INFORMATION EXTRACTION ON SHOPPING RECEIPTS USING OPTICAL CHARACTER RECOGNITION AND BIDIRECTIONAL LONG SHORT-TERM MEMORY

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ABSTRACT

Shopping receipts are proof of transactions and contain essential information such as location, transaction time, itemized lists, and prices. However, manually extracting this information is inefficient and susceptible to errors. This research aims to develop an automated system for extracting information from shopping receipt images by integrating Optical Character Recognition (OCR) with Bidirectional Long Short-Term Memory (Bi-LSTM) methods. OCR is employed to convert receipt images into digital text. At the same time, the Bi-LSTM model is utilized to identify key entities (Named Entity Recognition) such as date, location, items, and prices from the OCR-generated text. The research dataset comprises shopping receipt photos independently collected by the author, which are used for model training and evaluation. The application is developed using Python and Dart programming languages. The Django framework is utilized for backend development, while Flutter is employed for the front end. PostgreSQL is selected as the database to store the extraction results in a structured manner. The study's findings demonstrate that the Bi-LSTM model exhibits a 95% accuracy, precision, and recall rate. It is anticipated that the findings of this research will contribute to the advancement of automation technology for the management of unstructured data, thereby supporting digital financial records.

Keywords: Information Extraction, OCR, Bi-LSTM, Structure.