

# Guru Nanak Dev Engineering College

## Training Diary - TR-102 Report

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**Day 12**

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### Training Summary

On Day 12 of the training program, we focused on **Function Calling in LangChain**, which allows external APIs and tools to be integrated with large language models. We explored how to define tools and enable models to invoke them dynamically during execution.

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### What is Function Calling in LangChain?

Function calling in LangChain empowers language models to interact with **external tools** (APIs, scripts, databases, etc.) by structuring inputs and outputs in a standardized format. This technique is essential for enhancing the model's real-time interactivity with external data sources.

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### Hands-On Projects Completed

#### 1. Live Cricket Info from Cricbuzz API

- Used **Cricbuzz's API** to fetch real-time match data including:
  - Live scores
  - Match status
  - Team performance
- Integrated this into a LangChain function so the LLM could dynamically respond with live cricket updates based on user queries.

#### 2. Weather Forecast with Gemini + Weather API

- Integrated **Weather API** and used **Gemini** for intelligent summarization.
- Model responded to location-specific weather queries and displayed structured outputs like:
  - Current temperature
  - Weather condition (e.g., cloudy, rainy)

- Additional details like humidity or wind speed

Both tools were successfully implemented and registered within LangChain, enabling seamless access during runtime.

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### Tools s Technologies Used

- **LangChain** - for defining and calling external tools
- **Gemini API** - for response generation and summarization
- **Cricbuzz API** - for fetching live cricket match data
- **Weather API** - for real-time weather information
- **Python** - for scripting and integration

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### Learning Outcome

- Understood the structure and logic behind **LangChain Tool s Agent usage**.
- Implemented real-world API integrations for **dynamic querying** via LLM.
- Built intelligent, context-aware tools to respond with live and relevant data.
- Strengthened knowledge of function schemas, parameters, and usage flow in LangChain.