CS-A1155: Databases for Data Science 2024

COURSE PROJECT

Designing a Volunteer Matching System (VMS) with the Finnish Red Cross (FRC)

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School of Science

Topic
Description
Requirements
Timeline
Q&A

Volunteer Matching System (VMS).
The student team's role is to create a database and define usage to support the matching of Red Cross Volunteer Capacity (supply) with "Local Multidimensional Vulnerabilities and Crises" (demand).

The two main actors of the system are volunteers and beneficiaries.

- Beneficiaries have unique IDs, names, and addresses.
- Any beneficiary can make as many volunteering requests as they need.
- Requests should include a unique ID, the ID of the beneficiary it was sent by, the number of volunteers needed, a priority value to indicate how urgent the request is, the area of interest where the request lies, a start date, an end date, and a register by date.
- Requests also have criteria for acceptance and application validity. These criteria comprise of request skills and request locations.
    - Each request skill has a request ID and a skill name.
    - Each request location has a request ID and a city ID.

The two main actors of the system are volunteers and beneficiaries.

- Volunteers have unique ID, name, birthdate, email, address, readiness to travel (minutes).
- A volunteer can choose any combination of areas of interests.
- A volunteer can choose any combination of skills.
- Each of these skills have a unique name and a description.
- Beneficiaries can appraise skills by assigning skills a value, a minimum need, and a value to indicate importance.

The two main actors of the system are volunteers and beneficiaries.

- Volunteers can sign up to the system, browse through the volunteering requests, and send up to 20 applications where they apply to the requests.
- Applications should include a unique ID, the ID of the request it was made to, the ID of the volunteer it was sent by, the time it was modified, and they should indicate whether they are valid or not.
- Volunteers operate in ranges. Each volunteer range has a volunteer ID and a city ID. Each city has an ID, a name, and a geolocation.

- Draw a UML diagram for the Volunteer Matching System (VMS) database based on the given information using the notations taught in the course.
- Convert the UML diagram to the relational data model, present the schemas of the relations, and underline the attributes which form the key for each relation.
- Provide answers to the following questions: What are the non-trivial functional dependencies of the database? Are there any forms of redundancy or other anomalies in the database structure? Is the database in the Boyce-Codd Normal Form? If it is not, use the decomposition algorithm (submit both original and decomposed version)

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Part 1 :
Opens TODAY
Closes 19.05.2024
80 Points

Draw an UML diagram + Convert to the relational data model

Part 2:
Opens 20.05.2024
Closes 07.06.2024
120 Points

SQL implementation + simple data cleaning + analysis

Final Deliverable Package
14.06.2024
Presentations: online 11.06.2024

Part 1 + Part 2: 20 Points
Extra: 30 Points

Late submissions allowed for 1 week after the deadline (-50%)

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