A Built-in Recommendation System of HKUST Social Network Website (WA3-13)

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Project Overview

Introduction

www.ust.hk is a social network website that aims to enhance close bonding between students at HKUST by facilitating them to connect and share events. As an initiative to enhance students’ engagement and awareness of events, a new feature is added to the website’s interface to improve users’ experience. This addition is intended to provide students with a platform to share information and engage with other students in a more interactive manner.

Project

There are several roles we created to cater to the needs of users. Their interactions with the website application will vary given the permissions given. Fig. 1 is a use case diagram that helps to illustrate the functions that are part of our project.

1. A first-time visitor:
   - Member registration and email verification will be provided to enable the creation of their profile.
2. A registered member:
   - Members will have the right to follow a group, join or create new communities, leave reviews, and receive messages from other members.
3. Group/Edit Administrators:
   - They are empowered to create and edit group-related information.
4. Website administrator:
   - They have the authority to supervise content and to delete inappropriate posts.

Implementation

The methodology used in implementing the website is Phusion Design, in which the website is broken into 5 subsystems and the implementation of each subsystem can happen in parallel with the others. The module structure of codes is easier to manage and they contribute to high efficiency in upgrading the project by means of recycling. In addition, changes in the systems are easy to handle without affecting the running of an online site.

The 5 subsystems of the website include the Sign In/Up system, Member System, Group System, Event System as well as Recommender System. The implementation of the first four subsystems are all web development and they consist of these stages: Database Design, Layout Design and Logic Programming. The Entity-Relationship is applied to database design whereas front-end languages such as HTML5, CSS, JavaScript are used in web-page layout design. Backend programming language PHP together with database SQL commands are employed in Logic Programming. The recommendation algorithms adopted in the recommendation system are Anonymous Relevance Feedback algorithms as well as the Weighted Page One algorithms. Both of them are implemented in Matlab and evaluated by statistics tools.

Results

Part of our website www.ust.hk that is displayed in the screen capture from Fig. 3 to 7 and the recommendation algorithm simulation results is presented in Fig. 8.