



# Hiring challenge for NLP/AI Engineer (2025)

## Hiring Challenge: Build a Nutrition Chatbot for People with Diabetes

**Time limit:** we expect you to work a max of 5 hours on this challenge and deliver the results up to 48h after receiving it.

**Goal:** Build a chatbot that answers nutrition-related questions for people with diabetes using a provided FAQ dataset. Accuracy is not critical here — what we want to see is how you handle the data, assemble the project and explain the trade-offs you encounter. If the model makes a lot of mistakes e.g., because 5h is not a lot of time for this that's ok but please explain how you would tackle the issue.

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## Scenario

Imagine you're helping a health organization provide personalized, 24/7 nutrition guidance to people managing diabetes. Your task is to prototype an NLP-powered chatbot that can handle common dietary questions using a structured FAQ.

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## Requirements

### 1. Functionality

- Accept user input in natural language.
- Match the question to the most relevant FAQ entry from `nutrition_faq.json`.
- Return the corresponding answer.

### 2. NLP Approach

- Use semantic similarity to find the closest answer to a query.
- Apply preprocessing (tokenization, lowercasing, embeddings, etc.).

- Expand with an LLM and create a basic RAG solution.
- Please start with the semantic similarity approach, do not solve this challenge with just an LLM solution.

### 3. Interface

- A command-line, simple web interface (Streamlit, Flask) or interactive notebook like Marimo
- Display the chatbot's answer or a fallback message:

"Sorry, I don't have information on that. Please try a different question."

### 4. Fallback Behavior

- Use a similarity threshold or logic to determine if no good match is found. Please explain your rationale for choosing the threshold.



### Bonus (Optional)

- Display top 2–3 suggestions with similarity scores.
- Support uploading or switching FAQ datasets.
- Architecture diagrams



### Deliverables

- A GitHub repo or zip file containing:
  - Your working code.
  - A way to lock dependencies.
  - Some kind of project structure. Imagine this is the start of your new production project.
  - `README.md` with:
    - Overview of your approach including how you see it fitting into other systems such as a patient facing mobile App.
    - Instructions to run the chatbot.
    - Any assumptions, trade-offs.

- How you would expand this project.
- How would you monitor the system in production.

## Tools You May Use

- Python, any CLI tools you think are useful, any pipelining tools which you deem relevant
- Interface: `Streamlit`, `Flask`, `Marimo`, (the previous 3 are preferred) `Jupyter`, CLI

## Data:

```
[
  {
    "questions": [
      "What are good snacks for people with diabetes?",
      "What should I eat between meals if I have diabetes?",
      "Can you recommend some healthy diabetic snacks?",
      "What are the best snack options for diabetics?",
      "Are there low-sugar snacks that are good for people with diabetes?"
    ],
    "answer": "Healthy snack options include Greek yogurt, almonds, boiled eggs, and vegetables with hummus."
  },
  {
    "questions": [
      "How often should a person with diabetes eat?",
      "Is it better to eat frequently with diabetes?",
      "Should diabetics eat every few hours?",
      "How many meals a day should I eat as a diabetic?",
      "What's the eating schedule for someone with diabetes?"
    ],
    "answer": "It's recommended to eat small meals every 3 to 4 hours to help maintain stable blood sugar levels."
  },
  {
    "questions": [
```

```

    "Can I eat fruit if I have diabetes?",
    "What fruits are safe for diabetics?",
    "Is fruit okay for a diabetic diet?",
    "Are bananas or apples good for diabetics?",
    "Which fruits should I choose with diabetes?"
  ],
  "answer": "Yes, fruits like berries, apples, and oranges are good options
due to their fiber content. Just watch portion sizes."
},
{
  "questions": [
    "What foods should I avoid as a diabetic?",
    "Are there any foods I should stay away from with diabetes?",
    "Which foods raise blood sugar too much?",
    "What should diabetics not eat?",
    "What are some unhealthy foods for people with diabetes?"
  ],
  "answer": "Avoid sugary drinks, processed snacks, white bread, and hig
h-sugar desserts."
},
{
  "questions": [
    "Is it okay to skip meals if I have diabetes?",
    "What happens if I miss a meal with diabetes?",
    "Can skipping meals cause problems for diabetics?",
    "Should I avoid skipping meals as a diabetic?",
    "Is fasting without eating dangerous for diabetes?"
  ],
  "answer": "Skipping meals can lead to low blood sugar. It's better to eat r
egularly and plan meals carefully."
},
{
  "questions": [
    "What is the best breakfast for someone with diabetes?",
    "Can you suggest a diabetic-friendly breakfast?",
    "What should I eat for breakfast as a diabetic?",
    "Are eggs and whole grains good for diabetic breakfast?",
    "What's a healthy breakfast if I have diabetes?"
  ]
}

```

```

    ],
    "answer": "A balanced breakfast with protein, fiber, and healthy fats—like eggs, whole grain toast, and avocado—is a great choice."
  },
  {
    "questions": [
      "Can I eat carbs if I have diabetes?",
      "Are carbohydrates bad for diabetics?",
      "What kind of carbs can I eat with diabetes?",
      "Should I avoid all carbs with diabetes?",
      "How can diabetics safely eat carbs?"
    ],
    "answer": "Yes, but focus on complex carbs like whole grains, legumes, and vegetables, and control portions."
  },
  {
    "questions": [
      "How can I control my blood sugar through diet?",
      "What foods help manage blood sugar?",
      "What's the best diet to keep blood sugar stable?",
      "How can I lower my blood sugar with food?",
      "Any nutrition tips to maintain blood sugar levels?"
    ],
    "answer": "Eat balanced meals, avoid refined carbs and sugars, monitor carb intake, and stay hydrated."
  },
  {
    "questions": [
      "Is intermittent fasting safe for diabetics?",
      "Can people with diabetes try intermittent fasting?",
      "Is fasting good or bad for blood sugar control?",
      "Should diabetics do time-restricted eating?",
      "Is it risky to fast with diabetes?"
    ],
    "answer": "It depends on the individual and medication. Always consult a healthcare provider before starting any fasting regimen."
  },
  {

```

```
"questions": [  
  "What drinks are safe for diabetics?",  
  "Can I drink juice with diabetes?",  
  "What beverages are good for blood sugar control?",  
  "Are sugar-free drinks safe for diabetics?",  
  "What should I drink instead of soda if I have diabetes?"  
],  
  "answer": "Water, unsweetened tea, and black coffee are generally safe.  
Avoid sugary drinks and limit fruit juice."  
}  
]
```