Cal Poly
Announcements System

Recommendation Component
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Introduction to Announcements System

- Cal Poly is a community of 20,000+ users

- Thousands of electronic announcements are communicated to this community throughout the year

- A web application is being developed that will handle these communications
Problems With Current System

- Only a few announcements can be visible to the user at a time
- Announcements are not ranked based on user relevance
Problems With Current Announcements System
Solution: Recommender System

- Gather user feedback
- Compute similarity between user ratings
- Generate announcement ranking for each user
Problems With Traditional Recommender Systems

- Users without feedback data cannot have recommendations
- Announcements without feedback data cannot be recommended to that user
Enhanced Recommendation System

- Recommender System that uses user and announcement metadata

- Benefits
  - Users who have not provided feedback will have recommendations
  - Users do not have to specify their preferences for announcement tags
  - New announcements can be ranked
  - System is not as dependent on amount of feedback
Example Metadata

- Users
  - Role
  - Department
  - College
  - Degree
  - Major
  - Age
  - Class Year
  - Gender
  - Activities

- Announcements
  - Type
  - Publisher
  - Topics/Tags
Evaluation Process

- Develop testing framework
- Create example announcements
- Generate sample user feedback
- Develop test cases
- Evaluate algorithm accuracy
- Evaluate algorithm performance
Candidate Algorithms

- Apriori Algorithm
- Bi-partite Communities
  - Users as hubs, announcements as authorities
- Naïve Bayesian Model
- Support Vector Machine
- Hybrid Algorithms
  - Combining algorithms
- Simple statistical model
  - Primarily for use in evaluation as a baseline
Testing Framework

- Run different algorithm implementations
- Create combined algorithms
- Load different test cases
- Generate accuracy and performance statistics
Objectives

Questions to Answer

- Which algorithms perform the best?
- Which algorithms are most accurate?
- How do different algorithms behave?
- What user/announcement metadata is relevant?

Develop framework so that the final algorithm can be easily implemented in the real application