



Bilkent University

Department of Computer Engineering

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CS 353 - Database Management Systems

Collaborative Hypertext Dictionary

## **Project Proposal**

Group 03

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# **1. Introduction**

This document aims to propose "Dictator" Collaborative Hypertext Dictionary. In this report; the project description, functional and nonfunctional requirements, some limitations and restrictions will be explained. This document will also include the first version of the E/R model. The future work of the project will be done with the principles and requirements defined in this document.

Firstly, the project description will be given. This part will explain the aim and scope of the project in enough detail.

Secondly, the requirements of the project will be disclosed. This part will contain functional, nonfunctional and pseudo requirements. Functional requirements section will show extent of the project, and what users will be able to do with this project. The functional requirements are grouped by rank system that will be explained make it more readable. Nonfunctional requirements will point out performance, reliability, security, usability goals for the system. In Pseudo Requirements, the candidate technologies that will be used on implementation are given.

Thirdly, Limitations are disclosed. The limitations will define the constraints on the data and the functionality. Thus it is aimed to refine the scope of the project.

Fourthly, the current E/R diagram is included. This will be the base of the database design. E/R diagram is built on top of requirements and functionalities defined in the previous parts.

# **2. Project Description**

"Dictator" Collaborative Hypertext Dictionary is a web-based dictionary application which lets users create online topics and comment on particular topics. Any person will be able to sign-up to the site using their nickname, email, password. The website will generate an ID for them to be unique and differentiate between users. Users of the "Dictator" dictionary will be able to enter a topic to the system and under each topic title, different users' entry related definitions will be written. "Dictator" Dictionary also will provide the opportunity of adding multiple categories for each topic such as "iPhone X" category and "Samsung Note 8" category under the "Most Recent Smart Phones" topic. Topics will also

have dates of creation. Moreover, contents of each topic can be rated and commented by users and users can add them to their favorites.

There will be a user ranking system in "Dictator" dictionary. Users will be categorised as **Freshman**, **Sophomore**, **Junior**, **Senior** and they will be promoted according to their activity rate in the dictionary by **Admin**.

- **Freshman:** Users are assigned as **Freshman** when they create their accounts. They can rate and comment on existing contents but can't create definitions.
- **Sophomore:** Promoted version of **Freshman** users. They will be able to comment on definitions in the topics. They will have all the abilities of **Freshman** users.
- **Junior:** Promoted version of **Sophomore** users. They will be able to add definitions in the topics. They will have all the abilities of **Sophomore** users.
- **Senior:** Promoted version of **Junior** users. They will be able to create topics. They will have all the abilities of **Junior** users.
- **Admin:** Admins are essentially **Senior** users that are responsible about the all of the dictionary. They will be able to promote anyone to any rank. They will be able to delete anything in the dictionary to prevent any issues.

Furthermore users will be in contact with each other with a basic following system. They will be able to follow, unfollow and block each other. Additionally, "Reporting/spamming inappropriate users" functionality will be provided in order to maintain "Dictator" dictionary's reliable and naive environment. Higher rank users will be able to propose promotion on other users. Lastly, users will be able to send direct messages to each other like in the other interactive web applications.

The aim of the "Dictator" Dictionary is providing a virtual brainstorming environment while maintaining trust and respect among the internet users.

## **2.1. Why a Database is needed for a Collaborative Hypertext Dictionary?**

In order to create a Collaborative Hypertext Dictionary, different kinds of data (users, topics, definitions, contents etc.) and relationship between these data types should be stored and managed. Thus the natural structure of the "Dictator" dictionary really fits to be modeled by an Entity Relation model.

### **3. Requirements**

#### **3.1. Functional Requirements**

##### **3.1.1. Freshman**

- Freshman shall browse any content available in the website.
- Freshman shall update their profile information at any point.
- Freshman shall like, dislike and rate the comments, definitions and topics of any kind.
- Freshman shall follow and unfollow other users.
- Freshman shall chat with other users via text messages.
- Freshman shall block, unblock and report other users.

##### **3.1.2. Sophomore**

###### **Acquired from lower ranks**

- Sophomore shall browse any content available in the website.
- Sophomore shall update their profile information at any point.
- Sophomore shall like, dislike and rate the comments, definitions and topics of any kind.
- Sophomore shall follow and unfollow other users.
- Sophomore shall chat with other users via text messages.
- Sophomore shall block, unblock and report other users.

###### **New abilities**

- Sophomore shall propose promotion for Freshman as s/he sees fit.
- Sophomore shall comment on any topic or definition.
- Sophomore shall update their comments.
- Sophomore shall delete their comments.

##### **3.1.3. Junior**

###### **Acquired from lower ranks**

- Junior shall browse any content available in the website.
- Junior shall update their profile information at any point.
- Junior shall like, dislike and rate the comments, definitions and topics of any kind.

- Junior shall follow and unfollow other users.
- Junior shall chat with other users via text messages.
- Junior shall block, unblock and report other users.
- Junior shall propose promotion for Freshman or Sophomore as s/he sees fit.
- Junior shall comment on any topic or definition.
- Junior shall update their comments.
- Junior shall delete their comments.

#### **New Abilities**

- Junior shall add new definitions to existing topics.
- Junior shall update or delete their definitions.

### **3.1.4. Senior**

#### **Acquired from lower ranks**

- Senior shall browse any content available in the website.
- Senior shall update their profile information at any point.
- Senior shall like, dislike and rate the comments, definitions and topics of any kind.
- Senior shall follow and unfollow other users.
- Senior shall chat with other users via text messages.
- Senior shall block, unblock and report other users.
- Senior shall propose promotion for Freshman or Sophomore or Junior as s/he sees fit.
- Senior shall comment on any topic or definition.
- Senior shall update their comments.
- Senior shall delete their comments.
- Senior shall add new definitions to existing topics.
- Senior shall update or delete their definitions.

#### **New abilities**

- Senior shall create new topics.

### **3.1.5. Admin**

#### **Acquired from lower ranks**

- Admins shall browse any content available in the website.
- Admins shall update their profile information at any point.
- Admins shall like, dislike and rate the comments, definitions and topics of any kind.
- Admins shall follow and unfollow other users.
- Admins shall chat with other users via text messages.
- Admins shall block, unblock and report other users.
- Admins shall propose promotion for Freshman or Sophomore or Junior as s/he sees fit.
- Admins shall comment on any topic or definition.
- Admins shall update their comments.
- Admins shall delete their comments.
- Admins shall add new definitions to existing topics.
- Admins shall update or delete their definitions.
- Admins shall create new topics.

#### **New abilities**

- Admins shall promote any non-admin user to any rank at any point.
- Admins shall revoke any rank from any non-admin user at any point.
- Admins shall ban any non-admin user at any point.
- Admins shall delete any topic, definition or comment at any point.

## **3.2. Nonfunctional Requirements**

### **3.2.1. Performance**

The system should work fast enough not to create discomfort. Service time, wait time and transmission time should be kept fast in order to maintain a low response time.

### **3.2.2. Reliability**

The common faults must be detectable and tolerable as much as possible. The dependability of the system should satisfy core standards.

### **3.2.3. Usability**

The site must be easy to use, with a simple user interface. It must provide a familiar look. Users must easily access the information they want.

### **3.2.4. Security**

The accounts and the passwords of the user must be protected. Vulnerabilities and attacks must be detectable and preventable.

## **3.3. Pseudo Requirements**

- MongoDB will be used for database.
- Python will be used for backend.
- Website will be created with HTML, JavaScript, CSS. If necessary we are planing to use some extra CSS and JS libraries to make the look of the website beautiful to the user.



## 4. Limitations

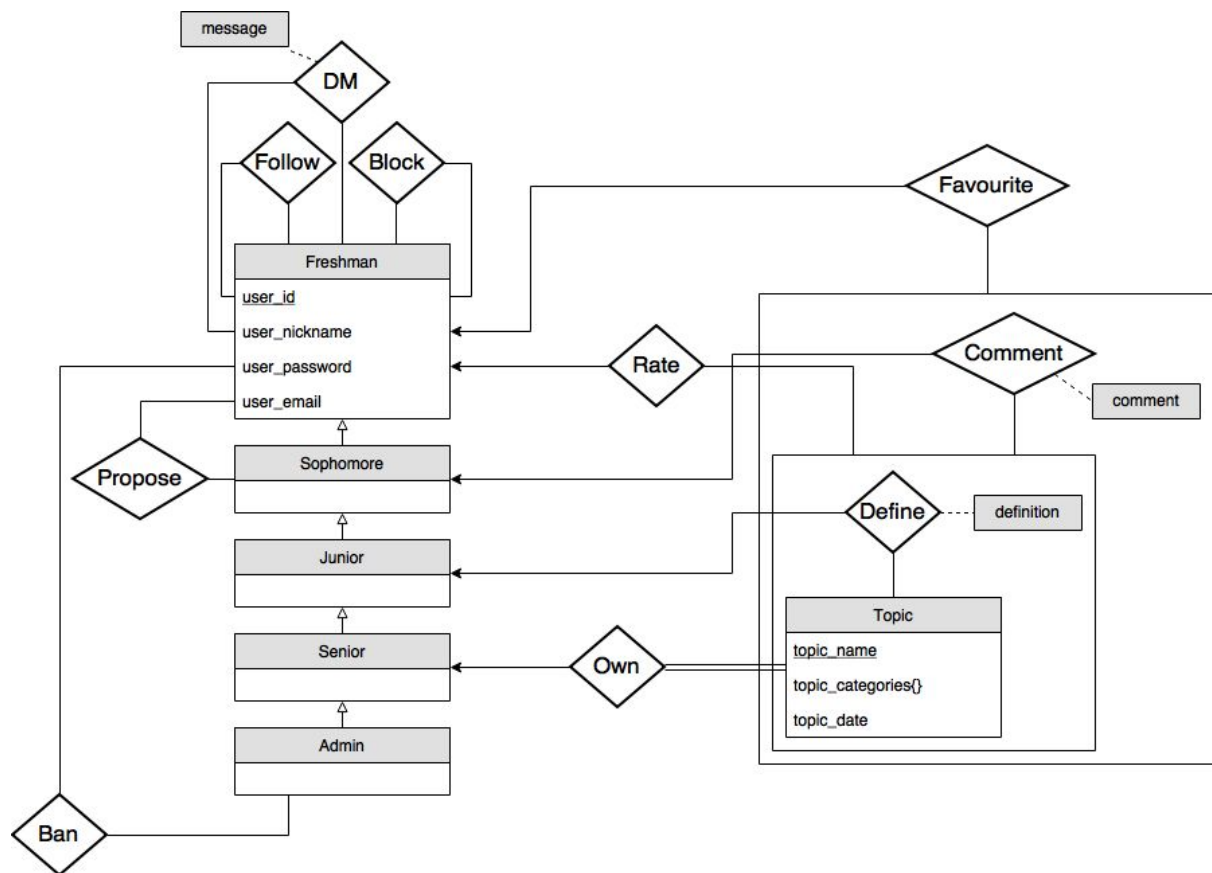
### 4.1. User Hierarchy Table

	Freshman	Sophomore	Junior	Senior	Admin
Rate, like, dislike contents	✓	✓	✓	✓	✓
Follow and unfollow the other users	✓	✓	✓	✓	✓
Send messages to the other users	✓	✓	✓	✓	✓
Block and report other users	✓	✓	✓	✓	✓
Propose promotion for the users at lower level	✗	✓	✓	✓	✓
Comment on existing definitions	✗	✓	✓	✓	✓
Create definitions	✗	✗	✓	✓	✓
Create topics	✗	✗	✗	✓	✓
Promote users	✗	✗	✗	✗	✓
Ban users	✗	✗	✗	✗	✓

### 4.2. Other Limitations

- Users need to create an account with their email addresses in order to have at least Freshman rights. Otherwise contents will be only readable.
- Users who have an account need to sign in the system with email address and password to use their rights.
- User names should be unique.
- A user can not sign up with the same email address twice.
- A content (topic, definition, comment) can not have a more than 1 owner.

## 5. Entity Relationship Diagram



## 6. Conclusion

“Dictator” Collaborative Hypertext Dictionary is a web-based application to create an virtual environment for communication and discussions. The website will be using a ranking system to restrict ineligible user’s access to some functionalities to maintain the respectful community. The user base will be able to message each other, create and write about an topic and comment on other people’s content.

In this report, we described the project and it’s relevance with the course. Then we listed all of the planned functional requirements to create a common understanding between course staff and the project group. We also included the nonfunctional requirements to outline the performance, reliability, security, usability of the system. Implementation details were given in pseudo requirements. The limitations of the system are also established. We included our preliminary design with the Entity Relationship Diagram.

The links for the website and repository will be in the next chapter.

## 7. Web Page

You can check current developments of the project from our repository using this link:

<https://github.com/alchemistake/dictator>

Site link will be:

<https://alchemistake.github.io/dictator>