

Cricket Batsman Analyzer

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- 12 labs hackathon on lablab

Demo: [link](#)

Game of Cricket

The game of cricket has more than a billion viewers.

It is popular in the **South Asia, Australia, England, South Africa and the West Indies.**

Similar to premier leagues in soccer (football), there are

- IPL (Indian Premier League)
- Big Bash (Australia)

And many more

Billion dollar industry

- 1. Global Popularity and Demand:**
 - The immense popularity of cricket has led to a high demand for video analysis tools.
 - Coaches, players, and teams use these tools to analyze player performance, match strategies, and opponent weaknesses. The ability to break down every aspect of a game, from batting techniques to bowling actions, has become crucial for success.
 - As cricket leagues (such as the Indian Premier League) and international tournaments continue to grow, the demand for sophisticated video analysis software has skyrocketed.
- 2. Advanced Technology and Data Insights:**
 - Cricket video analysis tools have evolved significantly over the years. High-speed cameras, ball-tracking systems, and AI algorithms allow for precise analysis of player movements, ball trajectories, and field placements.
 - Coaches can identify patterns, assess player fitness, and make data-driven decisions. For example, analyzing a batsman's scoring zones or a bowler's release point can provide valuable insights.
 - These tools not only benefit professional teams but also amateur players, academies, and even fans who want to understand the game better.
- 3. Commercialization and Broadcast Enhancements:**
 - Broadcasters play a crucial role in the cricket industry. They use video analysis tools to enhance viewer experience during live matches.
 - Features like **Hawk-Eye ball tracking**, Snickometer, and UltraEdge have become integral to televised cricket. These technologies provide real-time insights to viewers, making the game more engaging.
 - Advertisers and sponsors recognize the value of cricket's massive audience. As a result, they invest heavily in cricket-related content, further boosting the industry's revenue.

[In summary, the combination of global interest, technological advancements, and commercial opportunities has turned cricket video analysis into a billion-dollar industry](#)

Comparison with Baseball

- Similar to that of Baseball, Cricket has a batsman (batter) and a bowler (pitcher). There are fielders
- **Scoring Runs:**
 - Baseball: A player scores a run by hitting the ball and running around four bases to reach home plate.
 - Cricket: Runs are scored by the two batsmen running to exchange places between the wickets after hitting the ball, each successful exchange counts as one run. Additionally, hitting the ball to the boundary scores four runs automatically, and over the boundary on the fly scores six.
- **Fielding:**
 - Baseball: The field is diamond-shaped with outfield and infield areas. The defense tries to get the batter out by catching the ball in the air or throwing it to the base they're running towards before they reach it.
 - Cricket: The field is oval, with 360-degree potential hitting area. Fielders are placed strategically around the field to stop the ball and return it quickly to prevent runs or to catch the ball off the bat to get the batter out.
- **Getting Out:**
 - Baseball: Common ways to get out include three strikes (the batter misses three pitches), a flyout (ball is caught in the air), or a force out/tag out (runner is tagged before reaching a base).
 - Cricket: Players can be out by being bowled (ball hits the stumps), caught (ball is caught before it hits the ground), leg before wicket (ball hits the pads obstructing the stumps), and several other specific ways.
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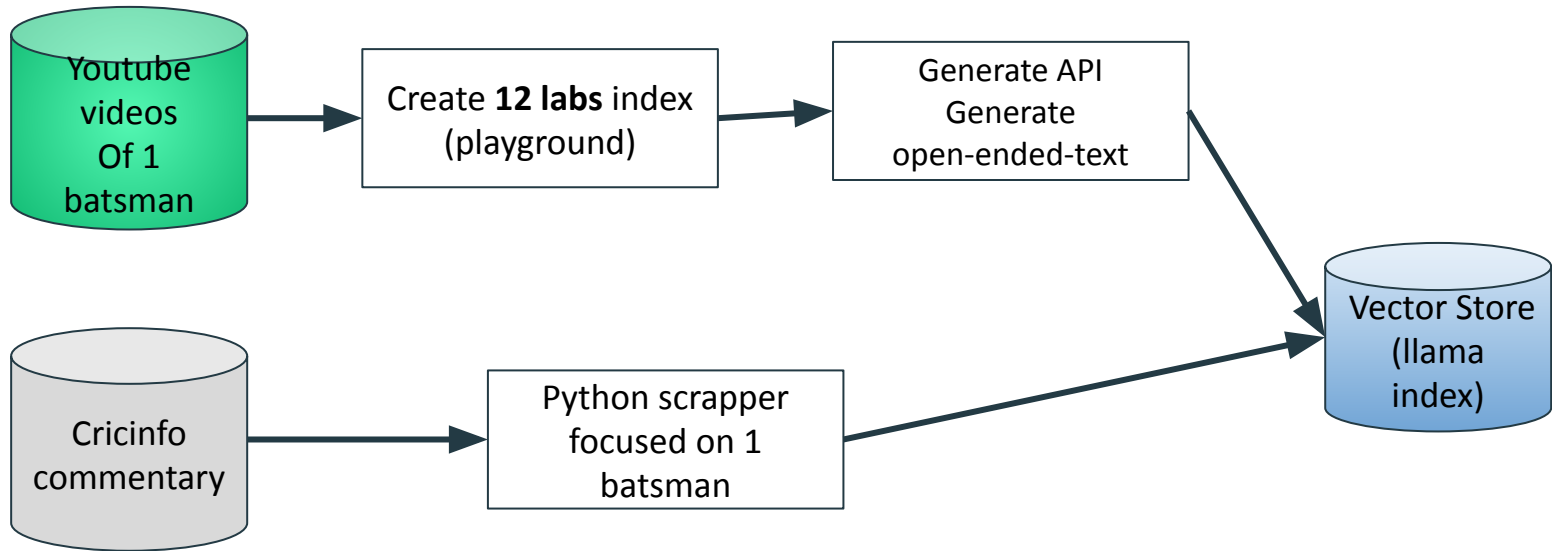
Problem

- **Analyzing a batsman**
- Bowler needs to understand the strengths and weaknesses of a batsman
 1. Plan for a strategy to GET THE BATSMAN OUT
 2. Plan for a strategy to contain and NOT let BATSMAN score runs (requires understanding the shots they play)

Solution

1. Choose 1 batsman (Glenn Maxwell of Australia)
2. (Source 1) : Use 12 labs API to understand their playing style -
 - a. **Understand the video**
 - b. **Generate the text**
3. (Source 2 for additional augmentation) : Use cricinfo.com APIs to get ball by ball commentary of the batsman
4. Build a vector store of the dataset built using (2) and (3)
5. Use GPT-4 to answer questions on this dataset (RAG application)

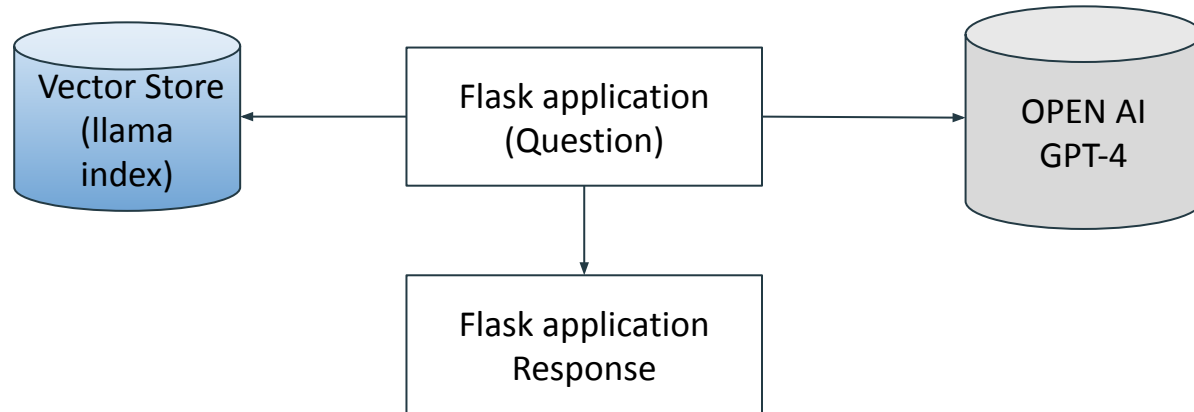
Solution (building the index from multiple sources)



<https://docs.twelvelabs.io/docs/generate-open-ended-texts>

We took Glenn Maxwell of Australia (a great batsman)

Ask questions about the batsman (RAG)



Screenshots from Demo



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We have extracted Glenn Maxwell's batting technique from a few Youtube videos and cricinfo commentary. Ask question about Maxwell's batting

How to get Glen Maxwell out? Give a detailed strategy with field placement

Submit



To get Glenn Maxwell out, one specific detailed strategy with field placements could involve setting a field to exploit his aggressive batting style. Placing a fielder at deep mid-wicket and deep square leg to cover the boundary, along with a fielder at deep cover to prevent easy runs, can be effective. Additionally, having a fielder at long-off and long-on can help cover his powerful shots down the ground. By setting this field, the aim is to tempt Maxwell into playing a lofted shot towards the leg side, where the deep fielders are positioned to take the catch if he mistimes the shot. This strategy aims to capitalize on Maxwell's tendency to go for big hits and create a catching opportunity in the deep.

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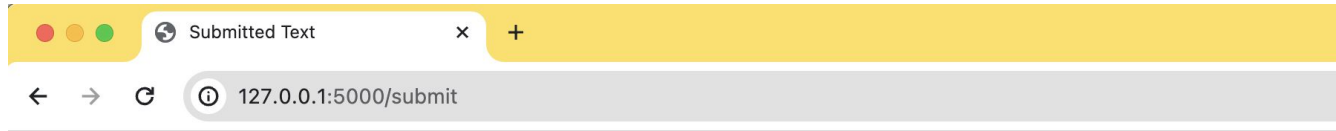
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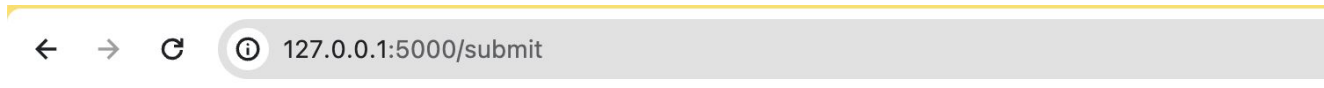
What IS the ONE most common shot that Glenn Maxwell for sixes?

Submit



The most common shot that Maxwell uses for hitting sixes is the powerful smash that clears the boundary with ease.

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Glenn Maxwell's most common shot for sixes is the powerful smashes that clear the boundary with ease.

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Technical implementation	Use twelve labs to index youtube videos of Glenn's batting to summary Used External datasets by scraping from cricinfo
Creativity and novelty of the sports use case	No existing solution that uses Multimodal LLM understanding for the Cricket usecase
Impact and practicality of the solution	Impact: Billion dollar industry Practicality: there is a need for ball by ball summary endpoint to twelve labs
demo and presentation polish	Self understandable demo and deck Loom: link Deck: link

Demo (flask) and Code walkthrough

<http://127.0.0.1:5000>

1. 12labs API indexing + Generating summary
(https://github.com/Raghavan1988/12labs_hack_cricket_strategy/blob/main/maxwell_12labs_video_analysis.py)
2. Cricinfo dataset: series of python files => final text
https://github.com/Raghavan1988/12labs_hack_cricket_strategy/blob/main/maxwell_cricinfo.txt
3. Flask APP
https://github.com/Raghavan1988/12labs_hack_cricket_strategy/blob/main/flask_app.py

Thank you

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*Credit to [Arvind Muralimohan](#) as we discussed this idea several months ago. We validated the potential of this idea back then.