Newcomer: New Employee Networking

Conner Yin, Jordan Mosakowski
Advisor: Dr. Yi Fang

Computer Science and Engineering

Introductions

Conner Yin
CSE ‘24

Jordan Mosakowski
CSE ‘24

Dr. Yi Fang
Project Advisor

Why Newcomer?

Personal Anecdotes

Conner Yin

Roche

Software Engineering Intern @ Roche

Jordan Mosakowski

amazon

Software Development Intern @ Amazon

Problem Statement

New employees and interns often struggle with isolation, as traditional networking tools do not support the casual interactions needed for a welcoming workplace culture.

“69% of employees report they are unsatisfied with their social connections at work, and 52% of people want more connection at work” - BetterUp survey

“Impoverished virtual interactions can lead to static and siloed collaboration networks, workers with a diminished sense of belonging to their organization, and social and professional isolation” - MIT Sloan Review

Achor, Shawn, and Farrell Redwine. “The Connection Crisis: Why community matters in the new world of work.” *BetterUp*, 2022, grow.betterup.com/resources/build-a-culture-of-connection-report.

Knight, Caroline, et al. “The Loneliness of the Hybrid Worker.” *MIT Sloan Management Review*, 2 May 2022, sloanreview.mit.edu/article/the-loneliness-of-the-hybrid-worker/.

What should the Ideal Company Social Platform Include?

- Company-focused and exclusive platform
- Relatively casual setting, not company owned
- Create text groups and activities around common interests
- Group and user recommendations

Slack/Teams

Industry standard communication platforms

Company-specific organization and groups

Lacks event creation and recommendations

LinkedIn

"Connect the world's professionals to make them more productive and successful"

Industry standard networking platform

Not company specific

Glassdoor / Blind

Platforms to make company salaries transparent

Users' companies must be verified and are emphasized in profile

Main discussion is salaries, profiles are anonymous and don't encourage networking

Instagram/Facebook

Global leaders in social media

Large user-base, easy to create group chats

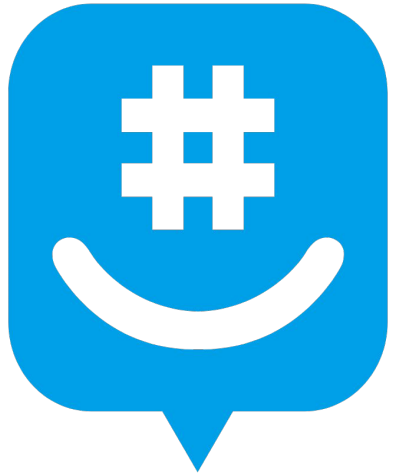
Not company or work-oriented

GroupMe

Social chatting app owned by Microsoft

Group chats and events

Not company-specific, lacks recommendations



Feature	Slack / Teams	LinkedIn	Glassdoor / Blind	Instagram / Facebook	GroupMe	Newcomer
Platform Control (User vs. Company)	Company	User	User	User	User	User
Company Verified Email	✓		✓			✓
Company-Specific Focus	✓		✓			✓
Personal Profile	✓	✓		✓	✓	✓
Create Group Channels	✓	✓		✓	✓	✓
Image Sharing	✓	✓		✓	✓	✓
Event Creation & RSVP		✓		✓	✓	✓
Casual Setting			✓	✓	✓	✓
User Recommendations		✓		✓		✓
Group Recommendations				✓		✓

Technical Overview

Frontend

Flutter framework in Dart

Cross platform (web, iOS, Android, desktop)

Modern programming language

Highly performant on all devices

Cloud

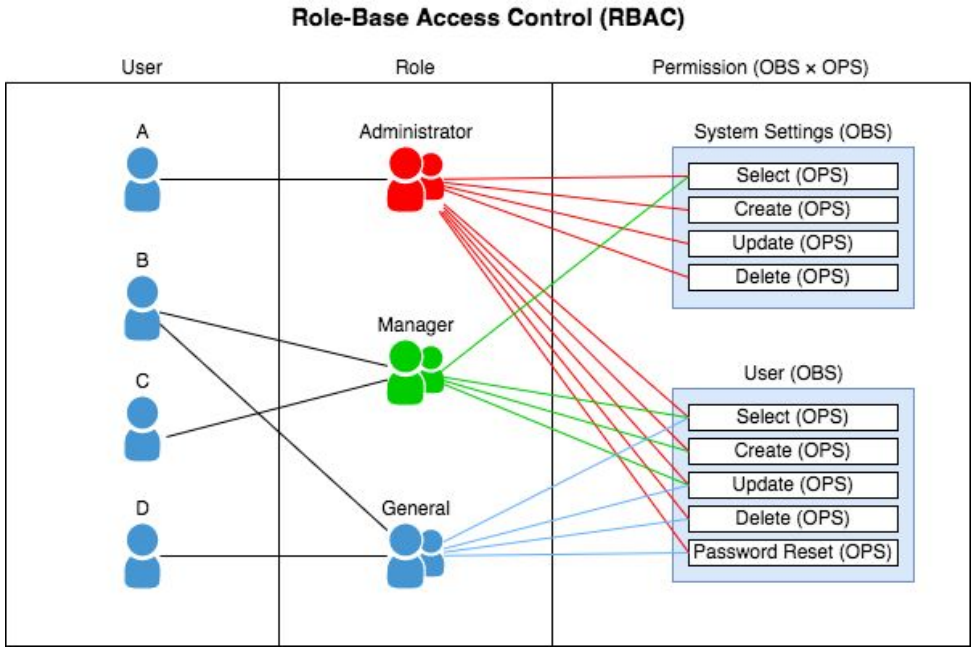
Firebase

- Cloud Firestore
- Authentication
- Cloud Functions
- Analytics
- Cloud Storage

Security

Role-Based Access Control

- Industry-standard mechanism
- Role dictates user permissions
- Each group has its own set of roles
  - Manager
  - Member
- Managers inherit “member” permissions plus more



Backend

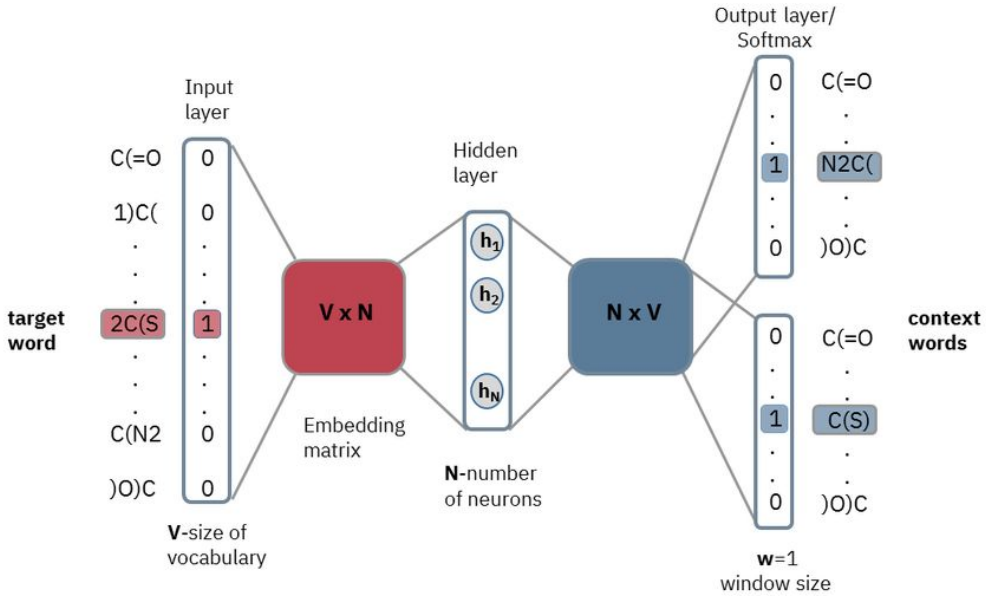
Flask framework in Python

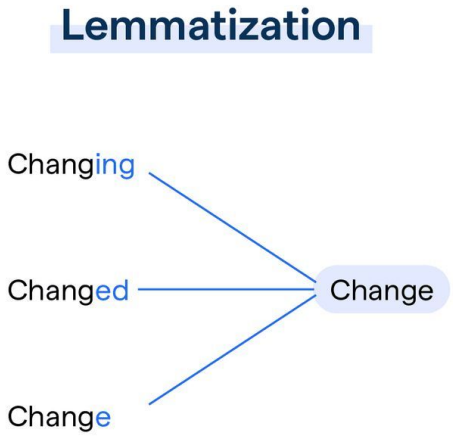
Host complex machine learning functions accessible via API call

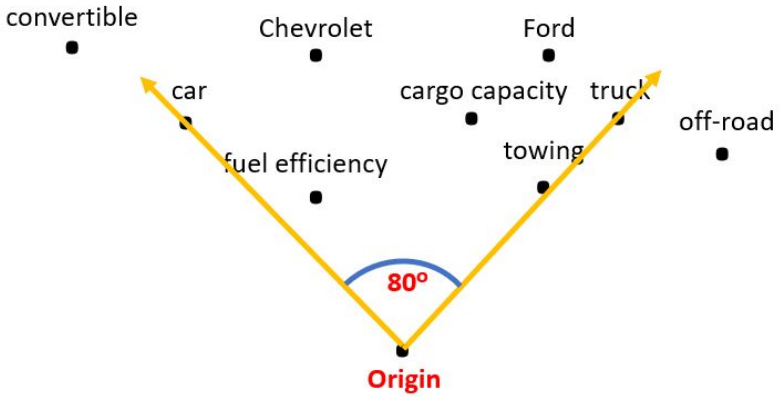
Flask

python™

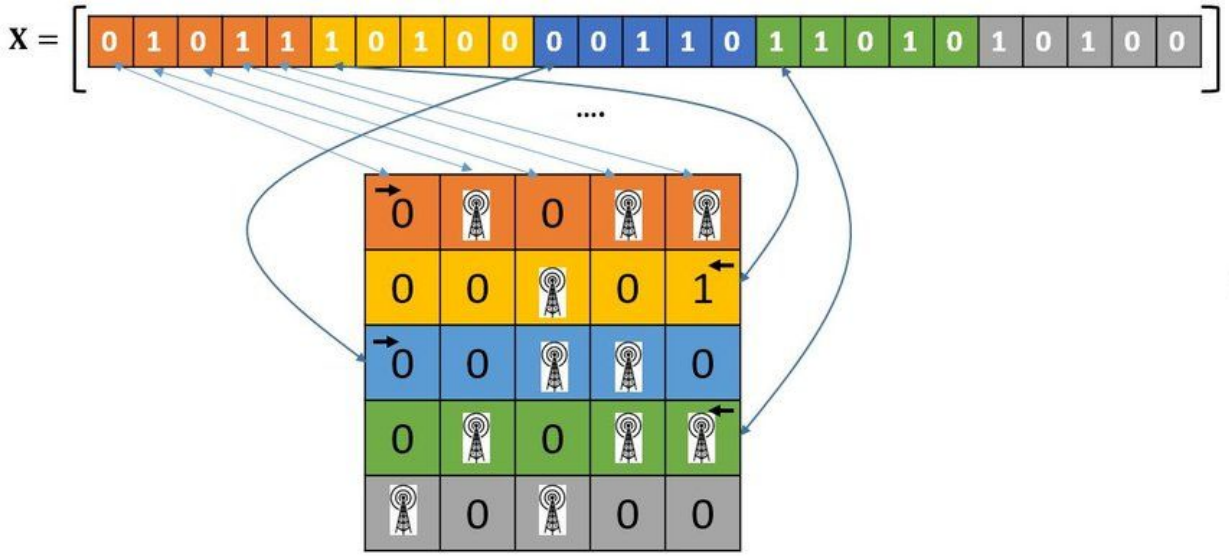
Machine Learning (Group Recommendations)







Machine Learning (User Recommendations)



$$\text{similarity} = \cos(\theta) = \frac{\mathbf{A} \cdot \mathbf{B}}{\|\mathbf{A}\|\|\mathbf{B}\|} = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2}\sqrt{\sum_{i=1}^{n} B_i^2}},$$

Machine Learning Libraries

- numpy
- gensim
- sklearn
- spacy

Live Demo

NEWCOMER
HELPING NEW EMPLOYEES CONNECT

What's Next?

Additional Features

- Other types of file attachments
- Automation of company onboarding
- Reminders for upcoming activities
- Calendar integration for activities

Market Trials

- Test out at our respective companies
- Collect user feedback
- Iron out bugs

Q&A

Thanks for listening!