CHAPTER V
RESULT AND DISCUSSION

This chapter summarizes the entire series of research through the presentation of conclusions obtained from the results of the analysis, design, implementation, and testing of the alumni community platform, and presents recommended suggestions for future system development.

5.1 Conclusion

Based on the results of the analysis, design, implementation, and testing that has been carried out in the research "Design and Build a Community of Inquiry-Based Alumni Community Platform with the Content Based Filtering Method (Case Study: UPAPKK UPN "Veteran" East Java), several conclusions can be drawn as follows:

1. The web-based alumni community platform has been successfully designed and built using *the Design Science Research* (DSR) methodology and *the Agile Scrum approach*. The CoI framework was successfully operationalized into the features of the system. *Social Presence* is realized through user profiles, chats, and discussion groups to build interpersonal closeness. *Cognitive Presence* is facilitated through article features, feed uploads, and nested discussion interactions to spark knowledge exploration. Meanwhile, *Teaching Presence* is implemented through the role of management by admins, content moderation, and mentoring programs.
2. The CBF method that utilizes TF-IDF weighting and *Cosine Similarity* has been successfully integrated into the mentoring module. The system is able to extract student profile attributes such as skills, experience, bio, and career/industry interests to be automatically matched with the mentor's metadata corpus, thus overcoming the inefficiency constraint of manual matching. The evaluation of the performance of the recommendation system involving 10 student samples and 30 alumni profiles of MAP metrics resulted in a score of 0.825 (82.5%), which shows the initial feasibility of this method as a decision support tool in recommending relevant mentors.

3. The quality of the software has been well validated. In *the Blackbox test*, all 28 system test scenarios ranging from authentication, content management, mentoring cycles, to admin moderation were successfully executed 100% valid.
4. Usability level testing using the SUS instrument on 15 respondents resulted in an average score of 76.66. Based on the SUS parameters, this score falls into the category of "Good", indicating that the platform's interface is easy to understand, consistent, and well-accepted by the end user.

5.2 Suggestion

Although this alumni community platform has been successfully implemented and met the research objectives, there is some room for further development. The suggestions for future system development are as follows:

1. This research is still limited to the development of web-based systems. To improve accessibility and real-time user engagement levels, it is recommended that the system be further developed into a mobile application equipped with *an integrated* push-notification feature.
2. The current recommendation system uses the CBF method based on TF-IDF keyword matching. In the future, it is recommended to combine CBF with *Collaborative Filtering* into a *Hybrid* system if there is enough interaction and historical data to bridge the gap between the statistical frequency of keywords and more nuanced personal preferences of users, and then apply advanced semantics-based natural language processing such as Word2Vec or the Transformer model. This is so that the system can understand the synonyms or context of more complex words in the user's bio and profile description.
3. To further stimulate the *elements of Teaching Presence* and *Social Presence* within the framework of the CoI, further development can embed gamification features. Awarding digital badges or badges, contribution points, or *leaderboards* to alumni and students who are most active in mentoring or solving problems in discussion forums can encourage higher participation.
4. The *mentoring modules* currently implemented are still limited to the auto-matching function and scheduling of meeting sessions only. To increase the effectiveness of the knowledge transfer process, it is recommended to add

supporting features such as a progress tracking module, guidance notes or logs, a repository space for sharing documents/assignment files, and the integration of a video conferencing platform directly within the mentoring module.

5. As the number of users grows each year, it is recommended to transform the system towards a *Microservices* architecture to improve the scalability and reliability of the platform. Additionally, *caching* integration using Redis is highly recommended to speed up system response times and reduce the computational load on databases.
6. Future longitudinal evaluations are needed to verify whether mentor recommendations that have a high level of textual similarity actually result in accepted, sustainable mentoring interactions and have a real positive impact on students' career development.