

**University of Calgary**  
**Department of Computer Science**  
**CPSC 471 Database Management Systems**

**Student ID:**

Second Quiz- Fall 2020

The following tables include information about terrorists, their organizations, their planned attacks and the terrorists to participate in each attack; a terrorist may be member in more than one organization.

Note that **tid** means terrorist ID, **code** means attack code, **org\_name** means organization name, **sin\_fd1** and **sin\_fd2** represent sin numbers of a person and his/her friend, **citizenship** is a country

<b>Attack</b> ( <u>code</u> , city, country, time, day)	<b>Terrorist</b> ( <u>tid</u> , sin, name, citizenship, age, gender)
<b>Participate</b> ( <u>tid</u> , <u>code</u> , role)	<b>Organization</b> ( <u>name</u> , leader-tid, leader-sin, city, year_started)
<b>Member</b> ( <u>tid</u> , org-name)	<b>Friend</b> ( <u>sin_fd1</u> , <u>sin_fd2</u> )

**Code the following five queries in Relational Algebra:**

- a) Find id's and roles of terrorists who participated in attack(s) in Canada?
- b) Find name(s) of the youngest female terrorist(s)? Note: you are not allowed to use aggregation function
- c) Find the name of each organization whose leader does not have any friend who is terrorist?

**Code the following five queries in SQL:**

- d) Find the number of members in each organization?
- e) Find names of terrorists who participated in attack(s) in their countries?
- f) Find codes of attacks by Alex in France?

**Code the following five queries in Tuple Relational Calculus:**

- g) Find id's of organizations which have at least one German member?
  - h) Find countries where at least one attack occurred and there is no member in any organization from that country?
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