2017-2018 Spring
CS 353 Database Systems

BilinkedIn
Project Proposal

GROUP 40:
Ata Gün Öğün - 21501187
Deniz Sipahioğlu - 21501526
Deniz Ulusel - 21503896
Mehmet Enes Keleş - 21501348

26.02.2018

Available at: https://github.com/dsipahioglu/bilinkedin

TABLE OF CONTENTS

1. Introduction..........2
2. Description..........2
3. Significance of Database Systems..........3
4. Functional Requirements..........3
    a. Customer..........3
    b. Professional..........4
    c. Admin..........4
    d. Job Announcement..........4
    e. Offer..........5
    f. Commission..........5
    g. Review..........5
    h. Ticket..........6
    i. Chat..........6
    j. ChatMessage..........6
5. Non-Functional Requirements..........6
6. Limitations..........7
7. E/R Diagram..........7
    a. announces..........8
    b. ann_offer..........8
    c. accepted_offer..........8
    d. offer_chat..........8
    e. commision_chat..........8
    f. dispute..........8
    g. ticket_chat..........8
    h. pro_review..........8
    i. cust_review..........8
    j. chat_has_message..........8
    k. message_has_user..........8

1. Introduction

BilinkedIn is a web platform where people in need of everyday services such as cleaning, handiwork, event organization and transportation can put up announcements and get offers from professionals providing these services. The customer can choose a suitable offer among those given by the professionals. When the job is complete, the customer can comment on the job quality, and give the professional a rating.

The service provided by BilinkedIn is similar to that of Alibaba, but for everyday services. Basically, it mediates the communication between everyday service providers and requesters.

2. Description

The project is a web platform where service requesters can post announcements describing a service they are looking for, when and where they are looking for it and how much they are willing to pay. Registered professionals who are able to provide this service are then notified and can make offers to the user regarding the service they require.

The platform accommodates two types of users: Professional users and customers. Professional users are providers of service in different fields, and customers are users who are offering jobs to professional users. Every professional user is related to at least one field of service. The professionals can put up their background information about their services in their profile page. In this page; their interests in fields of service, their previous work and ratings and reviews of their previous work can be seen. The visibility of the name of the customers whom the professional worked for is optional.

In the customers' profile, background information about the customer, the previous work they announced and their on-going announcements can be seen. To post an announcement, the customers choose a work field and give a detailed job description. They can specify the approximate price and the estimated time of delivery they would like while creating an announcement.

After an announcement is posted by a customer, the professionals in the related field can see the announcements matching their area of expertise, and can make an offer to these announcements, at the cost of a fixed price.

The customer is able to see all the applications made by the professionals, can receive and send messages related to the offer. He can then make a decision among the available offers to make a commission to the desired professional.

When an offer is chosen by the customer, the price of the offer is subtracted from the customer's balance and put on hold until the job is complete and approved by both sides.

Other than the feeds of the customers, there is a feed where all offers related to a field can be seen, which is visible to both the customers and the professionals.

3. Significance of Database Systems

BilinkedIn allows many users to interact with stored data via actions including making announcements and offers, leaving chat messages and opening tickets. The data is modelled into database entities such as user, commission, ticket, offer etc. This data is constantly looked up and updated by multiple users. Due to these design requirements, the platform should be able to store, access and manipulate the data in an efficient manner. Though there are a number of ways to store application data, the most suitable option for such a project is a database system, because the information of the users, chats, announcements, commissions etc. make up a huge amount of data. A database system will provide the following functionalities for our platform:

- It is relatively simple to use queries in SQL to manage data. This means that we won't have to worry about inventing a new protocol to access and manipulate our data.

- Database systems have very efficient implementations for search and update operations. So, we won't have to manually implement such operations by ourselves and can instead depend on the database system which is proven to be efficient and reliable.

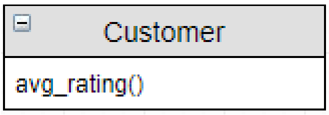
- Database systems support the ER model. Being able to divide our data into entities and relations makes it easier for us to come up with a manageable and meaningful organization of data.

- Database systems are built to support and maintain huge amounts of data. Because we are using a database system to manage our data, the only limit we have on the size of our data is the capacity of our physical drives. Thus, we won't have to concern ourselves with the scalability of our data storage solution.

- It is easy to exert constraints on data using a database. We can utilize this feature to avoid inconsistent data such as duplicate user id's.

4. Functional Requirements

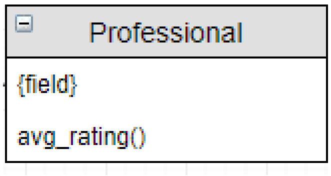
a. Customer



- The customer can put up announcements.
- The customer can put up a bio on their profile.
- The customer can see offers directed at their announcements.
- The customer can reply to offers directed at their announcements.
- The customer can chat with professionals about their commissions.
- The customer can accept offers directed at their announcements.
- The customer can open tickets about issues related to their commissions.

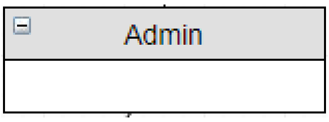
- The customer can approve completion of a commission to release their money to the professional.
- The customer may write a review after a commission is finalized.

b. Professional



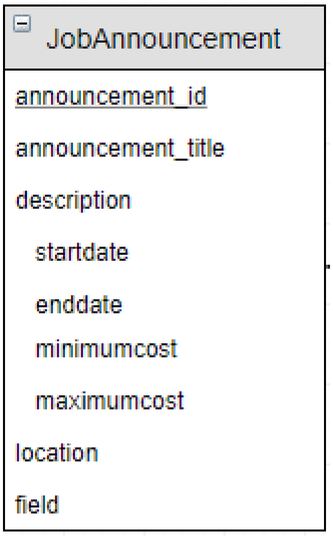
- The professional can make offers to job announcements.
- The professional can put up a bio on their profile including their occupational fields.
- The professional can chat with customers about their commissions.
- The professional can open tickets about issues related to their commissions such as not getting the payment.
- The professional may write a review after a commission is finalized.

c. Admin



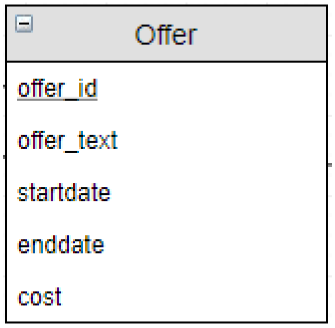
- The admin can chat with professionals and customers if directed a ticket to solve the issue.
- The admin can manipulate non-admin user profiles.

d. Job Announcement



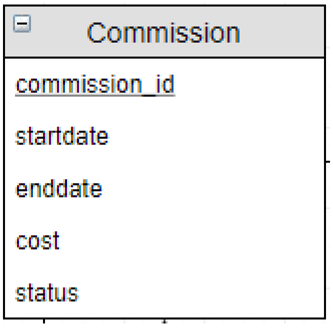
- A job announcement describes details of a job that a customer needs to be carried out.
- The details are location, date, cost range and field of service.

e. Offer



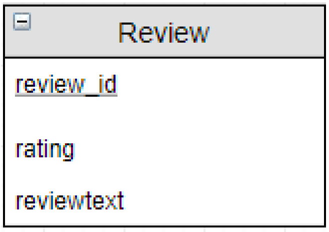
- An offer is a request that is sent by a professional to a job announcement.
- Each offer has a dedicated chat where the professional and the customer can discuss about an offer.

f. Commission



- A commission is a deal between a customer and a professional.
- A commission starts only after an offer is accepted by a customer.
- A commission gets finalized when the both sides approve the completion.
- After the finalization of the commission, the payment is transferred.
- Each commission has a dedicated chat where the professional and the customer can discuss about the on-going commission.

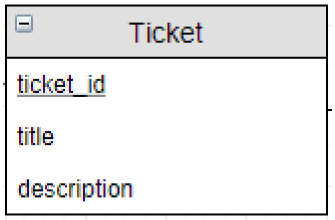
g. Review



- A review can be written either by a customer or a professional.

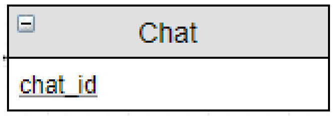
- Reviews appear on users’ profiles after a commission is finalized.
- Reviews affect users’ ratings.

h. Ticket



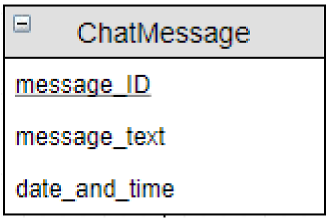
- A ticket can be opened either by a customer or a professional.
- Each ticket has a dedicated chat where the users can communicate with admins.

i. Chat



- A chat holds messages corresponding to a certain offer, commission or ticket.

j. ChatMessage



- A chat message is message that can be sent by any user.

5. Non-Functional Requirements

- **Usability:** The platform is targeted at users of various technical backgrounds. Therefore, it needs to be user-friendly facilitate the negotiation process between the users, and the carrying over of commissions. Our design will let users focus on their business by a simple and intuitive interface.

- **Robustness:** Besides communication and negotiation, the platform will also be responsible for money transactions. The system handling these transactions needs to be robust to minimize the risk of corruption of user balances. Our design will strive for robustness in manipulation of data.

- **Scalability:** The platform design needs to be scalable so as to accommodate growing numbers of users, announcements, offers and messages. Our design will be scalable in order to withstand the growth in user data.

- **Privacy:** The personal information that users have chosen not to share should remain private and handled with care. Our design will ensure that sensitive data can only be accessed by those who are concerned. The user permissions will be set accordingly.

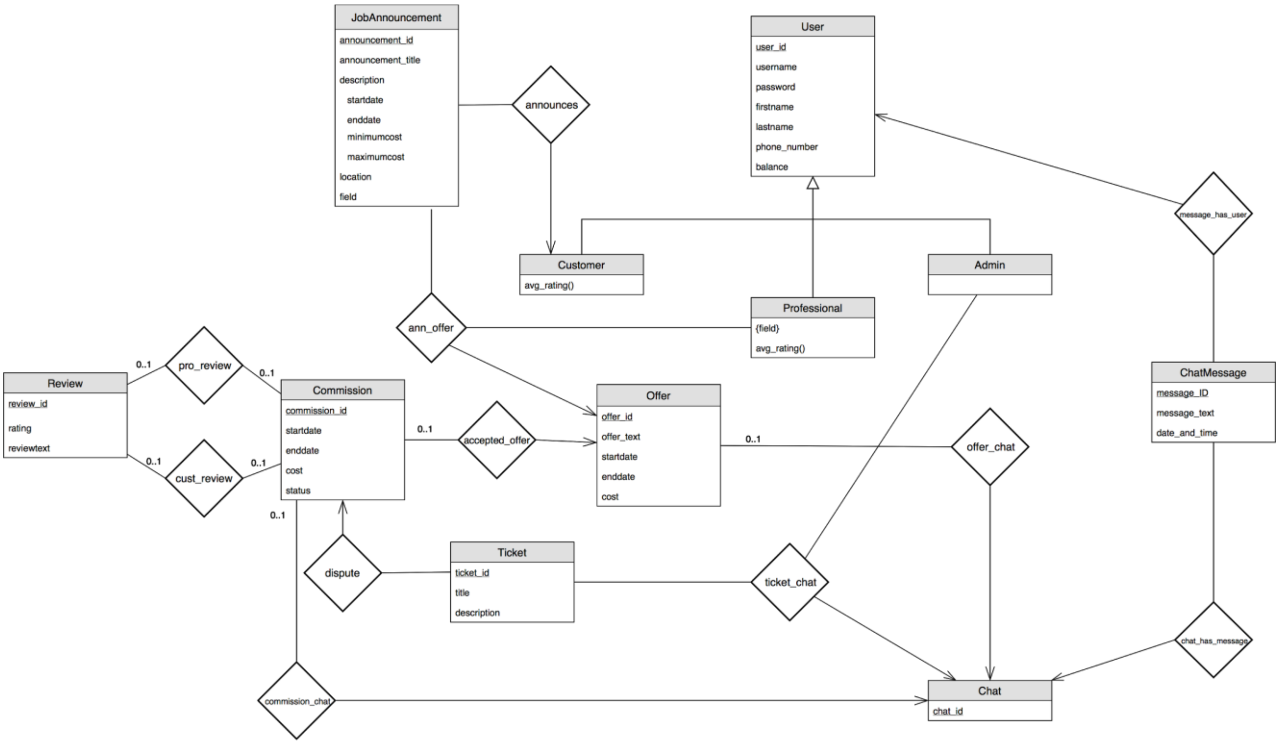
- **Extensibility:** Keeping the platform up-to-date is very crucial for the user experience. Our design will be flexible to enable the addition new features and entities to the platform with ease in order to keep the users on the hook.

6. Limitations

Professionals can search announcements, display customer profiles, make offers, write reviews and send tickets to admins. Customers can create announcements, display professionals' profiles, accept offers coming to their announcements, write reviews and send tickets to admins. However the users can neither interact with other users' commissions and tickets nor manipulate other users' profile data.

Admins have ultimate access to the user data. However, an admin cannot interfere with a ticket that is being addressed by another admin.

7. E/R Diagram



a. announces

A customer might have more than one job announcement. announces represents one to many relationship between customers and job announcements.

b. ann_offer

A single professional can make an offer to a job announcement only once. But the same professional can make offers to different job announcements.

c. accepted_offer

Whenever an offer is accepted a commission begins. Therefore an offer is related to a commission if an only if it is accepted.

d. offer_chat

Every offer has a chat but not every chat is related to an offer.

e. commission_chat

Every commission has a chat but not every chat is related to a commission.

f. dispute

Both parties which are involved in a commission might open tickets that can be seen by admins. Each commission might have zero or more tickets.

g. ticket_chat

Every ticket has a chat but not every chat is related to a ticket.

h. pro_review

A professional can leave a review about the commission once it is done. Leaving a review is optional.

i. cust_review

A customer can leave a review about the commission once it is done. Leaving a review is optional.

j. chat_has_message

Each message is connected to exactly one chat. However a chat might have many messages.

k. message_has_user

Each message is sent exactly by one user. A user may send many messages.