Course Project: Complete Recommender System Implementation
Submission Date: Thursday, January 9, 2025
15% COMPONENT

1. Instructions

- The total number of pages in this file is 4 pages.
- Students MUST complete the coursework in order.
- Each student must use his/her GitHub account that was created in ASSIGNMENT 1.
- Each GROUP **MUST** prepare the solution and write the report at home and THEN SUBMIT all components on GitHub upon receiving the invitation from the TA.
- HANDWRITTEN scans for your write-up ARE NOT ACCEPTED.
- Failure to submit the coursework will result in a ZERO this coursework.

2. Introduction

In this course component (course Project), a group of TWO students are asked to build a complete recommendation engine and provides a detailed document that contains the description of the Recommendation engine in one of the practical application domains, the expectations of the stakeholders and the project perspective, data model and constraints of the overall system.

3. Project Description and requirements

1. Each group MUST Select one of the recommendation systems applications listed in Section 3.1.
2. Send an email to the TA and CC me with the chosen title in the subject and the group members ID, full name and selected application in the body.
   Due date: Saturday, January 4, 2025, before 5:00 PM
3. Search for chosen domain and collect the necessary data and take the necessary preprocessing procedures to clean it and express the dataset in the appropriate format. You are allowed to download a benchmarked dataset.
4. Explain clearly the process of data collection and data preprocessing.
5. Give a complete description of the created/downloaded dataset showing the modelling of user interests, interactions, and intentions.
6. Analyze and interpret the data originating from user interactions in the context of designing and developing a recommender system.
7. Select the appropriate recommendation algorithm/method. Give a complete background/overview about the chosen algorithm, and how you are going to implement it.
8. Design a recommender system that is focused on a specific case in the chosen domain.
9. Implement the designed recommender system and describe the implementation process, tools and libraries.

10. Prepare a complete report according to the specifications in Section 6. This report contains the following:

    10.1. Explanation of the process of data collection and data preprocessing.

    10.2. Complete description of the created/downloaded dataset showing the modelling of user interests, interactions, and intentions.

    10.3. The analysis and interpretation of the data in the context of designing and developing a recommender system.

    10.4. Complete background/overview about the chosen algorithm.

    10.5. The design of the recommender engine that is focused on a specific case in the chosen domain.

    10.6. Description of the recommender engine implementation, describe the implementation process, tools and libraries

    10.7. Description of the testing method, test cases, and results representation.

    10.8. A copy of the results under the "Results" section.

    10.9. Description, comparison, and evaluation of the results.

    10.10. A conclusion which summarizes your own comments and critical evaluation of the results of a recommender engine.

    10.11. Any enhancement from your point of view

3.1. List of allowed recommendation systems:

1. News Personalization Recommendation Engine
2. Candidate Advertisement List Recommendation Engine
3. Promotion List Recommendation Engine
4. Shopping Recommender Engine
5. Employer-Employee Recommendation Engine
6. Job Recommendation Engine
7. E-Book Recommendation Engine
8. Knowledge Sharing Recommendation Engine
9. Healthcare Treatment Protocols Recommendation Engine
10. Personalized Medical Guidance Recommendation Engine
11. Mind Video Game Recommendation Engine
12. Mental Health Therapy Recommendation Engine
13. Problem Solving Recommendation Engine
14. Personalized-Learning Path Recommendation Engine
15. Personalized-Learning style Recommendation Engine
16. Personalized Educational-Game Recommendation Engine
17. Inventory Stock Recommendation Engine
18. Investment Options Recommendation Engine
19. Credit Cards Options Recommendation Engine

20. Social-Tagging Recommendation Engine
21. Social Networks Link Prediction Recommendation Engine
22. Geo-location Context-aware Recommender Engine
23. Time Context-aware Recommender Engine
24. Nutrition-aware Food Recommender Engine
25. Productivity- and Season-based Agricultural Crop Recommendation Engine.

4. Method and significance of the assessment

- This coursework accounts for **15%** and is done by a **GROUP OF TWO**.
- This assessment will demonstrate progression of the student's academic ability and assess students' achievement intended learning outcomes (ILOs) of the course.
- The marks will be awarded pro-rata, depending on the details, evidence of academic and technical talents, professionalism, information organization, and discussion skills.
- A **40%** reduction will be applied if evidence of thoroughness is not adequate.
- If the student appears to be performing it right but makes a mistake, they will receive a maximum of 70% for any of the requirements.

5. Marking schema:

- 30% of the mark for the report, including evidence of the presented knowledge, topic understanding, completeness of the information, analysis, and the contribution of the student.
- 60% of the mark for the implementation, experiments, and results.
- 10% of the mark for posting the report, code, dataset, and the PLAGIARISM REPOR on GitHub.

6. Report (paper) Format:

Report must follow the following.

- be word-processed,
- a report format standard,
- use correct paragraphing, formal grammar, tenses, and spelling,
- be submitted on A4,
- the title page includes <AIE425 Intelligent Recommender Systems, Fall Semester 24/25> on the first line, <Course Project: [THE TITLE YOU CHOSE]> on the second line, and <Student ID, Full Name> on the third line. Use double line space, centered contents and without page numbering.
- all other pages are 1.5 line spaced,
- use 12-point Arial font size for normal text, 12-point Arial font size, bolded for headings,
- have page numbers centered on the bottom of each page in the format <Page X of Y>,
- section headings are with the same font, size and alignment.

7. **Plagiarism and Academic Honesty**
   - INTEGRITY and COLLABORATION: Student are encouraged to discuss issues related to the assignment with other students, but genuine collaboration on all or part of the assignment must be explicitly acknowledged, or he/she will be penalized.
   - PLAGIARISM is strictly prohibited and may result in failure in this course.
   - This is an exercise, so submit your own work. If you submit material that is not entirely your own, you must state this clearly in your submission.
   - A PLAGIARISM REPORT is required for the submitted report. A similarity ratio of greater than 30% is not acceptable.
   - Code and/or written material should NOT be shared. Even a single line of code without reference will be considered plagiarism.
   - Please do not use external code unless authorized. This is easier to detect than you might think. If you must do so for any standard initialization and embedding parts, this must be referenced and properly marked/highlighted.
   - ASK Teaching Staff If you have any queries or are confused whether specific activities constitute dishonesty. It's better to be safe than sorry.

8. **Feedback given to students in response to assessed work.**
   - The written component will be assessed directly through annotations on the page.
   - Feedback for programming will also be placed on the coursework assessment sheet.

9. **Deliverables**
   - Submit the report, dataset, and code on GitHub upon receiving the invitation from the TA.
     - All files MUST be named as follow: <StudentID_StudentFullName_FileName>.
     - Put your name, and ID at the top of each file even in programs.
   - Late submission, if there is a solid reason, is permissible within 24 hours, subject to the arrangement with the teaching staff, however you will lose 50% of the coursework mark.
   - more than 24 hours delay is not accepted, and you will get **ZERO** in this coursework.

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