IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 1, April 2025
Impact Factor: 7.67

AI SQL Assistant using NLP

Pritesh Patil[1], Vaibhav Datkhil[2], Ashish Birajdar[3], Atharv Jagdale[4]
Professor, Department of IT[1]
Students, Department of IT[2,3,4]
AISSMS Institute of Information Technology, Pune, Maharashtra, India

Abstract: *This paper designs an NLP-based system which integrates databases to turn textual queries into SQL statements. Users can operate the system through natural language searches since they do not need to learn SQL commands. The system detects main information in user input and uses predefined keywords to guide data extraction and cleanup operations. The classifier uses multinomial logistic regression to analyze data through an identification process that recognizes selection or insertion or update or deletion queries among others. The system generates an appropriate SQL query for execution against the database since it determines the query type. The system generates user-friendly presentation of results to the end-user. The system enables users without programming experience to operate complex database systems by removing the requirement to create SQL commands. Modern enterprises must rely on simple user interfaces to broaden data accessibility because they implement information systems at an increasing rate. The system enables more users to make data-based decisions through its query-generation facilitation capability. The deployment of machine learning and NLP methods ensures continuous improvement of query understanding for system users through time therefore delivering more specific results.Through these measures the system provides democratic access to data that enables users from various industries to obtain database insights without requiring specialized technical qualifications.*

Keywords: Natural Language Query, Text-to-text, Structed Query Language (SQL), Database Query

DOI: 10.48175/IJARSCT-24850