

# National University of Computer and Emerging Sciences



## In-Lab 4 Exercise

“Nested Queries”

Database Systems

Spring 2024

Department of Computer Science  
FAST-NU, Lahore, Pakistan

## Total Time: 120 Minutes

### Schema:

For this exercise use the following schema, the script to create this schema and populate data is given in Twitter.SQL file.

users			
	UserName	Age	Country
1	Ali*23	18	Pakistan
2	Aliza	40	USA
3	Aysha	19	Iran
4	Donald Trump	60	USA
5	Imran Khan	55	Pakistan
6	Natasha	28	USA
7	Samuel	37	Australia
8	Sara	30	Iran

Following	
1	Ali*23
2	Aliza
3	Aliza
4	Aliza
5	Aysha
6	Donald Trump
7	Imran Khan
8	Natasha
9	Samuel
10	Samuel
11	Sara

Hashtags	
1	1
2	2
3	3
4	4
5	5

user interests	
1	Ali123
2	Ali123
3	Ali123
4	Ali123
5	Aliza
6	Aliza
7	Aliza
8	Aliza
9	Imran Khan

interests	
1	10
2	11
3	12
4	13
5	14

likes			
	TweetID	LikeByUserName	LikeOnDate
1	1	Aliza	2017-02-02
2	2	Aliza	2017-02-02

tweets			
	TweetID	UserName	Text
1	1	Ali123	Pakistan's largest-ever population #Census start...
2	2	ImranKhan	Pakistan's largest-ever population #Census start...
3	3	Sara	Take the soldier who come to our door for #Cens...
4	4	ImranKhan	Pakistan is going to experience 6th #Census 2017.
5	5	Sara	Only #census can reveal where this aunty lives
6	6	ImranKhan	Quand tu te lèves 3h en avance (littéralement) po...
7	7	Sara	Over 1 million decrypted Gmail and Yahoo accou...
8	8	Sara	Harry pot-head and the Sorcerer's stoned
9	9	DonaldT...	LSDespicable Me #DrugMovies
10	10	ImranKhan	Forrest Bump #DrugMovies @midnight
11	12	DonaldT...	Quand tu te lèves 3h en avance (littéralement) po...
12	13	Sara	#DrugMovies
13	14	DonaldT...	Quand tu te lèves 3h en avance (littéralement) po...
14	15	Aliza	Quand tu te lèves 3h en avance (littéralement) po...

## Exercise:

1. What is maximum, minimum, average and standard deviation of ages of the users?  
(Search Standard Dev function)

**Expected Output:**

	MaxAge	MinAge	StdevAge
1	60	18	15.431299362011

2. Give name of the user who has the highest number of followers.

**Expected Output:**

	UserName	NoOfFollowers
1	DonaldTrump	5
2	ImranKhan	5

3. Give name of the user who has second highest followers.

**Expected Output:**

	UserName	NoOfFollowers
1	Ali123	1

4. List names of all the users who have never tweeted.

**Expected Output:**

	UserName
1	Aysha
2	Natasha
3	Samuel

5. List all the hashtags and usernames and number of times that user used that hashtag.

**Expected Output:**

	hashtag	username	noOfTimes
1	#Census	Ali123	1
2	#MasseCritique	Aliza	1
3	#DrugMovies	DonaldTrump	1
4	#MasseCritique	DonaldTrump	2
5	#Census	ImranKhan	2
6	#DrugMovies	ImranKhan	1
7	#MasseCritique	ImranKhan	1
8	#Census	Sara	2
9	#DrugMovies	Sara	1
10	#piratage	Sara	1

6. Find the users who have never used the hashtag #Census.

**Expected Output:**

	username
1	Aliza
2	DonaldTrump

7. List all the usernames that have never been followed. Using Set operation

**Expected Output:**

	UserName
1	Aliza
2	Aysha
3	Natasha
4	Samuel
5	Sara

8. List all the usernames that have never been followed. Using Exist Clause.

**Expected Output:**

	UserName
1	Aliza
2	Aysha
3	Natasha
4	Samuel
5	Sara

9. Find the most common interest of users. (The interest with largest number of users). Also find the least common interest.

**Expected Output:**

	InterestID	CountInterest
1	10	3

  

	InterestID	CountInterest
1	11	2
2	13	2
3	14	2

10. Show total tweets per country. The result should be in order of country name.

**Expected Output:**

	country	totalNoOfTweets
1	Iran	5
2	Pakistan	5
3	USA	4

11. List names of all the users whose number of tweets is more than average number of tweets per user.

**Expected Output:**

	username	NumberOfTweets
1	DonaldTrump	3
2	ImranKhan	4
3	Sara	5

12. Give the name of the users who have at least one follower from Pakistan.

**Expected Output:**

	FollowedUserName
1	DonaldTrump

13. Show the interest ID and description of interest with the most number of users.

**Expected Output:**

	InterestID	Description	CountInterest
1	10	Politics	3