

ABSTRACT

INDONESIAN LANGUAGE CHATBOT MODEL USING BERT ARCHITECTURE

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Chatbot in its creation uses a natural language processing (NLP) approach where a large enough dataset is needed to produce an optimal chatbot model, but with the few datasets that can be used, it will certainly be difficult to create a chatbot model. The existence of transfer learning techniques can overcome this problem, where this technique uses pre-trained models that have been trained with large datasets and can be modified for the given task. Transfer learning in the field of NLP has a pre-trained model that is quite often used, namely Bidirectional Encoder Representations from transformers (BERT). The purpose of this research is to create an Indonesian chatbot model using BERT, where the dataset used is data about the library of the Telkom Institute of Technology Purwokerto and Merdeka Learning Campus Merdeka (MBKM) data. Modeling using simpletransformers library and hyperparameter, an optimal model is obtained compared to other models with accuracy, precision, recall, f1-score and EM results respectively 0.97, 0.89, 0.96, 0.92, and 0.87. Testing was carried out in two stages, with stage 1 testing using model.predict and stage 2 using the haystack library. Testing in stage 1 shows better results than stage 2. The accuracy, precision, recall, f1-score, and EM values in stage 1 are 0.86, 1, 0.86, 0.92, and 0.86, respectively, while stage 2 only provides a value of 0.56 for the entire test data and a relevant value of 0.06. Therefore, it is recommended to use testing in stage 1 as a model evaluation method rather than stage 2, because the results are better, even though using the haystack library.

Keywords: *BERT, Chatbot, Transfer Learning, Simple Transformers.*