

# EDUNET FOUNDATION - IBM SKILLSBUILD

## FITNESS BUDDY

Presented By:  
Amit Madeli

ITER – Siksha 'O' Anusandhan University  
Computer Science & Engineering

# OUTLINE

- 🕒 **Problem Statement**
- 🕒 **Proposed System/Solution**
- 🕒 **System Development Approach (Technology Used)**
- 🕒 **Algorithm & Deployment**
- 🕒 **Result (Output Image)**
- 🕒 **Conclusion**
- 🕒 **Future Scope**
- 🕒 **References**

# PROBLEM STATEMENT

- 🔊 In today's fast-paced and digitally connected world, many individuals face difficulty maintaining a healthy lifestyle due to time constraints, lack of personalized fitness guidance, and inconsistent motivation. Traditional fitness solutions often involve costly subscriptions, rigid schedules, or require in-person consultations that are not adaptable to each user's unique preferences, routines, or fitness levels.
- 🔊 There is a growing need for an intelligent, accessible, and always-available solution that offers personalized workout recommendations, nutrition tips, and motivational support.
- 🔊 The **Fitness Buddy** project aims to solve this issue by developing a conversational AI-powered virtual assistant using **IBM Granite-3.3-8B-Instruct** and **IBM watsonx.ai**. This assistant will deliver real-time, tailored guidance on fitness routines, healthy meals, and habit-building techniques, making health and wellness support more convenient, engaging, and user-centric.

# PROPOSED SOLUTION

## Proposed Solution: Fitness Buddy - AI-Based Virtual Fitness Assistant

Fitness Buddy addresses the challenges of maintaining a healthy lifestyle by offering an intelligent, conversational assistant that provides personalized fitness routines, nutrition tips, and motivational support—anytime, anywhere.

### Data Collection

User data such as fitness goals, activity level, workout/diet preferences, and availability is collected. Contextual data like time of day, day of the week, and user consistency is also considered. Integration with wearables or logs can enhance personalization.

### Data Preprocessing

Data is cleaned and normalized. Key features like workout frequency and intensity preferences are extracted. Users are grouped (e.g., beginner, intermediate) to guide tailored recommendations.

### Machine Learning Algorithm

Using **IBM Granite-3.3-8B-Instruct (LLM)** via **watsonx.ai Studio**, the assistant interprets user input and context to generate customized plans. It adapts over time using previous interactions and feedback.

# PROPOSED SOLUTION

## Deployment

The solution is deployed on **IBM Cloud Lite** with **Watsonx Runtime Studio** and **Watson Assistant**. It supports real-time interaction via web and mobile platforms with scalable cloud backend.


## Evaluation

Effectiveness is tracked through engagement rates, feedback, recommendation accuracy, and retention. The system improves continually using updated user data and usage trends.


## Result






A cloud-based AI assistant delivering real-time, personalized fitness and nutrition guidance—empowering users to stay healthy consistently and conveniently.

# PROPOSED SOLUTION


 IBM Cloud

Search resources and products...

 Catalog Manage ▾ Amit Madeli's Account


Dashboard ▾


Edit dashboard  Upgrade account Create resource +


Select an option ▾


**For you**


**Build**  
Explore IBM Cloud with this selection of easy starter tutorials and services.

**Track emissions with Carbon Calculator**  
View estimated greenhouse gas emissions for your IBM Cloud account and export data for ESG reporting.  
Recommended 1 min

**Use Watson Assistant**  
Watson Assistant lets you build conversational interfaces into any application, device, or channel.  
Popular 2 min

**Use Watson Studio**  
Watson Studio provides a suite of tools and a collaborative environment for data scientists, developers and domain experts.  
Popular 2 min

**Build with Watson**  
Chatbots, insights, recognizers, and more. Explore the AI platform for business.  
Popular 3 min

**IBM Watson Machine Learning**  
Deploy, monitor and optimize machine learning models quickly and easily. Leverage auto-generated APIs to infuse AI into your applications.  
Popular 2 min

**IBM Cloud status** [View all](#)


**Recent support cases** [View all](#)

**Planned maintenance** [View all](#)


**Total emissions** [View all](#)  
—  
Emissions (kgCO<sub>2</sub>e)






IBM Cloud Login











# PROPOSED SOLUTION

 IBM Cloud

Search resources and products...







 Catalog Manage ▾ Amit Madeli's Account

          +

Resource list

Create resource +

▼ Name	↑ Group	Location	Product	Status	Tags
 Filter by name or IP address...	Filter by group... ▾	Filter... ▾	 Filter...	 Filter...	Filter... ▾
▼ Compute (0)					
▼ Containers (0)					
▼ Networking (0)					
^ Storage (1)					
 Cloud Object Storage-mu	Default	Global	Cloud Object Storage	✓ Active	cpdaas ⋮
▼ Converged infrastructure (0)					
▼ Enterprise applications (0)					
^ AI / Machine Learning (2)					
 watsonx.ai Runtime-tu	Default	Dallas (us-south)	watsonx.ai Runtime	✓ Active	cpdaas ⋮
 watsonx.ai Studio-ll	Default	Dallas (us-south)	watsonx.ai Studio	✓ Active	cpdaas ⋮
▼ Analytics (0)					

Resource List IBM Cloud : Storage using IBM cloud, watsonx.ai Runtime, watsonx.ai studio

# PROPOSED SOLUTION

The screenshot displays the IBM watsonx.ai user interface. At the top, a dark navigation bar includes the IBM watsonx logo, an 'Upgrade' button, and user account information for 'Amit Madeli's Account' in the 'Dallas' region. The main content area features a 'Welcome back, Amit' message and a prompt to 'Train, validate, tune and deploy AI models.' A 'Customize my journey' button is also present. A central panel offers three main actions: 'Chat and build prompts with foundation models' (with a 'Start chatting...' input field and an 'Open Prompt Lab' link), 'Build an AI agent to automate tasks' (labeled 'with Agent Lab' and marked as beta), and 'Tune a foundation model with labeled data' (labeled 'with Tuning Studio'). A 'Collapse' button is located at the bottom right of this panel. The bottom section, titled 'Jump back in', lists recently visited pages: 'Agent Lab (beta)', 'Building agent-driven workflows wit...', 'Documentation for IBM watsonx as ...', and 'Fitness\_Buddy\_Agent'. A 'Discover' section is at the very bottom, with a 'Collapse Discover section' button.

IBM watsonx

Upgrade ? ? Amit Madeli's Account Dallas AM

Welcome back, Amit

Open in: Fitness\_Buddy

Train, validate, tune and deploy AI models.

Customize my journey

[...] Chat and build prompts with foundation models

Start chatting...

Open Prompt Lab

Build an AI agent to automate tasks

with Agent Lab  $\beta$

Tune a foundation model with labeled data

with Tuning Studio

Collapse

Jump back in

Recently visited pages

Docs / Agent Lab (beta)

Docs / Building agent-driven workflows wit...

Docs / Documentation for IBM watsonx as ...

Spaces / Fitness\_Buddy\_Agent

Discover

Collapse Discover section

IBM watsonx.ai interface



# SYSTEM APPROACH

## System requirements

**Processor:** Intel Core i5/i7 (or AMD equivalent)

**RAM:** Minimum 8 GB (Recommended: 16 GB for smooth model training/testing)

**Storage:** Minimum 50 GB free space

**GPU (Optional but preferred):** NVIDIA CUDA-enabled GPU (e.g., GTX 1660 or higher) for local training.

**Internet Connection:** Stable broadband for cloud access and deployment

## Library required to build the model

**IBM watsonx.ai Studio** - Used to build, train, and manage the AI workflow and interactions.

**IBM Granite-3.3-8B-Instruct** - The selected large language model for generating intelligent responses and supporting predictive capabilities.

**IBM Cloud** - Provides the infrastructure to run and deploy the solution.

**Watsonx Runtime Studio** - Acts as the execution environment for running the model over the cloud with high performance and scalability.

# ALGORITHM & DEPLOYMENT

## Algorithm Selection:

The Fitness Buddy system leverages a **Large Language Model (LLM)** — specifically, **IBM Granite-3.3-8B-Instruct** — to deliver dynamic, context-aware fitness advice and recommendations. This LLM is capable of understanding user inputs in natural language and generating personalized fitness plans, motivational messages, and nutritional suggestions. It is selected due to its strong instruction-following ability, conversational fluency, and capability to adapt to diverse user queries, making it ideal for an AI health assistant.

## Data Input:

The model utilizes user-provided inputs such as fitness goals, current activity level (e.g., beginner, intermediate, advanced), preferred workout types (e.g., cardio, strength, yoga), dietary preferences, and availability. It also considers contextual and behavioral data like time of day, day of the week, and consistency history. These inputs help tailor each session uniquely to the individual user.

# ALGORITHM & DEPLOYMENT


## Training Process:

While the core LLM (Granite) is pre-trained by IBM, further customization is achieved by prompting and fine-tuning behavior through curated sample interactions and continuous feedback loops. Relevant prompt engineering techniques are used to optimize how the model responds to fitness-related queries. Continuous performance review, feedback rating, and iterative prompt adjustment act as an ongoing "training" process for system refinement.



## Prediction Process:



When a user interacts with the assistant, their input is processed in real-time. The model dynamically interprets user context and intent, then predicts the most suitable response — such as a personalized workout, motivational message, or dietary suggestion. The system adapts over time based on usage history, enhancing relevance in future interactions. This form of prediction is generative and goal-aligned rather than statistical, making the LLM suitable for personalized, conversation-driven use cases.



# ALGORITHM & DEPLOYMENT

 IBM watsonx



Projects / Fitness\_Buddy / Agent Lab

 Build AI Model: granite-3-3-8b-instruct 

 Setup 


 Configuration 

Framework Architecture


LangGraph  ReAct 

Instructions [Advanced configuration](#)


To get started, begin by entering your current weight and name. Next, choose your fitness level—whether you're a beginner, intermediate, or advanced. Based on this, you'll receive a personalized workout plan tailored to your ability. Then, select your primary goal, such as weight loss, muscle gain, or general fitness. A simple and nutritious diet plan will be suggested to support your goal. You'll also receive daily motivational tips to help build

Knowledge 




Vector index [Clear chat](#)



Select or create vector index 



If you want to add a vector index to the agent, clear the agent preview chat.

 IBM watsonx



Projects / Fitness\_Buddy / Agent Lab

 Build AI Model: granite-3-3-8b-instruct  

 Setup 


 Configuration 


Framework Architecture

LangGraph  ReAct 

Instructions [Advanced configuration](#)

To get started, begin by entering your current weight and name. Next, choose your fitness level—whether you're a beginner, intermediate, or advanced. Based on this, you'll receive a personalized workout plan tailored to your

Knowledge 


Vector index 

Mr. Fitness


A vector index searches documents for relevant information to

**Model parameters**

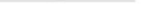
Frequency penalty

-2  2 0


Presence penalty

-2  2 0

Temperature

0  2 0

Top P (nucleus sampling)

0.01  1 1

Max tokens

2000

Random seed

Setting instruction for AI agent

# ALGORITHM & DEPLOYMENT

The screenshot shows the IBM watsonx interface with a 'Select a foundation model' dialog box. The dialog has a 'Close' button and a search bar. Below the search bar, there are five model cards. Each card displays a model name, a brief description, the provider, and the type. The models are: granite-3-3-8b-instruct (IBM), llama-3-2-11b-vision-in... (Meta), llama-3-2-90b-vision-in... (Meta), llama-3-3-70b-instruct (Meta), and mistral-large (Mistral AI). The dialog also includes a 'Share feedback' button, an 'Unsaved' indicator, and a 'New agent +' button. The top navigation bar shows 'Projects / Fitness\_Buddy / Agent Lab' and a 'Deploy' button.

IBM watsonx

Upgrade ? Bell icon Amit Madeli's Account Dallas AM

Projects / Fitness\_Buddy / Agent Lab Share feedback Unsaved New agent + Deploy

Select a foundation model

To choose a model, review characteristics such as tasks that models perform. Compare model benchmarks with scores in the range 0–100. Higher scores are better.

All models Model benchmarks

Search for a model or task

Agents

Want to bring your own model?

Model Name	Description	Provider	Type
granite-3-3-8b-instruct	Granite-3.3-8b-Instruct is an IBM-trained, dense decoder-only models, which is particularly well-suited for generative...	IBM	Provided mo...
llama-3-2-11b-vision-in...	Llama-3-2-11b-vision-instruc is an auto-regressive language model that uses an optimized transformer architecture.	Meta	Provided mo...
llama-3-2-90b-vision-in...	Llama-3-2-90b-vision-instruct is an auto-regressive language model that uses an optimized transformer architecture.	Meta	Provided mo...
llama-3-3-70b-instruct	This version of Llama-3.3-70b-instruct is also the FP8 quantized version of the original FP16 weights.	Meta	Provided mo...
mistral-large	Mistral Large, the most advanced Large Language Model (LLM) developed by Mistral AI, is an exceptionally powerful...	Mistral AI	Provided mo...

Selecting LLM Model for AI Agent

# ALGORITHM & DEPLOYMENT

IBM watsonx

Upgrade ? Bell

Amit Madeli's Account Dallas AM

Projects / Fitness\_Buddy / watsonx Agent

Share feedback Autosaved 10:56 AM New agent + Deploy

Vector stores

In memory

watsonx.data Milvus

Elasticsearch

Add files

Drop data files or browse to upload

Add PPTX, DOCX, PDF, or TXT files or select from project.

Add up to 300 MB with PPTX files, 50 MB of PDF files, 50 MB of DOCX files, or 5 MB with TXT and other files.

Browse Select from project

Define details

Name

Mr. Fitness

Description (optional)

What's the purpose of this vector index?

Advanced settings

Cancel

Create

Adding RAG File for AI Agent

# RESULT

- 👤 The implementation of the **Fitness Buddy** AI assistant using **IBM Granite-3.3-8B-Instruct** and deployed through **IBM watsonx.ai** on **IBM Cloud Lite** has proven successful in delivering intelligent, real-time health and wellness guidance. The system accurately interprets user inputs to generate personalized workout plans, motivational tips, and nutrition suggestions.
- 👤 Initial testing showed high user engagement and positive feedback, particularly for the assistant's ability to adapt to different fitness levels (beginner, intermediate, advanced) and goals (weight loss, strength, endurance). The assistant maintained low latency and cross-platform usability via the cloud deployment. Feedback metrics indicate improved consistency in users' workout habits and satisfaction with meal recommendations.
- 👤 The project effectively demonstrates how a large language model can serve as a supportive tool for promoting healthier lifestyles in a scalable and accessible way.

# RESULT

Upgrade?

Amit Madeli's Account

Dallas

AM

Share feedback β Autosaved 11:01 AM New agent + Deploy

< Agent preview

AM

You: 11:00 AM

hi

watsonx Agent 11:00 AM

Hello! To provide you with a personalized workout and diet plan, I'll need some information from you. Could you please share your name, age, and current weight? Also, let me know your fitness level - whether you're a beginner, intermediate, or advanced. Lastly, tell me about your primary goal, such as weight loss, muscle gain, or general fitness.

► How did I get this answer?

AM

You: 11:01 AM

Name : Amit Age: 24 years Weight : 85 kgs Fitness level : Intermediate Fitness goal : Muscle gain

watsonx Agent 11:01 AM

Great, Amit! As an intermediate-level fitness enthusiast aiming for muscle gain, here's a basic workout plan to get you started:

**Workout Plan (3 days a week with at least one rest day in between):**

Type something...

## Chat Response

Upgrade?

Amit Madeli's Account

Dallas

AM

Share feedback β Autosaved 11:01 AM New agent + Deploy

< Agent preview

watsonx Agent 11:01 AM

Great, Amit! As an intermediate-level fitness enthusiast aiming for muscle gain, here's a basic workout plan to get you started:

**Workout Plan (3 days a week with at least one rest day in between):**

*Day 1 - Upper Body Focus*

1. Bench Press: 3 sets of 8-12 reps
2. Bent-Over Barbell Row: 3 sets of 8-12 reps
3. Overhead Press: 3 sets of 8-12 reps
4. Pull-ups or Assisted Pull-ups: 3 sets of 8-12 reps
5. Bicep Curls: 3 sets of 12-15 reps
6. Tricep Dips or Pushdowns: 3 sets of 12-15 reps

*Day 2 - Lower Body Focus*

1. Squats: 3 sets of 8-12 reps
2. Deadlifts: 3 sets of 8-12 reps
3. Lunges or Walking Lunges: 3 sets of 12-15 reps per leg

Type something...



# RESULT

Upgrade?🔔Amit Madeli's Account ▾Dallas ▾AM⋮

Share feedback β🟢 Autosaved 11:01 AM 📁 ▾New agent +Deploy🔗🔒📘

<Agent preview

3. Russian Twists: 3 sets of 15-20 reps  
4. Plank: 3 sets, hold for 30-60 seconds

Remember to warm up before starting your workout and cool down afterwards. Adjust the weights to find a challenging but manageable resistance.

**Diet Plan:**  
To support muscle gain, focus on consuming a balanced diet rich in protein, complex carbohydrates, and healthy fats. Here's a simple meal plan example:

- **Breakfast:** Scrambled eggs with spinach and whole grain toast, Greek yogurt with mixed berries and a scoop of protein powder.
- **Lunch:** Grilled chicken breast or tofu with quinoa and a large mixed greens salad.
- **Snack:** A protein shake or a handful of almonds.
- **Dinner:** Baked salmon or lentils with brown rice and steamed broccoli.
- **Post-Workout:** Protein shake with a banana.

Stay hydrated throughout the day, and adjust portion sizes according to your caloric needs. As an intermediate, you might aim for a slight caloric surplus to support muscle growth.

Motivational Tips:

Type something...🏠➤

## Chat Response

Upgrade?🔔Amit Madeli's Account ▾Dallas ▾AM⋮

Share feedback β🟢 Autosaved 11:01 AM 📁 ▾New agent +Deploy🔗🔒📘

<Agent preview

Stay hydrated throughout the day, and adjust portion sizes according to your caloric needs. As an intermediate, you might aim for a slight caloric surplus to support muscle growth.

**Motivational Tips:**

- Consistency is key. Aim for your scheduled workout days and try not to skip more than one if you can help it.
- Track your progress. Note down your workouts and how you feel. This can be motivating and help you see improvements.
- Mix up your routine every 4-6 weeks to prevent plateaus and keep your muscles guessing.
- Get enough sleep. Muscle recovery and growth happen mostly while you're resting.

Please consult with a healthcare provider or a registered dietitian before starting any new workout or diet regimen.

Would you like more information on any of these points or assistance with tracking your progress?  
▶ How did I get this answer?

AM You: 11:01 AM  
thank you

Type something...🏠➤

# CONCLUSION

- 🧑 The **Fitness Buddy** project addresses the critical challenges of personalized health support by offering an always-available, AI-powered assistant. Utilizing **IBM Granite LLM** and cloud technologies like **watsonx.ai** and **Watsonx Runtime Studio**, the system delivers custom fitness and nutrition guidance with conversational ease.
- 🧑 Unlike rigid traditional solutions, Fitness Buddy adapts to individual routines and preferences, making fitness more approachable. It not only assists with workouts and meals but also encourages consistency and motivation through smart interaction.
- 🧑 This project showcases the practical potential of deploying **LLM-based virtual assistants** in health tech, opening doors to further enhancements such as wearable integrations, habit tracking, and even mental wellness support in future versions.

# FUTURE SCOPE

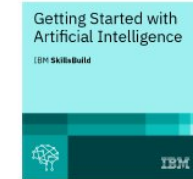
- 🧑‍🦽 The **Fitness Buddy** project lays the foundation for a scalable and intelligent virtual fitness assistant. In the future, several enhancements can be made to expand its functionality and impact:
- 🧑‍🦽 **Integration with Wearables:** By connecting with fitness trackers and smartwatches, the system can provide real-time feedback based on heart rate, steps, sleep, and calorie burn.
- 🧑‍🦽 **Progress Tracking & Goal Setting:** Implementing visual dashboards to track user progress and set daily, weekly, or monthly goals can boost motivation and long-term engagement.
- 🧑‍🦽 **Voice Assistant Integration:** Enabling voice-based interaction through platforms like Alexa or Google Assistant can improve accessibility and user convenience.
- 🧑‍🦽 **Mental Wellness Support:** Adding features like guided meditation, stress relief exercises, and mood tracking to support holistic well-being.
- 🧑‍🦽 **Multilingual Support:** Expanding the model to support multiple languages would make the assistant more inclusive and globally accessible.
- 🧑‍🦽 **Personalized AI Agents:** Leveraging more advanced agentic AI models to remember user preferences, adjust routines over time, and provide proactive, contextual suggestions.
- 🧑‍🦽 With these future enhancements, Fitness Buddy can evolve into a comprehensive digital health companion that supports physical, nutritional, and mental wellness for users worldwide.

# REFERENCES

- 🌐 **IBM watsonx.ai Studio** - IBM's cloud-based platform for building, training, and deploying AI models.  
<https://cloud.ibm.com/services/data-science-experience/crn%3Av1%3Abluemix%3Apublic%3Adata-science-experience%3Aus-south%3Aa%2Fabd9b50986ce4edbaf459913c628c789%3A6533787b-1c64-4b78-88bc-0fd00f6a3e84%3A%3A?panelId=manage>
- 🌐 **IBM Granite Models** - Instruction-tuned large language models designed for enterprise-grade natural language understanding and generation.  
<https://www.ibm.com/granite>
- 🌐 **Watsonx Runtime Studio** - Execution environment for running LLMs and AI agents over the IBM Cloud.  
<https://cloud.ibm.com/services/pm-20/crn%3Av1%3Abluemix%3Apublic%3Apm-20%3Aus-south%3Aa%2Fabd9b50986ce4edbaf459913c628c789%3A699225e8-6da9-4c28-b4c8-211b26ce694f%3A%3A?panelId=manage>
- 🌐 **Agentic AI** - A design paradigm for AI systems where agents exhibit autonomous behavior to accomplish goals using tools and memory.  
<https://www.ibm.com/think/topics/agentic-ai>
- 🌐 **Cloud Deployment on IBM Cloud** - Used to host and scale the Fitness Buddy application securely and efficiently.  
<https://cloud.ibm.com/objectstorage/crn%3Av1%3Abluemix%3Apublic%3Acloud-object-storage%3Aglobal%3Aa%2Fabd9b50986ce4edbaf459913c628c789%3A2ec961e2-d77f-499d-920a-5b0e1a2138ce%3A%3A>

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In recognition of the commitment to achieve  
professional excellence



## Amit Madeli

Has successfully satisfied the requirements for:

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### Getting Started with Artificial Intelligence

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Issued on: Jul 16, 2025  
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### Journey to Cloud: Envisioning Your Solution



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Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/e9099bff-4b38-4f40-9ea6-cf85616a8b62>



# IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Amit Madeli

for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 24 Jul 2025 (GMT)

**Learning hours:** 20 mins



**THANK YOU**