

Cognitive Insights in T20 Cricket

Knowledge Representation
and Reasoning using
Ontology-based Modeling

Problem Statement and Methodology

- Problem Statement:
- Develop an ontology-based model to analyze cognitive states of players in T20 cricket.
- Methodology:
 - - Used RDF and OWL for ontology representation.
 - - Utilized SPARQL queries for data extraction.
 - - Implemented Python for RDF graph creation and visualization.

Project Workflow and Tools/Code Used

- Project Workflow:
 - 1. Data Loading and Preprocessing
 - 2. RDF Graph Creation
 - 3. SPARQL Querying and Insights Generation
 - 4. Cognitive State Analysis and Visualization
- Tools/Code Used:
 - - Python (Libraries: RDFlib, NetworkX, Pyvis)
 - - RDF and OWL for ontology modeling.

Results and Querying Explanation

- Results:
 - - Identified cognitive states: Aggression, Risk Aversion, Fatigue.
 - - Visualized RDF graph and cognitive states.
- Querying Explanation:
 - - SPARQL queries extracted match and player data by city, performance metrics.
 - - Data patterns highlighted cognitive insights for strategic planning.

Future Work

- Future Work:
- - Extend ontology to include team dynamics and weather impacts.
- - Enhance reasoning models for real-time analysis.