

Executive Summary

DiaBeat is an AI-powered meal planning application designed to address the dietary challenges faced by individuals managing diabetes. Developed using Amazon PartyRock, this solution provides personalized, diabetes-friendly meal recommendations with comprehensive nutritional information to support healthy eating habits.

Project Background

Diabetes management requires vigilant monitoring of dietary intake and nutrition. Many individuals find it challenging to consistently identify meals that are both appetizing and appropriate for maintaining stable blood glucose levels. DiaBeat was developed to address this need by providing an accessible, user-friendly platform that generates customized meal plans based on specific dietary requirements.

Solution Overview

This guide provides a comprehensive walkthrough of the DiaBeat development process using Amazon PartyRock's no-code AI platform. The document details each step of the implementation process, from initial concept to final deployment, enabling readers to understand the methodology and potentially replicate similar solutions for other health management applications.

By the conclusion of this guide, readers will gain:

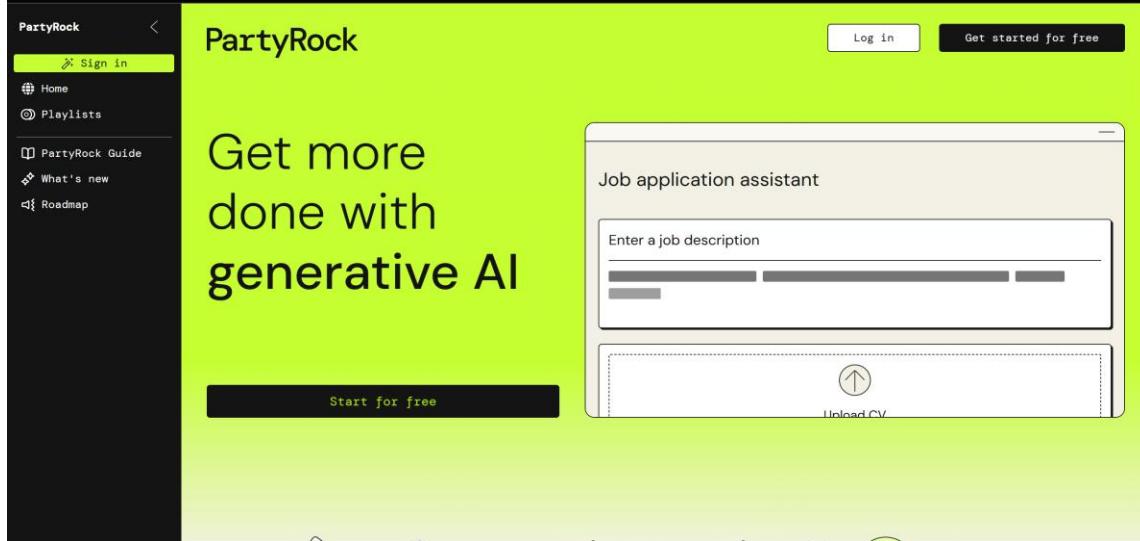
- A thorough understanding of DiaBeat's functionality and technical implementation
- Knowledge of how to leverage Amazon PartyRock for healthcare applications
- Insights applicable to creating similar solutions for fitness, mental health, or personal finance applications

Implementation Process

The following sections outline the step-by-step development process of the DiaBeat application.

Step 1: Accessing Amazon PartyRock

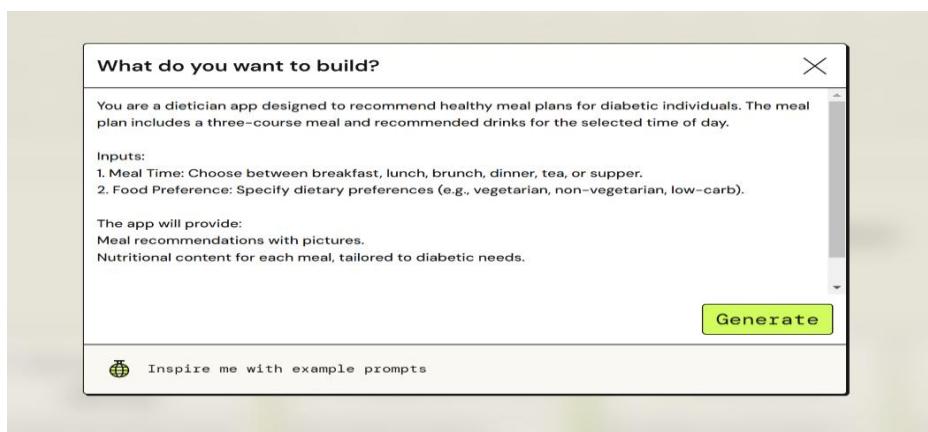
Every journey begins with the first step, and ours starts at AWS PartyRock. PartyRock is an intuitive AWS service that enables anyone—even without coding skills—to build powerful AI-driven apps quickly.



Step 2: Starting a New App

Once logged into PartyRock, click on "Create New App". It's easy and straightforward. You'll be prompted with, "What do you want to build?" I entered my goal clearly: see the attached image below.

Why a diabetic meal planner? Well, personalized nutrition significantly helps people with diabetes manage their blood sugar levels, reduces complications, and greatly improves their overall quality of life. You can build any app you want just by entering a prompt to start with, but make sure the prompt is well structured as PartyRock will use it to kick off its first design. This can also be called the **initial prompt** or **general prompt**.



Step 3: Customizing DiaBeat's Interface

Next, PartyRock automatically generated an initial layout for DiaBeat which contains the 2 user inputs options just like described in the prompt (**Meal Time and Food Preference**) and three outputs result **Meal Recommendation**, **Meal Image** and **Nutritional Information**. To personalize it further, we clicked on the edit icon at the top of each widget. You have complete flexibility here to edit each widget based on the name, description, widgets, and for the output widgets you can modify the prompts or choose AI models used for generating content.

The screenshot shows the DiaBeat app interface. At the top, there's a header bar with the title "DiaBeat – Personalized Diabetic Meal Planner" and buttons for "+ Add widget" and "+ Leave edit". Below the header, a welcome message reads: "Welcome to the Diabetic Meal Planner! This app recommends healthy meal plans for diabetic individuals. Simply select your meal time and food preference, and we'll provide you with a three-course meal recommendation, including drinks, along with nutritional information tailored to your diabetic needs." Two input fields are visible: "Meal Time" and "Food Preference".

Edit Meal Time

- Widget title:** Meal Time
- Placeholder:** Enter breakfast, lunch, brunch, dinner, tea, or supper
- Default value:** (empty)
- Buttons:** Delete widget, Cancel, Save

Edit Food Preference

- Widget title:** Food Preference
- Placeholder:** Enter dietary preference (e.g., vegetarian, non-vegetarian, low-carb)
- Default value:** (empty)
- Buttons:** Delete widget, Cancel, Save

Output Widgets (Bottom Row):

- Meal Recommendation:** "Fill in Meal Time and Food Preference to get started!"
- Meal Image:** "Fill in Meal Time and Food Preference to get started!"
- Nutritional Information:** "Fill in Meal Time and Food Preference to get started!"
- Buttons:** Fill in widgets to play

Step 4: Generating Mouth-Watering Meal Recommendations

Once we have set our input and output preferences, next is to test it and see the results. As a user all you must do is to use the input section and input the mealtime and food preference and then press “enter”, the app will generate Meal Recommendation, the corresponding Meal Image and Nutritional Information for you.

DiaBeat – Personalized Diabetic Meal Planner

+ Add widget | [- Leave edit]

Diabetic Meal Planner

Welcome to the Diabetic Meal Planner! This app recommends healthy meal plans for diabetic individuals. Simply select your meal time and food preference, and we'll provide you with a three-course meal recommendation, including drinks, along with nutritional information tailored to your diabetic needs.

Meal Time
supper

Food Preference
low carb

Meal Recommendation
Three-Course Diabetic-Friendly Low-Carb Supper Menu

Appetizer: • Mixed green salad with:

- Arugula and spinach base
- Sliced cucumber
- Cherry tomatoes
- Avocado chunks
- Toasted pumpkin seeds
- Lemon-olive oil dressing • Portion size: 2 cups • Carbs: ~5g

Main Course: • Herb-crusted baked salmon with:

- 6 oz salmon fillet
- Fresh herbs (dill, parsley)
- Lemon zest
- Garlic • Served with:
 - Roasted cauliflower rice (1 cup)
 - Sautéed asparagus (8 spears)
 - Olive oil and herbs • Carbs: ~8g

Dessert: • Berry and chia seed parfait:

- 1/2 cup mixed berries (strawberries, raspberries)
- 2 tablespoons chia seeds
- 1/2 cup unsweetened Greek yogurt
- Sprinkle of cinnamon • Carbs: ~10g

Recommended Drinks: • Water with lemon • Unsweetened iced tea • Sparkling water with fresh mint • Optional: 4 oz dry red wine (check with physician first)

Nutritional Notes: • Total carbs: ~23g • High in healthy fats and protein • Rich in omega-3 fatty acids • Good source of fiber • Low glycemic index ingredients • Portion-controlled

Meal Image PROMPT

Nutritional Information

Detailed Nutritional Breakdown:

Total Meal Nutrition Facts: • Calories: 650-700 • Total Carbohydrates: 23g • Net Carbs: 14g • Fiber: 9g • Protein: 48g • Fat: 42g • Sodium: 580mg • Potassium: 1,560mg

Breakdown by Course:

Appetizer (Mixed Green Salad): • Calories: 180 • Carbs: 5g • Fiber: 3g • Protein: 4g • Fat: 15g (mostly from avocado and olive oil) • Key nutrients: Vitamins A, C, K, E, folate, potassium

Main Course (Salmon & Sides): • Calories: 380 • Carbs: 8g • Fiber: 4g • Protein: 38g • Fat: 22g • Omega-3 fatty acids: 2.8g • Key nutrients: B12, D, selenium, iron

Dessert (Berry Parfait): • Calories: 140 • Carbs: 10g • Fiber: 2g • Protein: 6g • Fat: 5g • Key nutrients: Calcium, antioxidants, probiotics

Blood Sugar Management Benefits:

1. Low Glycemic Load:
 - Limited total carbohydrates (23g)
 - High fiber content slows glucose absorption
 - Protein and healthy fats help moderate blood sugar response
2. Strategic Nutrient Timing:

Step 5: Generating Diabetic-Friendly Meal Prompts

Each output widget can be tweaked for different output expectations or user choice, say for example, we do not like the suggested meal recommendations for model A, we can decide to try another model B. The same with the image generation and the Nutritional Information section.

For example, the initial Meal Recommendation output used Claude 3.5 Sonnet v2, Meal Image used Stable Image Core, and Nutritional Information used same Claude 3.5 Sonnet v2. We can also edit the prompt further to suit the specific user preference in the prompt section.

The figure consists of four screenshots of an AI interface, likely a web-based tool for generating AI outputs. The top row shows the 'Model' tab selected, while the bottom row shows the 'Advanced' tab selected.

- Top Left (Model Tab):** Shows the 'Model' dropdown set to 'Claude 3.5 Sonnet v2'. Below it are two input fields: 'Temperature' and 'Top P', each with a slider and a text input field. At the bottom are 'Delete widget', 'Cancel', and 'Save' buttons.
- Top Right (Model Tab):** Shows a prompt box with the following text:
Press @ to reference another widget.
As a dietitian specializing in diabetic meal planning, create a three-course meal plan with recommended drinks for **Meal Time**. The meal should be **Food Preference**. Ensure the meal is suitable for diabetics, considering low glycemic index foods and balanced nutrition. Format the response as a bullet-point list.
- Bottom Left (Advanced Tab):** Shows a list of models under the 'Model' heading. 'Claude 3.5 Sonnet v2' is highlighted in green. Other models listed include Claude 3.5 Haiku, Jamba 1.5 Large, Jamba 1.5 Mini, Command R, Command R+, Amazon Nova Micro, Amazon Nova Lite, Amazon Nova Pro, Llama 3.1 Instruct 70b, Llama 3.1 Instruct 8b, Mistral Large 2 (24.07), and Mistral Small 2 (24.02). At the bottom are 'Delete widget', 'Cancel', and 'Save' buttons.
- Bottom Right (Advanced Tab):** Shows the 'Advanced' tab selected. It includes a 'Model' dropdown set to 'Stable Image Core', a 'Seed' input field with value '3', and a checkbox for 'Use a random seed for your image'. At the bottom are 'Delete widget', 'Cancel', and 'Save' buttons.

💡 Step 6: Selecting different AI Models

To enhance user experience and experiment different models, we choose different models for the output widget while maintaining the same inputs “supper” Meal Time and “low carb” for Food Preference. We also maintained the same tailored prompt for the outputs.

The image displays four screenshots of a mobile application interface, likely a configuration or testing tool for AI models. Each screenshot shows a top navigation bar with tabs: 'Prompt', 'Labels', 'Model', and a close button ('X').

- Screenshot 1 (Top Left):** Shows the 'Model' tab selected. The 'Model' dropdown is set to 'Llama 3.1 Instruct 70b'. Below it are two sliders for 'Temperature' and 'Top P'. Buttons at the bottom are 'Delete widget', 'Cancel', and 'Save'.
- Screenshot 2 (Top Right):** Shows the 'Prompt' tab selected. A yellow header bar says 'Press @ to reference another widget.' Below is a text input field containing a meal planning prompt: 'As a dietitian specializing in diabetic meal planning, create a three-course meal plan with recommended drinks for Meal Time. The meal should be Food Preference. Ensure the meal is suitable for diabetics, considering low glycemic index foods and balanced nutrition. Format the response as a bullet-point list.' Buttons at the bottom are 'Delete widget', 'Cancel', and 'Save'.
- Screenshot 3 (Bottom Left):** Shows the 'Advanced' tab selected. The 'Model' dropdown is set to 'Amazon Nova Canvas'. Buttons at the bottom are 'Delete widget', 'Cancel', and 'Save'.
- Screenshot 4 (Bottom Right):** Shows the 'Model' tab selected. The 'Model' dropdown is set to 'Mistral Large 2 (24.07)'. Below it are two sliders for 'Temperature' and 'Top P'. Buttons at the bottom are 'Delete widget', 'Cancel', and 'Save'.

⌚ Step 7: Testing Personalized Meal Generation using a different model

We extensively tested the app by entering various mealtimes and dietary preferences to ensure meal suggestions were accurate and appetizing. You can also do this for any app you want to build as different model has different response to user inputs. Below is the result of using another model for each output while maintaining the same input and prompts.

Personally, we prefer this output.

Meal Recommendation

Here is a three-course low-carb meal plan for supper, suitable for diabetics:

Course 1: Appetizer

- Grilled Shrimp Skewers with Fresh Vegetables
 - 4 large shrimp, marinated in olive oil, lemon juice, and herbs, grilled to perfection
 - Served with a side of roasted bell peppers, zucchini, and cherry tomatoes
 - Approximate carb count: 5g
 - Recommended drink: Unsweetened Iced Tea with Lemon (0g carbs)

Course 2: Main Course

- Baked Salmon with Cauliflower Rice and Green Beans
 - 6 oz salmon fillet, baked with olive oil, salt, and pepper
 - Served with 1 cup cauliflower rice (made by pulsing cauliflower in a food processor) and 1 cup steamed green beans
 - Approximate carb count: 10g
 - Recommended drink: Sparkling Water with a squeeze of Fresh Lime Juice (0g carbs)

Course 3: Dessert

- Fresh Berries with Greek Yogurt and Chopped Nuts
 - 1/2 cup mixed berries (such as strawberries, blueberries, and raspberries)
 - 6 oz Greek yogurt
 - 1 oz chopped almonds
 - Approximate carb count: 15g
 - Recommended drink: Herbal Tea, such as Peppermint or Chamomile (0g carbs)

Total Meal Carb Count: 30g

Tips and Considerations:

... (scrollable text area)

Meal Image **PROMPT**



Nutritional Information

Here's a detailed nutritional breakdown for the given low-carb meal plan suitable for diabetics:

Course 1: Appetizer

Grilled Shrimp Skewers with Fresh Vegetables

- Shrimp (4 large, ~2 oz/60g): 60 calories, 12g protein, 0g carbs, 1g fat, 0g fiber
- Olive oil (1 tbsp/15ml): 120 calories, 0g protein, 0g carbs, 14g fat, 0g fiber
- Lemon juice (1 tbsp/15ml): 4 calories, 0g protein, 1g carbs, 0g fat, 0g fiber
- Bell peppers (1 medium, ~75g): 25 calories, 1g protein, 6g carbs, 0g fat, 2g fiber
- Zucchini (1 medium, ~125g): 33 calories, 2g protein, 6g carbs, 0g fat, 2g fiber
- Cherry tomatoes (1 cup/150g): 27 calories, 1g protein, 6g carbs, 0g fat, 2g fiber **Total (Appetizer): 269 calories, 16g protein, 19g carbs, 15g fat, 6g fiber Net carbs (Appetizer): 13g (Total carbs - Fiber)**

Course 2: Main Course

Baked Salmon with Cauliflower Rice and Green Beans

- Salmon (6 oz/170g): 340 calories, 39g protein, 0g carbs, 18g fat, 0g fiber
- Olive oil (1 tbsp/15ml): 120 calories, 0g protein, 0g carbs, 14g fat, 0g fiber
- Cauliflower rice (1 cup/100g): 25 calories, 2g protein, 5g carbs, 0g fat, 3g fiber

💡 Step 8: Virtual Dietitian Integration Chatbot

Apart from the core output sections, a virtual dietitian chatbot was also integrated, offering instant, personalized dietary advice to enhance user support and engagement. You can also add more widget for more personalized dietary advice or improved app.

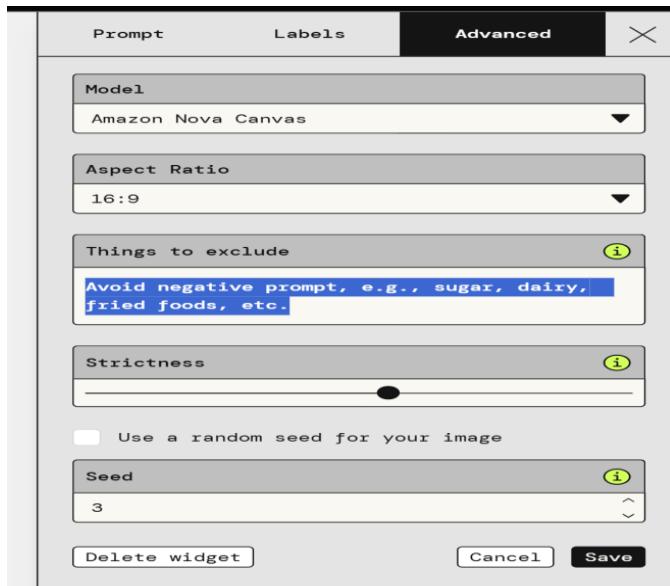
Dietician Chat

Hello! I'm your virtual dietitian, specializing in diabetic nutrition. I'm here to help you understand your meal plan and answer any questions you may have about managing your diet with diabetes. Feel free to ask about portion sizes, ingredient substitutions, or any other dietary concerns!

Ask any questions about your meal plan or diabetic diet

🚫 Step 9: Setting Negative Image Prompts

The image output has an advanced option of improving the outcome of the image by using the Negative Prompt. Here we can decide to streamline what the image shows by adding instruction to it. For example, “Avoid negative prompt, e.g., sugar, dairy, fried foods, etc.” This makes sure that the image follows the given instruction as a guardrail.

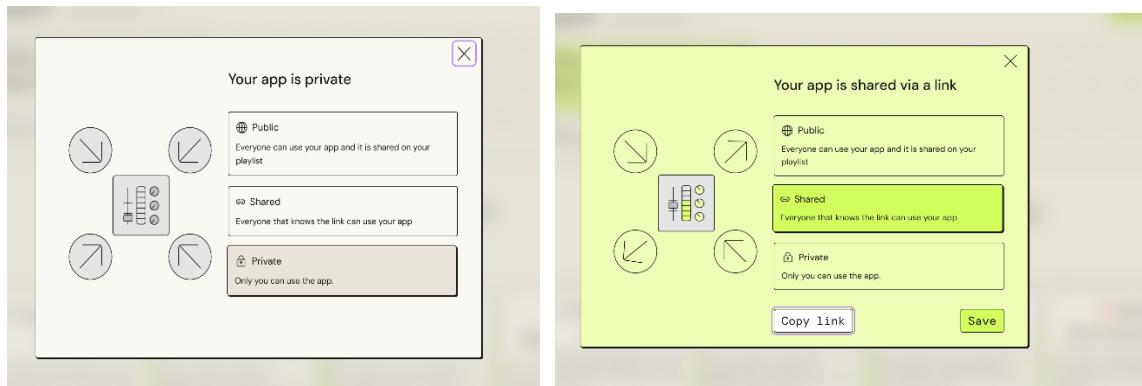


Step 10: Reviewing & Refining the App

We meticulously reviewed each app component—interface, recommendations, nutritional information, images, and chatbot responses—to ensure accuracy and user-friendliness.

Step 11: Publishing DiaBeat

Once we were happy with the app, it was time to share DiaBeat. PartyRock provides multiple options for sharing: Private, Shared, or Public. I chose Shared, allowing anyone with the link to use DiaBeat. This means you can also easily share your creation with friends, family, or community members who might benefit from it. You can use the link below to Visit the DiaBeat app > <https://partyrock.aws/u/doodoo10/klRkZDk6a/DiaBeat-Personalized-Diabetic-Meal-Planner>



Time & Cost

- Estimated Time: 20-30 minutes.
- Estimated Cost: Free during PartyRock's initial trial period.

The Final App

Here is DiaBeat, ready to make daily meal planning healthier, easier, and enjoyable for diabetics!

DiaBeat - Personalized Diabetic Meal Planner

+ Add widget | Discard changes | Release changes | Leave edit

Meal Time

Food Preference

Meal Recommendation

Course 1: Appetizer

- Grilled Beef or Venison Skewers (6 oz serving)
 - Rich in protein, vitamins B12 and B6, and minerals like iron and zinc
 - Low in carbohydrates and fiber, making it suitable for diabetics
- Recommended drink: Unsweetened Tea or Black Coffee

Course 2: Main Course

- Pan-Seared Duck Breast (6 oz serving)
 - High-quality protein source, rich in vitamins B12 and B6, and minerals like selenium and phosphorus
 - Low in carbohydrates and fiber, making it suitable for diabetics
- Roasted Beef or Pork Kidneys (3 oz serving)
 - Rich in protein, vitamins B12 and B6, and minerals like iron and zinc
 - Low in carbohydrates and fiber, making it suitable for diabetics
- Recommended drink: Herbal Tea, such as Peppermint or Chamomile, or a small serving of Red Wine (optional)

Course 3: Dessert

- None (Carnivore diet does not include plant-based foods, including fruits and desserts)
- Alternatively, consider a small serving of:
 - Beef or Pork Liver Pâté (2 oz serving)
 - Rich in protein, vitamins A and D, and minerals like iron and copper
 - Low in carbohydrates and fiber, making it suitable for diabetics
 - Recommended drink: Unsweetened Tea or Black Coffee

General Guidelines

Meal Image

Nutritional Information

Here's a detailed nutritional breakdown for the recommended three-course Carnivore diet meal plan suitable for diabetics:

Course 1: Appetizer

- Grilled Beef or Venison Skewers (6 oz/170g serving)
 - Calories: ~350-400
 - Protein: 52-62g
 - Fat: 16-22g
 - Carbohydrates: 0g
 - Fiber: 0g
 - Notable nutrients: Iron (4.2-5.6mg), Zinc (5.2-7.8mg), Vitamin B12 (2.4-3.2ug), Vitamin B6 (0.4-0.6mg)

Course 2: Main Course

- Pan-Seared Duck Breast (6 oz/170g serving)
 - Calories: ~450
 - Protein: 54g
 - Fat: 26g
 - Carbohydrates: 0g
 - Fiber: 0g

Dietician Chat

Hello! I'm your virtual dietitian, specializing in diabetic nutrition. I'm here to help you understand your meal plan and answer any questions you may have about managing your diet with diabetes. Feel free to ask about portion sizes, ingredient substitutions, or any other dietary concerns!

Ask any questions about your meal plan or diabetic diet

Click + Enter to play app

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Mental Wellness App: Tailored mindfulness activities

Budget Manager: Smart financial planning tools

Your unique app can genuinely change lives—start building today! 