Gameathon 2.0 - Post-Event Documentation

Team Name

Mumbai Super Kings

Content:

1.0 Dataset Used

1. **IPL 2025 Fixture Data:**

   A JSON-style list containing all match details (match number, date, time, teams, venue). This list was used to determine which teams were playing on a given date.

2. **Dynamic Web Data (SerperDevTool):**

   Used to fetch:

   - Toss results
   - Player injuries
   - Pitch and weather conditions
   - Recent player performance
   - Match previews

   Queries were performed using Serper, a search agent tool that powered CrewAI's web lookup tasks.

3. **IPL 2025 Squad Data.**

2.0 Features and Parameters

1. **Player Validation:**

   Regex-based normalization ensures player names input/generated by the model are matched with their correct franchise.

2. **Dream11 Compliance Validation:**

The generated team adheres to Dream11 official rules:
- Max 7 players from one team
- 1–4 wicket-keepers
- 3–6 batsmen
- 1–4 all-rounders
- 3–6 bowlers

One player must be marked as Captain and one as Vice-Captain from the main XI.

3. **LLM Parameters:**

- Model: gemini-2.0-flash-lite.
- Used via crewai.LLM abstraction.
- Parameters like prompt structure, temperature, and output formatting were tuned to ensure high-quality structured responses.

4. **Player Insights:**

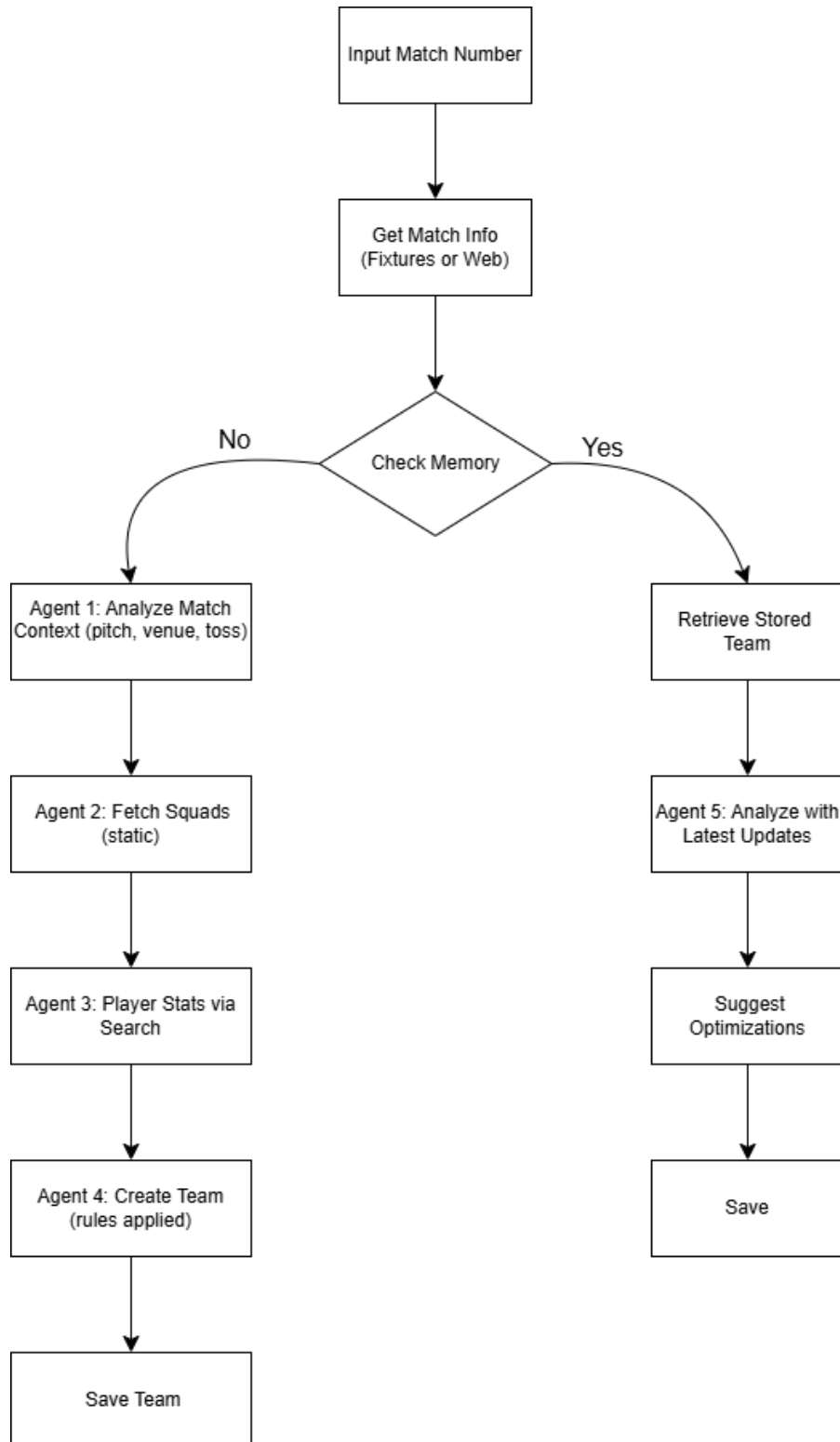Each selected player was evaluated based on:
- Match venue performance history
- Latest fitness/injury status
- Recent form in IPL and T20 matches
- Expected playing role and team strategy

5. **Optimization Parameters:**

- The system analyses stored teams pre-match to detect outdated picks (due to injury/benching).

- Suggestions are offered in a CSV format (REPLACE actions, CAPTAIN changes).

3.0 Model Flow Diagram

```
                    ┌─────────────────────┐
                    │  Input Match Number │
                    └─────────────────────┘
                               │
                               ▼
                    ┌─────────────────────┐
                    │   Get Match Info    │
                    │  (Fixtures or Web)  │
                    └─────────────────────┘
                               │
                               ▼
          No              ◇─────────◇              Yes
     ┌──────────────────◇ Check Memory ◇──────────────────┐
     │                   ◇─────────◇                        │
     ▼                                                      ▼
┌──────────────────────┐                      ┌──────────────────────┐
│ Agent 1: Analyze Match│                     │  Retrieve Stored     │
│ Context (pitch, venue, │                    │       Team           │
│ toss)                 │                      └──────────────────────┘
└──────────────────────┘                                 │
     │                                                    ▼
     ▼                                        ┌──────────────────────┐
┌──────────────────────┐                      │ Agent 5: Analyze with│
│ Agent 2: Fetch Squads │                     │   Latest Updates     │
│ (static)              │                      └──────────────────────┘
└──────────────────────┘                                 │
     │                                                    ▼
     ▼                                        ┌──────────────────────┐
┌──────────────────────┐                      │      Suggest         │
│ Agent 3: Player Stats │                     │   Optimizations      │
│ via Search            │                      └──────────────────────┘
└──────────────────────┘                                 │
     │                                                    ▼
     ▼                                        ┌──────────────────────┐
┌──────────────────────┐                      │        Save          │
│ Agent 4: Create Team  │                     └──────────────────────┘
│ (rules applied)       │
└──────────────────────┘
     │
     ▼
┌──────────────────────┐
│     Save Team        │
└──────────────────────┘
```

4.0 Credits

1. **Google Gemini API:**
   Large Language Model used for reasoning, player evaluations, formatting CSV output, and generating analysis reports.

2. **SerperDevTool:**
   Tool agent for querying live match data, form guides, and injury updates.

3. **CrewAI Framework:**
   Used to define and orchestrate agents and tasks in sequential workflows for team generation and optimization.

5.0 Additional Insights

1. **Automation-First Design:**
   Entire system can run autonomously — from match lookup to team generation — with no manual inputs except the match number.

2. **Usability Focus:**
   Generates an Excel file for every match in an output/ directory. Easy to share, review, and upload to Dream11.

3. **LLM Prompt Engineering:**
   Structured prompts enforce response formats with delimiters (## DREAM11_CSV_DATA) to ensure easy parsing into DataFrames.

4. **Analysis Agent:**
   Auto-extracts strengths, weaknesses, and captaincy performance from the original team and matches it with conditions.

6.0 Team Name

Mumbai Super Kings