A Conversational Chatbot for Cricket Analytics

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Abstract : Cricket is a data-rich sport, generating vast amounts of information, much of which is captured as textual commentary. Leading cricket data providers, such as ESPN Cricinfo include valuable Decision Review System (DRS) statistics within these commentaries, often as footnotes. Despite the significance of this data, accessing and analyzing it efficiently remains a challenge. This paper presents the development of a sophisticated chatbot designed to answer queries specifically about DRS in cricket. It supports up to seven distinct query types, including individual player statistics, umpire performance, player vs umpire dynamics, comparisons between batter and bowler, a player's record at specific venues and more. Additionally, it enables stateful conversations, allowing a user to seamlessly build upon previous queries for a fluid and interactive experience. Leveraging advanced text-to-SQL methodologies and open-source frameworks such as Langgraph, it ensures low latency and robust performance. A distinct prompt engineering module enables the system to accurately interpret query intent, dynamically transitioning to an assisted text-to-SQL approach or a rule-based engine, as needed. This solution is the one of its kind in cricket analytics, offering unparalleled insights in cricket through an intuitive interface. It can be extended to other facets of cricket data and beyond, to other sports that generate textual data.