PROBLEM ANALYSIS

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OVERVIEW

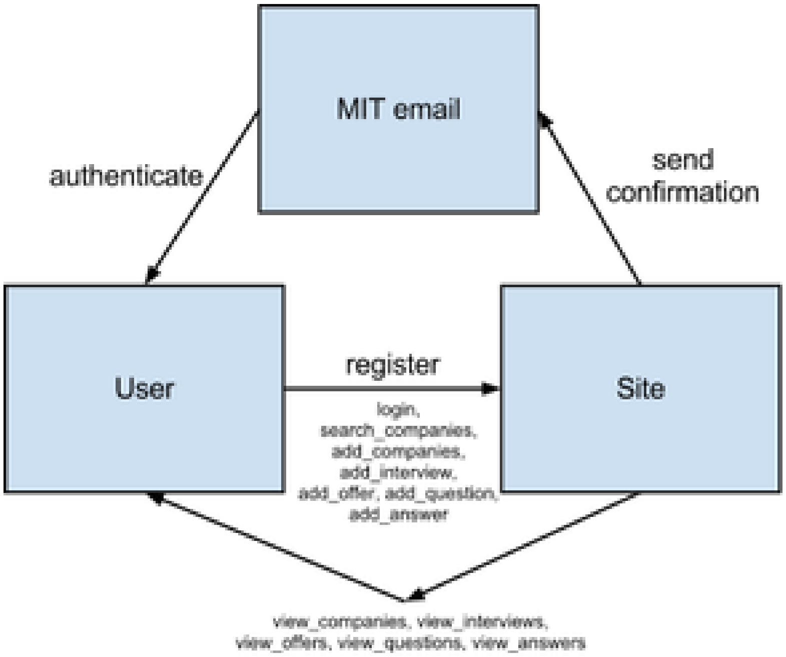
Purpose and goals

We would like to develop a job forum for the MIT community, where students can openly share their interview and work experiences, ask questions, and better understand the job market. Websites like Glassdoor are incredibly popular, and a great way to get a quick snapshot about the hiring practices of a company. However, these sites are targeted towards all careers, and MIT students are for the most part more interested in technical roles.

In light of our recent class discussion on many students' hesitation about asking for higher salaries, our site will be particularly useful. While some people may be uncomfortable asking about salaries in person, many more people are comfortable sharing, and thus our site will fill an existing void and provide students' with a valuable resource when negotiating with companies.

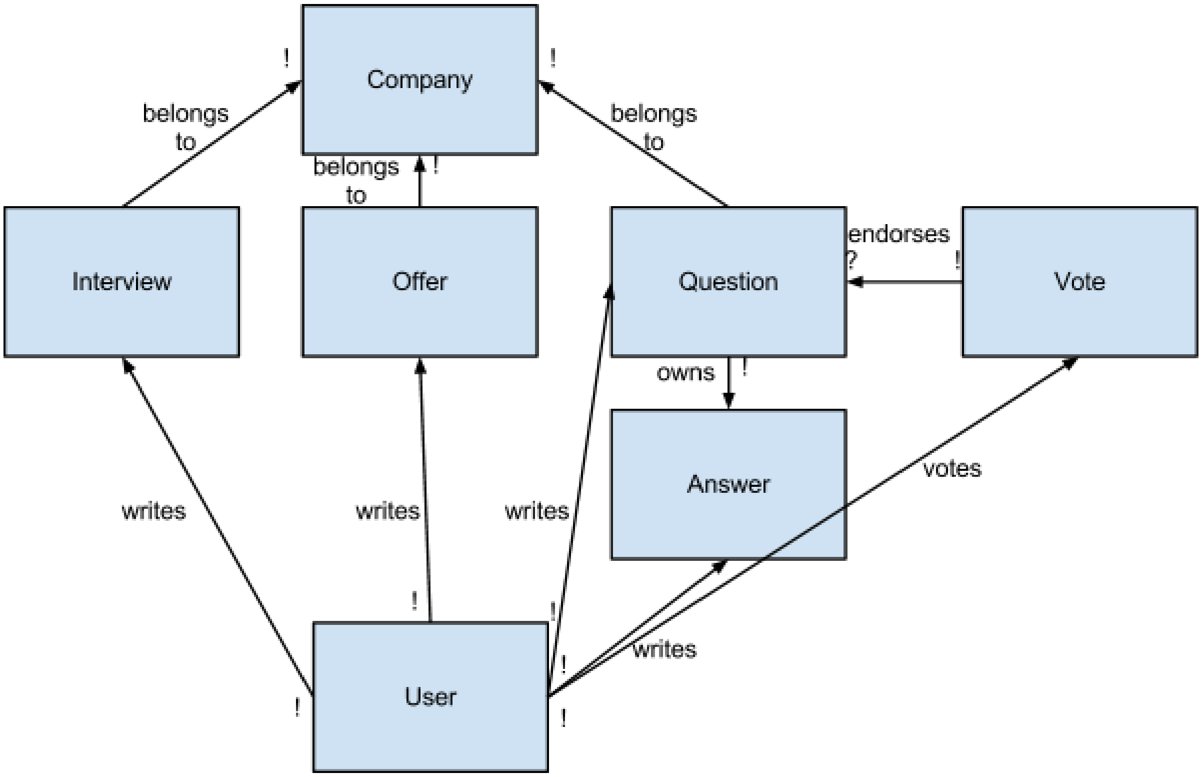
Our overall intention is to create an online resource which provides *relevant* information to MIT students in a streamlined fashion. When researching a company, students have two things on their mind: wondering what the interview experience will be like, and what type of offer may be at the end of the road. MITjobtalk provides this information in the most efficient way possible, reducing the possibility of data overload as common on existing job sites.

Context diagram



DOMAIN

Object model



- Interview is a general text description about the interview (samples will be provided in our app); we will provide a text prompt that asks for a description of the overall process, allows the user to add multiple interview questions that they were asked, rate the experience, and tag the interview with a job type.
- Offer is a figure of the yearly salary that a company has offered to a user, tagged with the job type. We will anonymize these data entries by not displaying any individual entry, but rather an amalgamation of all the entries.
- Question is a question posed by a user about the company in almost a forum-style. Answers are written also in forum-style. A user can vote for multiple questions, but each vote is uniquely associated with one particular question.

Event model

Register: Only users with MIT email addresses may register with an account. After the registration process, users will expect a confirmation email from MITJobTalk.
Login: In order to login, accounts must be authenticated via email.
Logout
View Settings
Edit Settings: Users may edit their password information.
Search companies

Add company: If a company search yields no results, users may add the company information manually.
View company landing page: The company landing page contains general information, leads to interview information, offer graphics, and question/answers.
View interviews: See all interview experiences for a particular company.
View question/answers: See all questions and answers for a particular company.
View offer graphic: See offer graphic for a particular company.
Add interview example
Add offer example
Add question
Add answer
Upvote question: Users may upvote a question in the Q/A section once.
Downvote question: Users may remove any upvotes they previously gave to a question.

JobTalk ::= Register* Login (ViewSettings EditSettings?)* CompanyActions* Logout?
All users must login before interacting with the site.

CompanyActions ::= (SearchCompany | AddCompany?)* ViewCompany (InterviewActions | OfferActions | QAActions)*
Users search the site by company and from there, can interact with three categories of information regarding interview experiences, offers, and forum-style question/answers.

InterviewActions ::= ViewInterivews AddInterivew?

OfferActions ::= ViewOffers AddOffer?

QAActions ::= ViewQA (AddAnswer | Upvote Downvote?)*

BEHAVIOR

Feature descriptions

- Registration and email confirmation: In order to preserve the MIT community focus of our site, we require that all users register with an valid MIT email address. Only once they have received and responded to an email confirmation will users be able to login.
- Company search: An autocomplete search bar allows users to query for companies, and if an entry doesn't already exist, to make a new company instance.
- Pre-populated data: Data was scraped from CrunchBase and the MIT Careers Site in order to populate our website with information.
- Interview examples: The interview section allows users to describe their overall experience, add any number of questions they received and give a rating. These are aggregated by date and sortable by job type.
- Offer examples: The offers section allows users to share the figure of their offer and the job type for a particular company. These are aggregated in graph form, over time, and color-coded by job type.

- Question and answers: The question and answers section allows users to ask and answer, along with upvote and downvote questions.

Security concerns

Our biggest concern is user privacy. User identities are disassociated from their data submissions, such that very sensitive information, like offer figures, are only revealed in an amalgamated form, making it nearly impossible to trace an offer to an individual. We want to be sure that the personal information of our users is not leaked in any way.

We will be using an email authentication system to verify users, and only accepting addresses with the mit.edu domain. This system sends an email verification to users after they've registered, which will prompt them to return to the site as a verification of their identity. The authentication expires after 10 days, for security reasons, such that after this time period a user would have to register again in order to activate their account.

We suspect that certain companies may not be pleased that interview information is being shared among students, despite what we see as many positive benefits from the availability of these experiences online. While MIT email verification will prevent most of these adversaries from accessing our site for malicious purposes of tracking down individual users, it is possible that listservs can be created and used to registration. It is possible to make a check to disallow listservs from registering, and we hope to implement this check in a later iteration of our design.

We are also concerned about the possibility of spam. We want to ensure that all information and data are accurate. There are number of specific places where this comes into play. First, addressing company duplicates. A user will only be allowed to add another company when it is clear from their search query that the particular company does not yet exist. Second, editing company information - not even the user who made the entry may edit company information to avoid confusion. Third, editing interview, offer, Q&A information, which is possible, but only by the original author. Fourth, to encourage accurate offer data, we will display the information such that outliers are very obvious. Finally, we have upvotes for Interviews and Answers so that users can decide the best information.

We also have plans to get data from the Career's Office to populate our site and create a baseline dataset. The intention of this is to encourage accurate data submission and increase the user's comfort with the product.

Operations

User Operations

GET /create_account
requires: user not logged in

effects: returns a form for registration

POST /create_account
requires: MIT email address and valid password
modifies: Sessions table
effects: creates new unactivated user and sends authentication email

GET /sessions
requires: user not logged in
effects: returns a form for login

POST /sessions
requires: activated account and valid username/password
modifies: Sessions table
effects: creates new user session and redirects to homepage

GET /change_password
requires: user logged in
effects: returns form for changing password

POST /change_password
requires: user logged in
modifies: User table
effects: password attribute updated

DELETE /sessions
requires: user logged in
modifies: Sessions table
effects: destroys user session and logs out user

Home Operations
all requires: user logged in

POST /companies/search/
effects: prefix search for :id and returns any matching companies

GET /companies
effects: returns all companies, ordered alphabetically

GET /companies/:id
requires: company exists with given id
effects: returns company landing page, with interview, offer and question info

GET /companies/new

modifies: Company table
effects: returns new company form

POST /companies
requires: company attributes valid
modifies: Company table
effects: new company created and redirect to company landing page

Interview Operations
all requires: user logged in

GET /companies/:id/interviews
requires: company exists with given id
effects: returns interview landing page

GET /companies/:id/new_interview
requires: company exists with given id
effects: returns new interview form

POST /companies/add/interview
requires: valid interview information in form
modifies: Interview table
effects: create new interview and redirect to company interview page

Offer Operations
all requires: user logged in

GET /companies/:id/offers
requires: company exists with given id
effects: returns offer landing page

GET /companies/:id/new_offer
requires: company exists with given id
effects: returns new offer form

POST /companies/add/offer
requires: valid offer information in form
modifies: Offer table
effects: creates new offer and redirects to company offer page

Q/A Operations
all requires: user logged in

GET /companies/:id/questions

requires: company exists with given id
effects: returns question landing page

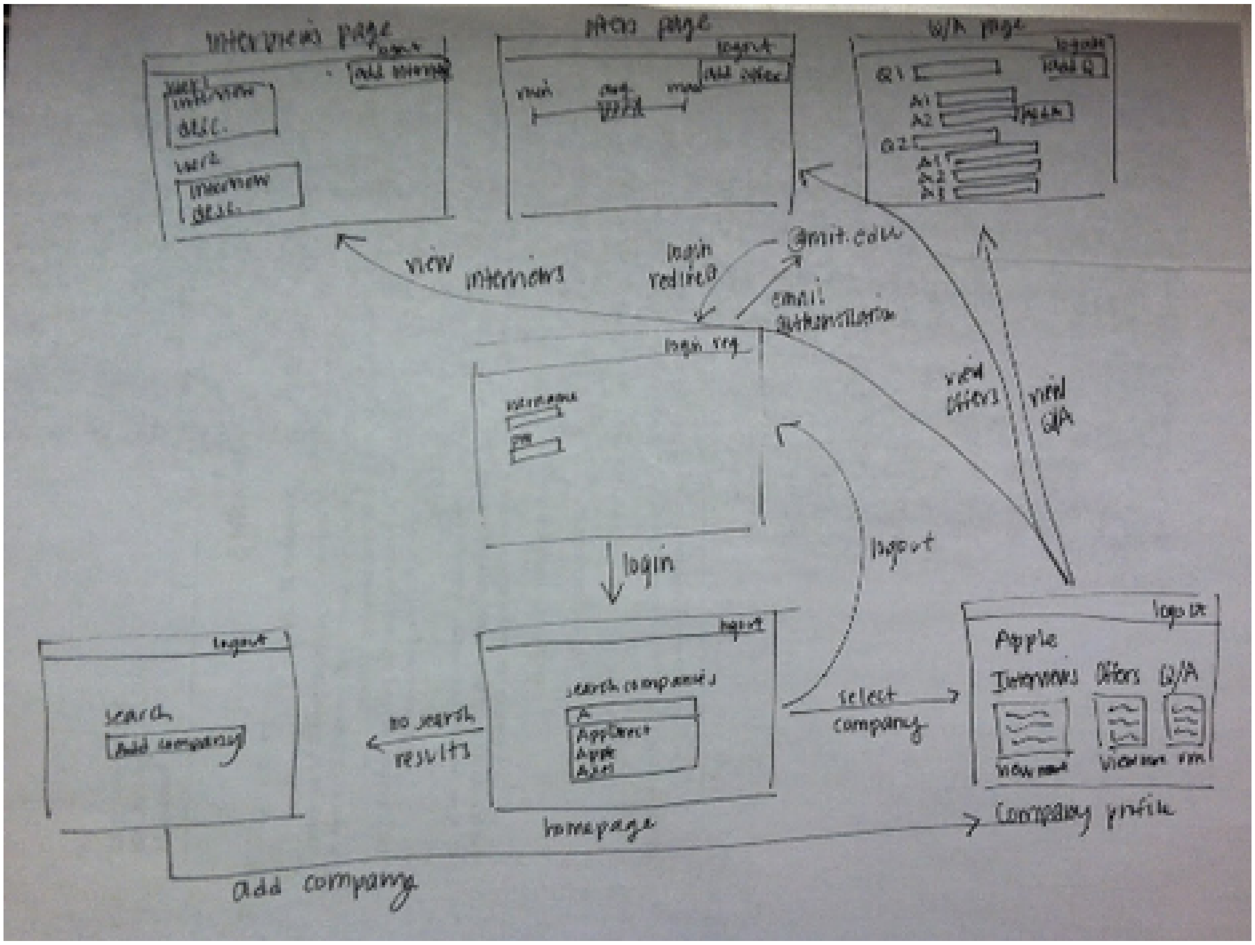
POST /companies/add/question
requires: user logged in and valid question attributes
modifies: Question table
effects: creates and renders new question

POST /questions/:id/answers
requires: user logged in and question exists with given id
modifies: Question and Answer table
effects: creates and render new answer

POST /questions/upvotes/:id
requires: user logged in and question exists with given id
modifies: Vote table
effects: vote for given question and user logged

POST /questions/downvotes/:id
requires: user logged in and question exists with given id and user vote for given question exists
modifies: Vote table
effects: vote for given question and user removed

User interface


interviews page
logout
add interview
user1
interview
desc.
user2
interview
desc.
offers page
logout
add offer
min
avg
max
Q/A page
logout
add Q
Q1
A1
A2
add A
Q2
A1
A2
A3
view interviews
login redirect
@mit.edu
email authentication
login reg
username
pw
view offers
view Q/A
login
logout
logout
search
add company
no search results
logout
search companies
A
Applebees
Apple
Acer
homepage
select company
logout
Apple
Interviews
Offers
Q/A
view more
view more
view more
company profile
add company