Abstract

Background: Type 2 diabetes mellitus (T2DM) is a condition of severe glucose spike in bloodstream caused by the insulin impairment response and defect in production. Unlike the other types of diabetes, T2DM holds the majority of the diabetes population and is strongly associated with poor lifestyle. The condition of T2DM currently is quite concerning as 50% of the population is undiagnosed, mostly due to less awareness or inability to have a medical check-up. A reachable tool for early detection is a critical point to tackle further complication of this problem and currently the use of machine learning and deep learning as an AI model has become a new approach for this. At the same time, the use of AI models in mobile device applications (mobile inference) offers a wider public service and many other benefits.
Objective: This study proposes an android mobile application inference with AI model of deep neural network (DNN) for T2DM likelihood prediction to offer the user a tool for self-evaluation.
Methods: 4 DNN diabetes prediction models were proposed, evaluated statistically, and the model with best performance was selected. The model was integrated with mobile app development that was done with flutter framework.
Findings: 10 health indicators from dataset shown as the best for model prediction, and mobile application has built the widget input for these features, which successfully give the prediction and released as application.
Conclusion: The integration of DNN and mobile development yield an android app for T2DM prediction which offers self-evaluation for the user.

Keywords: Type 2 diabetes mellitus, deep neural network, mobile application inference