

# Database Systems

## Chapter 4 - Advanced Concepts - Assignment

### Amirkabir University of Technology

---

#### Reminders

- a) This assignment does not contain bonus questions.
  
1. Chat-box is a small box, used for real-time messaging. Argue about the challenges of updating a chat-box's database and provide a solution to each one of them. (At least 2 cases are required.) (20 points)
2. Provide a mechanism to prevent SQL-injection Attacks, such that even if the attacker succeeds, he/she still won't be able to remove anything from the database. (20 points)
3. Describe Inference Attacks and provide an approach to prevent them. (20 points)
4. Assume that each visitor of a website, has a unique accessible IP address. How can we determine which country the visitor is from? (20 points)
5. Assume that you are given a data center with high qualities and there many customers who want to keep their databases on your servers. You are asked to assign a database to each website in a way that all of the databases are kept on the main server. Argue the challenges of connecting each website to its database and provide approaches for handling those situations. (20 points)