PENGEMBANGAN CHATBOT REKOMENDASI INFLUENCER BERBASIS RETRIEVAL-AUGMENTED GENERATION PADA PLATFORM
MANAJEMEN KAMPANYE DIGITAL PT MITRA OPTIMASI HANDAL
Yudhistira Rafazaky Bandono, Dr. Imam Fahrurrozi , S.T., M.Cs.
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INTISARI

PENGEMBANGAN CHATBOT REKOMENDASI *INFLUENCER* BERBASIS *RETRIEVAL-AUGMENTED GENERATION* PADA PLATFORM MANAJEMEN INFLUENCER PT MITRA OPTIMASI HANDAL

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Pengelolaan kampanye *influencer marketing* membutuhkan analisis data heterogen dalam jumlah besar, namun pendekatan *dashboard* statis yang ada dinilai kurang efektif dalam menghasilkan *insight* yang cepat dan kontekstual. Proyek Akhir ini mengembangkan *chatbot* rekomendasi *influencer* berbasis *Retrieval-Augmented Generation* (RAG) menggunakan LangGraph dengan model Qwen3.5:0.8B, dikombinasikan dengan pgvector dan strategi pencarian *hybrid Reciprocal Rank Fusion* (RRF), serta *backend* FastAPI dengan *streaming Server-Sent Events* pada platform manajemen kampanye digital PT Mitra Optimasi Handal. Pemilihan model dilakukan melalui evaluasi komparatif terhadap tiga *Large Language Model* (LLM) menggunakan 150 *test case* dari *Stanford Question Answering Dataset* (SQuAD), di mana Qwen3.5:0.8B unggul dengan nDCG@5 sebesar 0,9025 dan Recall@5 sempurna 1,0000. Hasil pengujian menunjukkan seluruh skenario *black-box testing* berjalan sesuai spesifikasi, *load testing* membuktikan stabilitas sistem dengan *error rate* 0,00% dan rata-rata *response time* non-LLM di bawah 100 ms, serta *User Acceptance Testing* (UAT) memperoleh skor 90,85% dari tujuh responden. Sistem ini diharapkan membantu tim pemasaran dalam pengambilan keputusan pemilihan *influencer* secara lebih cepat, akurat, dan berbasis data.

Kata kunci : I*nfluencer Marketing, Large Language Model, Retrieval-Augmented Generation, Hybrid Retrieval, Reciprocal Rank Fusion*, LangGraph, Qwen3.5:0.8B, pgvector, FastAPI, *User Acceptance Testing*

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ABSTRACT

DEVELOPMENT OF AN INFLUENCER RECOMENDATION CHATBOT BASED ON RETRIEVAL-AUGMENTED GENERATION FOR A DIGITAL CAMPAIGN MANAGEMENT PLATFORM PT MITRA OPTIMASI HANDAL

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Managing influencer marketing campaigns requires analyzing large volumes of heterogeneous data, yet existing static dashboard approaches are insufficient for generating fast and contextual insights. This Final Project develops an influencer recommendation chatbot based on Retrieval-Augmented Generation (RAG) using LangGraph with the Qwen3.5:0.8B model, combined with pgvector storage and a Reciprocal Rank Fusion (RRF) hybrid retrieval strategy, and a FastAPI backend with Server-Sent Events streaming on PT Mitra Optimasi Handal's digital campaign management platform. Model selection was conducted through a comparative evaluation of three Large Language Models (LLMs) using 150 test cases from the Stanford Question Answering Dataset (SQuAD), where Qwen3.5:0.8B achieved the highest nDCG@5 of 0.9025 and a perfect Recall@5 of 1.0000. Testing results show all black-box testing scenarios passed specifications, load testing confirmed system stability with a 0.00% error rate and average non-LLM response time under 100 ms, and User Acceptance Testing (UAT) yielded a score of 90.85% from seven respondents. This system is expected to help marketing teams make influencer selection decisions more quickly, accurately, and in a data-driven manner.

Keyword: Marketing, Large Language Model, Retrieval-Augmented Generation, Hybrid Retrieval, Reciprocal Rank Fusion, LangGraph, Qwen3.5:0.8B, pgvector, FastAPI, User Acceptance Testing