camera, date_taken)

Friends(**friend_id**, name, email)

Tags(**pict_id**, **friend_id**, tag_date)

Some constraints to help you:

- It is not possible for a single friend to be tagged more than once in any picture.
- Dates are represented as 'YYYY-MM-DD'.

Provide Relational Algebra Expressions for each of the following:

- 1) Give a list of picture ids that John Doe is tagged in.
- 2) In what locations does Jane Smith appear in pictures?
- 3) I need a list of the names and email addresses of all the people that were tagged in pictures from Boston from the trip last March.
- 4) Who appears in pictures with John Doe?
- 5) Give a list of picture ids that John Doe is tagged in.
- 6) In what locations does Jane Smith appear in pictures?
- 7) I need a list of the names and email addresses of all the people that were tagged in pictures from Boston from the trip last March.
- 8) Who appears in pictures with John Doe?
- 9) Provide a list of locations in which Dan Smith was photographed.

- 10) List the names and email addresses of all friends that don't appear in any photos.