



Design of Expert System for Digestive Diseases Identification Using Naïve Bayes Methodology for iOS-Based Application

Dewi Salma Salsabila, Rinabi Tanamal

Abstract

Shown symptoms in digestive diseases might be similar, resulting in patient's suspected diseases before and after diagnosis attempt might turn out to be different. This paper aims to build a design of an expert system for digestive disease identification using Naïve Bayes methodology for iOS-based applications. The result from this paper helps medical interns to increase the accuracy in predicting patient's suspected digestive disease. A precise prediction in suspected disease identification can minimize unnecessary diagnosis attempts, which saves time and reduces cost. Naïve Bayes is chosen because it has a higher accuracy level than other classification methods. This research includes collecting data through literature reviews on digestive diseases and their symptoms, processing the data to be turned into a knowledge base for the expert system, conducting data training using Naïve Bayes by the designed expert system application through this research. The result from the conducted data training using Naïve Bayes methodology shows that the expert system application has a higher accuracy level, which is 84%.

Keywords

digestive disease; expert system; naïve Bayes; iOS; knowledge-based

Full Text:

[PDF](#)

References

- X. Zhou, J. Menche, A.-L. Barabási and A. Sharma, "Human symptoms-disease network," *Nature Communications*, vol. 5, article number: 4212, 2014.
- M. Mirmozaffari, "Presenting a Medical Expert System for Diagnosis and Treatment of Nephrolithiasis," *EJMED, European Journal of Medical and Health Sciences*, vol. 1, no. 1, pp. 1-3, 2019.
- N. A. Hasibuan, H. Sunandar, S. Alas and S. , "Sistem Pakar Mendiganosa Penyakit Kaki Gajah Menggunakan Metode Certainty Factor," *Jurnal Riset Sistem Informasi Dan Teknik Informatika (JURASIK)*, pp. vol. 2, no. 1, 29-39, 2017.
- R. R. Fanny, N. A. Hasibuan and E. Buulolo, "Perancangan Sistem Pakar Diagnosa Penyakit Asidosis Tubulus Renalis Menggunakan Metode Certainty Factor dengan Penulusuran Forward Chaining," *Media Informatika Budidarma*, vol. 1, no. 1, pp. 13-16, 2017.
- M. K. Rosananda and R. Tanamal, "Android-Based Dental and Oral Health Diagnostic Expert System," *Jurnal Informatika Universitas Pamulang*, Vol. 3, No. 4, pp. 5-13, 2018.
- L. Böhn, S. Störsrud, T. Liljebo, L. Collin, P. Lindfors, H. Törnblom and M. Simrén, "Diet low in FODMAPs Reduces Symptoms of Irritable Bowel Syndrome as Well as Traditional Dietary Advice: A Randomized Controlled Trial," *Gastroenterology*, vol. 149, issue 6, pp. 1399-1407, 2015.
- P. Moayyedi, M. G. Surette, P. T. Kim, J. Libertucci, M. Wolfe, C. Onischi, D. Armstrong, J. K. Marshall, Z. Kassam, W. Reinisch and C. H. Lee, "Fecal Microbiota Transplantation Induces Remission in Patients With Active Ulcerative Colitis in Randomized Controlled Trial," *Gastroenterology* 2015, vol. 149, issue 1, p. 102-109, 2015.
- J. Torres, S. Mehandru, . J.-F. Colombel and L. Peyrin-Biroulet, "Crohn's Disease," *The Lancet*, vol. 389, issue 10080, pp. 1741-1755, 2017.
- A. Lanas and F. K. L. Chan, "Peptic Ulcer Disease," *The Lancet*, vol. 390, issue 10094, pp. 613-624, 2017.
- E. Ferkingstad, A. Oddsson, S. Gretarsdottir, S. Benonisdottir, G. Thorleifsson, A. M. Deaton, S. Jonsson, O. A. Stefansson, G. L. Norddahl, F. Zink, G. A. Arnadottir, B. Gunnarsson, G. H. Halldorsson, A. Helgadottir, B. O. Jensson, R. P. Kristjansson, G. Sveinbjornsson, D. A. Sverrisson, G. Masson, I. Olafsson, G. I. Eyjolfsson, O. Sigurdardottir, H. Holm, I. Jonsdottir, S. Olafsson, T. Steingrimsdottir, T. Rafnar, E. S. Bjornsson, U. Thorsteinsdottir, D. F. Gudbjartsson, P. Sulem and K. Stefansson, "Genome-wide association meta-analysis yields 20 loci associated with gallstone disease," *Nature Communications*, vol. 9, article number: 5101, 2018.
- M. D. Mello, A. R. Shriver, Y. Li, A. Patel and C. P. Gyawali, "Ineffective esophageal motility phenotypes following fundoplication in gastroesophageal reflux disease," *Neurogastroenterol Motil*, p. 292-298, 2016.
- W. Tussakinah, M. and I. R. Burhan, "Hubungan Pola Makan dan Tingkat Stres terhadap Kekambuhan Gastritis di Wilayah Kerja Puskesmas Tarok Kota Payakumbuh Tahun 2017," *Jurnal Kesehatan Andalas*, vol. 7, no. 2, pp. 217-225, 2018.
- D. S. Maylawati, W. Darmalaksana and M. A. Ramdhani, "Systematic Design of Expert System Using Unified Modelling," *IOP Conference Series: Materials Science and Engineering*, vol. 288, nr 012047, 2018.
- R. A. Pane, M. S. Mubarak, N. S. Huda and A. , "A Multi-table Classification on Topics of Quranic Verses in English Translation using Multinomial Naive Bayes," *i 6th International Conference on Information and Communication Technology (ICICT)*, Bandung, Indonesia, 2018.
- F. Rosi, M. A. Fauzi and R. S. Perdana, "Prediksi Rating Pada Review Produk Kecantikan Menggunakan Metode Naive Bayes dan Categorical Proportional Difference (CPD)," *Junal Pengembangan Teknologi Informasi dan Ilmu Komputer*, pp. 1991-1997, 2018.
- S. A. Sualim, N. M. Yassin and R. Mohamad, "Comparative Evaluation of Automated User Acceptance Testing Tool for Web Based Application," *International Journal of Software Engineering and Technology*, vol. 2, no. 2, pp. 1-6, 2016.
- I. Alwi, "Kriteria Empirik dalam Menentukan ukuran Sampel pada Pengujian Hipotesis Statistika dan Analisis Butir," *Jurnal Formatif 2*, vol. 2, pp. 140-148, 2015.
- S. Y. (. Chyung, K. Roberts, I. Swanson and A. Hankinson, "Evidence-Based Survey Design: The Use Of A Midpoint On The Likert Scale," *Performance Improvement*, vol. 56, nr 10, pp. 15-23, 2017.

DOI: <http://dx.doi.org/10.25139/inform.v0i1.2771>

Refbacs

- There are currently no refbacks.

QUICK MENU

[Editorial Team](#)

[Reviewer](#)

[Focus and Scope](#)

[Author Guidelines](#)

[Publication Ethics](#)

[Open Access Policy](#)

[Peer Review Process](#)

[Online Submission](#)

[Register](#)

[Author\(s\) Fee](#)

[Contact](#)

[List of Affiliates](#)

TEMPLATE

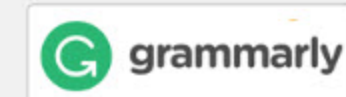


USER

You are logged in as...
dewi_salma_salsabila

- ▶ [My Journals](#)
- ▶ [My Profile](#)
- ▶ [Log Out](#)

TOOLS



JOURNAL CONTENT

Search

Search Scope
All

Browse

- ▶ [By Issue](#)
- ▶ [By Author](#)
- ▶ [By Title](#)
- ▶ [Other Journals](#)

ABOUT THE AUTHORS

Dewi Salma Salsabila
Universitas Ciputra
Indonesia
Department of Information
Technology

Rinabi Tanamal
Universitas Ciputra
Indonesia
Department of Information
Technology

INFORMATION