

# Postgraduate Seminar Series

*Venue: Graduate Seminar Room*

*Date & Time: December 07, 2024 at 3:00 PM*

## **Speaker Information**

Shahiduz Zaman (Std No. 1018052058) is a part time M.Sc. student in the department of CSE, BUET. He completed his undergraduate studies from BUET in 2015. His research interest lies in the field(s) of Spatial Databases, and Data Privacy. He is currently doing his postgraduate thesis under the supervision of Dr. Tanzima Hashem. He will be speaking about his ongoing research in this talk.

## **Efficient Computation of Trip-based Group Nearest Neighbor Queries**

In recent years, organizing group meetups for entertainment or other necessities has gained significant importance, especially given the busy nature of daily schedules. People often combine multiple activities, such as dropping kids off at school, commuting to work, and grocery shopping, while seeking opportunities to meet others. To address this need, we propose a novel query type, the Trip-based Group Nearest Neighbor (T-GNN) query, which identifies the optimal meetup Point of Interest (POI) that aligns with users' existing trips. An individual trip consists of a sequence of locations, allowing users the flexibility to detour to the meetup POI at any location within the sequence, known as a detour location. Given a set of trips for the users, the query identifies the optimal meetup POI (e.g., restaurants or movie theaters) and detour locations from each user's trip that minimize the total trip overhead distance. The trip overhead distance refers to the additional distance a user must travel to visit the meetup POI before returning to the next location in their trip. The aggregate of these overhead distances across all users constitutes the total trip overhead distance. The computation time for processing T-GNN queries increases with the number of POIs. To address this, we introduce three pruning methods to eliminate POIs that cannot contribute to the optimal solution. We also develop an efficient approach for processing T-GNN queries in real-time. Extensive experiments validate the performance and effectiveness of the proposed algorithm.