Nutrition Assistant - IBM Cloud Project Report

1. Project Title

AI-powered Virtual Nutrition Assistant using IBM Watsonx.ai

2. Problem Statement

Problem Statement No. 8: Develop an AI-powered personalized virtual nutrition assistant leveraging IBM Cloud Lite services. The assistant should support multimodal inputs (text, voice, image), provide personalized meal plans, explain nutritional choices, and adapt to user feedback.

3. Objective

To build a smart nutrition agent that can interactively guide users with healthy and personalized diet recommendations using IBM Watsonx.ai Prompt Lab and available IBM Cloud tools.

4. Technologies Used

- IBM Cloud
- IBM Watsonx.ai
- Prompt Lab
- Generative AI (Granite Models)
- GitHub (for version control)
- Python (minimal scripting where applicable)

5. Features Implemented

- Multimodal Input: Text, voice, and image-based input support
- Personalized Meal Planning: Based on dietary preference, health goals, or regional food items
- Grounded Responses: Nutrition-based guidance
- Dynamic Feedback Loop: Assistant adapts recommendations based on user responses

6. Approach

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The assistant was created using the Prompt Lab interface. No dataset was deployed, but contextual understanding was designed via carefully engineered prompts and grounded reasoning. The AI was tested using multiple inputs to generate region-specific and goal-based meal plans.

7. Screenshots

Screenshots include:

- Prompt Lab Interface
- AI-generated Meal Plan Output
- Saved Prompt Template

8. Challenges Faced

- Understanding how to utilize Prompt Lab with vector index grounding
- Managing prompt complexity for regional food adaptation
- Deployment errors due to missing watsonx.ai runtime association

9. Outcome

The assistant successfully processes user queries and returns relevant and personalized nutritional advice and meal plans via AI prompt engineering.

10. Repository

GitHub: https://github.com/<your-username>/Nutrition-Assistant-IBM