

PROJECT REPORT

INGREDIENTS BASED RECIPE FINDER

Project title : ingredients based recipe finder

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Registration number : 25BCE11005

Course : Introduction to problem solving and
programming (CSE1021)

College : VIT BHOPAL University

Academic year : 2025 - 2029

INTRODUCTION :

This is a Python project I made using Tkinter. The idea is simple: the user will type the ingredients they have at home, and the app suggests which Indian dishes can be made.

PROBLEM STATEMENT :

Many times we have only a few ingredients at home but we don't know what dish can be made from them. Searching on Google also takes time because it shows so many recipes. So the problem is finding a quick and simple way to know which Indian dishes can be prepared with the ingredients we already have.

OBJECTIVE :

The aim was to help users quickly find recipes based on whatever ingredients they already have.

TOOLS AND TECHNOLOGIES :

- Python
- Tkinter
- Any IDE like VS Code / PyCharm / IDLE

ANALYSIS:

The system uses simple keyword matching , which works well for small data . The GUI is basic but user friendly, and results are quick. Accuracy mainly depends on how good the recipe keywords are.

SYSTEM DESIGN :

- Users types ingredients.
- Program checks them.
- Matches ingredients with recipe keywords.
- Scores each recipe.
- Show top 3 results.
- Users clicks to view full recipe.

HOW IT WORKS :

- The user enters ingredients in the input box.
- The program then compares those ingredients with the recipe database I created.
- It calculates match score and shows the top 3 recipes.
- When the user clicks on any recipe, full details like ingredients and steps appear.

KEY FEATURES :

- Simple and clean Tkinter surface.
- Top 3 recipe suggestions.
- View detailed recipe
- Works even with partial ingredients

PYTHON CODE (INPUT) :

```
import tkinter as tk
from tkinter import scrolledtext
from tkinter import messagebox

# --- 1. RECIPE DATABASE (35 Famous Indian Dishes) ---
RECIPE_DATABASE = [
    # --- 5 Highly Detailed Indian Recipes (Indices 01-05) ---
    {
        "name": "Chicken Tikka Masala",
        "keywords": ["chicken", "yogurt", "tomato", "cream", "garam masala", "chili"],
        "ingredients": ["1 lb Chicken Breast", "1 cup Tomato Puree", "Cream", "Butter", "Garam Masala", "Yogurt"],
        "process": "Marinate, grill chicken, then simmer in a rich tomato and cream sauce.",
    },
    {
        "name": "Palak Paneer (Spinach & Cheese)",
        "keywords": ["spinach", "paneer", "cheese", "cream", "ginger", "garlic", "ghee"],
        "ingredients": ["1 bunch Fresh Spinach", "200g Paneer (cubed)", "Onion", "Ginger-Garlic Paste", "Cream", "Cumin Seeds", "Ghee"],
        "process": "Blanch and puree spinach. Sauté spices and onion. Add puree, finish with paneer and cream.",
    },
    {
        "name": "Vegetable Biryani",
        "keywords": ["rice", "vegetable", "yogurt", "onion", "biryani masala", "mint", "coriander"],
        "ingredients": ["1 cup Basmati Rice", "Mixed Vegetables", "1/4 cup Plain Yogurt", "Biryani Masala", "Fried Onion", "Ghee", "Whole Spices"],
        "process": "Partially cook rice. Marinate vegetables. Layer rice and vegetables and cook (dum method).",
    },
    {
        "name": "Dal Tadka (Spicy Lentils)",
        "keywords": ["lentil", "ghee", "cumin", "turmeric", "onion", "ginger", "garlic", "chili"],
        "ingredients": ["1 cup Mixed Lentils", "4 cups Water", "2 tbsp Ghee", "1 tsp Cumin Seeds", "Turmeric Powder", "Onion (chopped)", "Garlic (sliced)"],
        "process": "Boil lentils. Prepare a hot tempering (tadka) of ghee, cumin, onion, garlic, and chilies. Pour over the lentils.",
    },
    {
        "name": "Aloo Gobi (Potato & Cauliflower)",
        "keywords": ["potato", "Cauliflower", "turmeric", "ginger", "coriander", "cumin", "tomato"],
        "ingredients": ["2 large Potatoes (cubed)", "1 medium Cauliflower (florets)", "Ginger Paste", "Turmeric Powder", "Tomato (chopped)", "Vegetable Oil"],
        "process": "Sauté spices and ginger. Add potatoes and cauliflower. Add tomato and water. Cover and cook until tender.",
    },
    # --- 30 Placeholder Recipes (Indices 06-35) ---
    {
        "name": "Samosa (Fried Pastry)",
        "keywords": ["potato", "pea", "flour", "oil", "cumin", "ginger"],
        "ingredients": ["Potatoes (mashed)", "All-purpose Flour", "Peas", "Ginger Paste", "Cumin Powder", "Oil"],
        "process": "Boil potato. Mix flour, oil, cumin, ginger, and peas. Press into a ball, deep-fry in oil until golden brown."
    },
    {
        "name": "Mole Bhature (Chickpea Curry)",
        "keywords": ["chickpea", "flour", "onion", "tomato", "garam masala", "yogurt"],
        "ingredients": ["Chickpeas (boiled)", "All-purpose Flour", "Yogurt", "Onion & Tomato (chopped)", "Garam Masala", "Salt", "Oil or Ghee"],
        "process": "Boil chickpeas. Mix flour, oil, onion, tomato, garam masala, and yogurt. Deep-fry in oil until golden brown."
    },
    {
        "name": "Raita (Curd/Creamy Side Dish)",
        "keywords": ["kitchen bean", "raita", "rice", "tomato", "onion", "ginger"],
        "ingredients": ["Rajma (soaked overnight)", "Basmati Rice", "Plain Yogurt", "Onion (chopped)", "Tomato (chopped)", "Ginger Paste", "Salt", "Oil or Ghee"],
        "process": "Boil rajma. Mix rice, yogurt, onion, tomato, ginger, and salt. Serve with a side of rajma and raita."
    },
    {
        "name": "Dosa Pav (Potato Slider)",
        "keywords": ["potato", "milk", "flour", "oil", "salt", "chili"],
        "ingredients": ["Potatoes (mashed)", "Besan (Chickpea Flour)", "Pav Buns", "Mustard Seeds", "Cumin Seeds", "Salt", "Oil or Ghee"],
        "process": "Boil potatoes. Mix besan, milk, oil, and salt. Press into a ball, deep-fry in oil until golden brown. Serve with pav buns and chutney."
    },
    {
        "name": "Gajar Halwa (Carrot Dessert)",
        "keywords": ["carrot", "milk", "sugar", "ghee", "cardamom", "nut"],
        "ingredients": ["Carrots (grated)", "Milk", "Sugar", "Ghee", "Cardamom Powder", "Associated Nut Powder", "Salt", "Oil or Ghee"],
        "process": "Boil carrots. Mix milk, sugar, ghee, cardamom powder, and nut powder. Simmer until thickened. Garnish with pistachios if desired."
    },
    {
        "name": "Rogan Josh (Lamb Curry)",
        "keywords": ["lamb", "mutton", "yogurt", "ginger", "fennel", "cardamom"],
        "ingredients": ["Lamb Shoulder (cubed)", "Yogurt", "Ginger Powder", "Fennel Powder", "Cardamom Powder", "Salt", "Oil or Ghee"],
        "process": "Boil lamb. Mix yogurt, ginger, fennel, cardamom, and salt. Simmer until lamb is tender. Garnish with cilantro if desired."
    },
    {
        "name": "Malai Kofta (Creamy Balls)",
        "keywords": ["potato", "paneer", "cream", "nut", "tomato", "ginger", "cashew"],
        "ingredients": ["Paneer (grated)", "Potatoes (mashed)", "Flour", "Heavy Cream", "Tandoori Masala", "Salt", "Oil or Ghee"],
        "process": "Boil potatoes. Mix paneer, cashew, ginger, and salt. Deep-fry in oil until golden brown. Serve with tandoori masala and heavy cream."
    },
    {
        "name": "Jalebi (Sweet Syrupy Cake)",
        "keywords": ["flour", "yogurt", "sugar", "safron", "cardamom", "ghee"],
        "ingredients": ["All-purpose Flour", "Yogurt", "Baking Powder", "Sugar Syrup", "Saffron Strands", "Cardamom Powder", "Ghee", "Salt", "Oil or Ghee"],
        "process": "Boil saffron strands in water. Mix flour, yogurt, baking powder, and oil. Press into a ball, deep-fry in oil until golden brown. Dip in sugar syrup and garnish with cardamom powder and ghee."
    },
    {
        "name": "Dosa (Rice Crepe)",
        "keywords": ["rice", "lentil", "urad", "fenugreek", "fermentation", "oil"],
        "ingredients": ["Rice", "Urad Dal", "Fenugreek Seeds", "Salt", "Oil or Ghee"], "process": "Soak rice and urad dal. Mix fenugreek seeds and oil. Ferment for 8 hours. Deep-fry in oil until golden brown."
    },
    {
        "name": "Idli Sambar (Steamed Cake)",
        "keywords": ["rice", "lentil", "urad", "vegetable", "onion", "tomato", "chili", "oil"],
        "ingredients": ["Idli Batter", "Mixed Vegetables", "Tamarind Pulp", "Sambar Powder", "Onion (chopped)", "Tomato (diced)", "Green Chili", "Salt", "Oil or Ghee"], "process": "Boil idli batter. Mix vegetables, tamarind pulp, sambar powder, and onion/tomato. Deep-fry in oil until golden brown."
    },
    {
        "name": "Uttapam (Savory Pancake)",
        "keywords": ["rice", "lentil", "vegetable", "onion", "tomato", "chili", "oil"],
        "ingredients": ["Idli/Dosa Batter", "Onion (chopped)", "Tomato (diced)", "Green Chili", "Salt", "Oil or Ghee"], "process": "Boil uttapam batter. Mix vegetables, onion, tomato, and chili. Deep-fry in oil until golden brown."
    },
    {
        "name": "Shahi Paneer (Royal Curry)",
        "keywords": ["paneer", "cream", "cashew", "tomato", "chili", "cardamom", "butter"],
        "ingredients": ["200g Paneer", "Tomato Puree", "Heavy Cream", "Cashew Paste", "Cardamom Powder", "Salt", "Oil or Ghee"], "process": "Boil paneer. Mix tomato puree, cashew paste, cardamom powder, and butter. Simmer until paneer is tender. Garnish with cilantro if desired."
    },
    {
        "name": "Masala Dosa (Stuffed Crepe)",
        "keywords": ["rice", "lentil", "potato", "onion", "chutney", "ghee"],
        "ingredients": ["Dosa Batter", "3 Boiled Potatoes (mashed)", "Onion (chopped)", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil masala dosa batter. Mix mashed potatoes, onion, mustard seeds, and curry leaves. Deep-fry in oil until golden brown."
    },
    {
        "name": "Fish Curry (Goan Style)",
        "keywords": ["fish", "coconut", "chili", "tamarind", "turmeric", "onion"],
        "ingredients": ["1 lb Fish Steaks", "Coconut Milk", "Tamarind Paste", "Goan Masala Paste", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil fish steaks. Mix coconut milk, tamarind paste, goan masala paste, and mustard seeds. Simmer until fish is tender. Garnish with cilantro if desired."
    },
    {
        "name": "Gulab Jamun (Deep-fried Sweet)",
        "keywords": ["khoya", "milk", "sugar", "cardamom", "ghee", "frying"],
        "ingredients": ["Khoya", "Milk", "Sugar", "Cardamom", "Ghee", "Frying"], "process": "Boil khoya and milk. Mix sugar and cardamom. Deep-fry in oil until golden brown. Garnish with ghee if desired."
    },
    {
        "name": "Tandoori Chicken (Grilled)",
        "keywords": ["chicken", "yogurt", "ginger", "garlic", "chili", "lemon"],
        "ingredients": ["1 lb Chicken pieces", "Yogurt", "Tandoori Masala", "Lemon"], "process": "Boil chicken pieces. Mix yogurt, tandoori masala, and lemon. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Jeera Rice (Cumin Rice)",
        "keywords": ["rice", "cumin", "ghee", "water", "coriander"],
        "ingredients": ["1 cup Basmati Rice", "Ghee", "Cumin Seeds", "Water", "Salt", "Fresh Coriander"], "process": "Boil basmati rice. Mix cumin seeds, water, and salt. Add fresh coriander and ghee. Deep-fry in oil until golden brown."
    },
    {
        "name": "Pani Puri (Crispy Water Balls)",
        "keywords": ["puri", "potato", "tamarind", "mint", "pani", "chili"],
        "ingredients": ["Puri (crispy balls)", "Boiled Potato & Chickpeas", "Tamarind Pulp", "Onion (minced)", "Amchur (dried mango powder)", "Salt", "Oil or Ghee"], "process": "Boil pani puri. Mix boiled potato, chickpeas, tamarind pulp, onion, amchur, and salt. Deep-fry in oil until golden brown."
    },
    {
        "name": "Rasam (South Indian Soup)",
        "keywords": ["tamarind", "tomato", "pepper", "cumin", "lentil", "broth"],
        "ingredients": ["Tamarind Pulp", "Tomatoes", "Tur Dal (cooked)", "Rasam Powder", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil rasam. Mix tamarind pulp, tomatoes, tur dal, rasam powder, mustard seeds, and curry leaves. Deep-fry in oil until golden brown."
    },
    {
        "name": "Kofta Curry (Meatball Curry)",
        "keywords": ["spiced meat", "yogurt", "chili", "oil", "cumin"],
        "ingredients": ["Tamarind Pulp", "Tomatoes", "Tur Dal (cooked)", "Rasam Powder", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil kofta curry. Mix spiced meat, yogurt, chili, oil, and cumin. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Masala Chai (Spiced Tea)",
        "keywords": ["milk", "water", "tea", "ginger", "cardamom", "sugar", "clown"],
        "ingredients": ["Black Tea Leaves", "Milk", "Water", "Ginger (crushed)", "Cardamom Pod", "Cinnamon Stick", "Salt", "Oil or Ghee"], "process": "Boil masala chai. Mix black tea leaves, milk, water, ginger, cardamom, and sugar. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Hyderabadi Biryani",
        "keywords": ["chicken", "yogurt", "steaming", "mustard", "chili"],
        "ingredients": ["Besan (Chickpea Flour)", "Yogurt", "Ginger-Chili Paste", "Eno Fruit Salt", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil hyderabadi biryani. Mix besan, yogurt, ginger-chili paste, eno fruit salt, mustard seeds, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Dhokla (Steamed Cake)",
        "keywords": ["besan", "chickpea", "yogurt", "steaming", "mustard", "chili"],
        "ingredients": ["Besan (Chickpea Flour)", "Yogurt", "Ginger-Chili Paste", "Eno Fruit Salt", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil dhokla. Mix besan, yogurt, ginger-chili paste, eno fruit salt, mustard seeds, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Kulfi (Indian Ice Cream)",
        "keywords": ["milk", "sugar", "cardamom", "pistachio", "freezing"],
        "ingredients": ["Full-fat Milk", "Sugar", "Cardamom Powder", "Saffron Strands", "Pista Powder", "Salt", "Oil or Ghee"], "process": "Boil kulfi. Mix milk, sugar, cardamom powder, saffron strands, pistachio powder, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Sambar (Vegetable Lentil Stew)",
        "keywords": ["lentil", "vegetable", "tamarind", "sambar powder", "mustard"],
        "ingredients": ["Tur Dal", "Mixed Vegetables", "Tamarind Pulp", "Sambar Powder", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil sambar. Mix tur dal, mixed vegetables, tamarind pulp, sambar powder, mustard seeds, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Khandvi (Rolled Snack)",
        "keywords": ["besan", "yogurt", "turmeric", "mustard", "oil"],
        "ingredients": ["Besan", "Sour Yogurt", "Ginger-Chili Paste", "Turmeric Powder", "Mustard Seeds", "Curry Leaves", "Salt", "Oil or Ghee"], "process": "Boil khandvi. Mix besan, sour yogurt, ginger-chili paste, turmeric powder, mustard seeds, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Besan Cheela (Savory Pancake)",
        "keywords": ["besan", "onion", "tomato", "chili", "coriander", "ginger"],
        "ingredients": ["Besan", "Water", "Chopped Onion", "Tomato", "Coriander", "Ginger"], "process": "Boil besan cheela. Mix besan, water, chopped onion, tomato, coriander, and ginger. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    },
    {
        "name": "Puri (Fried Flatbread)",
        "keywords": ["wheat", "flour", "oil", "salt", "frying"],
        "ingredients": ["Whole Wheat Flour", "Water", "Oil for deep frying", "Salt"], "process": "Boil puri. Mix whole wheat flour, water, and salt. Deep-fry in oil until golden brown. Garnish with cilantro if desired."
    }
]

# Final verification
if len(RECIPE_DATABASE) != 35:
    print(f"--- FATAL ERROR: Database size is {len(RECIPE_DATABASE)} and should be 35. Please check the RECIPE_DATABASE list.")

# --- 2. THE TKINTER GUI APPLICATION CLASS ---
class RecipeFinderApp:
    # Removed: tk_image_ref = None (Not needed without images)

    # --- COLOR PALETTE ---
    BG_MAIN = "#282c34"
    FG_MAIN = "#fffffe"
    ACCENT_GREEN = "#98c379"
    ACCENT_RED = "#e66772"
    ACCENT_YELLOW = "#e5c07b"

    def __init__(self, master):
        self.master = master
        master.title("Simple Indian Recipe Search (35 Dishes)")
        master.geometry("900x800")
        master.configure(bg=self.BG_MAIN)

    # UI Setup
    header_font = ("Arial", 26, "bold")

    tk.Label(master, text="Simple Indian Recipe Search (Top 3)", font=header_font, bg=self.BG_MAIN, fg=self.ACCENT_YELLOW).pack(pady=20)

    # Input Section
    tk.Label(master, text="Enter Ingredients (separated by commas). Searching across {len(RECIPE_DATABASE)} Indian recipes:", font="Arial", 13, bg=self.BG_MAIN, fg=self.FG_MAIN).pack()
    self.entry_ingredients = tk.Entry(master, width=60, font="Arial", 14, bd=3, relief=tk.RIDGE, bg="#3a3f4a", fg=self.FG_MAIN, insertbackground=self.FG_MAIN)
    self.entry_ingredients.pack(pady=10, padx=20)

    # Button
    self.find_button = tk.Button(master, text="Find Top 3 Recipes", command=self.find_recipes, font="Arial", 15, "bold", bg=self.ACCENT_GREEN, fg=self.FG_MAIN, activebackground="#79b062", padx=15, pady=8)
    self.find_button.pack(pady=15)

    # Interactive Results Display Area
    tk.Label(master, text="Clickable Top 3 Matches ---", font="Arial", 16, "underline", bg=self.BG_MAIN, fg=self.FG_MAIN).pack()
    self.button_frame = tk.Frame(master, bg=self.BG_MAIN, bd=2, relief=tk.SUNKEN)
    self.button_frame.pack(pady=10, padx=20, fill=tk.X)

    tk.Label(master, text="Recipe Detail View:", font="Arial", 13, "bold", bg=self.BG_MAIN, fg=self.FG_MAIN).pack(pady=5)
    self.results_area = scrolledtext.ScrolledText(self.button_frame, width=100, height=20, wrap=tk.WORD, font="Consolas", 11, padx=15, pady=15, bd=2, relief=tk.SUNKEN, bg="#3a3f4a", fg=self.FG_MAIN, insertbackground=self.FG_MAIN, state='disabled')
    self.results_area.pack(padx=20, pady=10)

    # Configure tags for improved text display
    self.results_area.tag_configure("dish_name_tag", font="Arial", 26, "bold", foreground=self.ACCENT_GREEN)
    self.results_area.tag_configure("body_text_tag", font="Consolas", 12)
    self.results_area.tag_configure("header_tag", font="Arial", 14, "bold", foreground=self.ACCENT_YELLOW)

    # Initial Message
    self.results_area.config(state='normal')
    self.results_area.insert(tk.END, "Enter ingredients and click 'Find Top 3 Recipes' to begin.")
    self.results_area.config(state='disabled')

    def show_detailed_view(self, recipe_data, match_count):
        """Displays the full, organized recipe details."""
        pass

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    self.button_frame.pack(pady=10, padx=20, fill=tk.X)

    tk.Label(master, text="Recipe Detail View:", font="Arial", 13, "bold", bg=self.BG_MAIN, fg=self.FG_MAIN).pack(pady=5)
    self.results_area = scrolledtext.ScrolledText(self.button_frame, width=100, height=20, wrap=tk.WORD, font="Consolas", 11, padx=15, pady=15, bd=2, relief=tk.SUNKEN, bg="#3a3f4a", fg=self.FG_MAIN, insertbackground=self.FG_MAIN, state='disabled')
    self.results_area.pack(padx=20, pady=10)

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    self.results_area.tag_configure("body_text_tag", font="Consolas", 12)
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    def show_detailed_view(self, recipe_data, match_count):
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        pass
```

Ln: 1 Col: 0

```

self.results_area.config(state='normal')
self.results_area.delete(1.0, tk.END)

# --- 1. IMAGE/NAME FRAME REMOVED ---

# --- 2. TEXT INSERTION (Simplified) ---
dish_name_text = recipe_data['name'].upper().split('(')[0].strip()

# Use tags for formatting
self.results_area.insert(tk.END, dish_name_text + "\n", "dish_name_tag")
self.results_area.insert(tk.END, "=" * 80 + "\n")

# Match Score
self.results_area.insert(tk.END, f"Match SCORE: {match_count} ingredient(s) matched.\n\n", "header_tag")

# Ingredients Section
self.results_area.insert(tk.END, ">>> INGREDIENTS NEEDED:\n", "header_tag")
ingredients_text = "\n".join([f" {ingredient}" for ingredient in recipe_data['ingredients']])
self.results_area.insert(tk.END, ingredients_text + "\n\n", "body_text_tag")

# Process Section
self.results_area.insert(tk.END, ">>> PROCESS INSTRUCTIONS:\n", "header_tag")
self.results_area.insert(tk.END, f"{recipe_data['process']}\n", "body_text_tag")

self.results_area.config(state='disabled')

def find_recipes(self):
    # 1. Input Processing
    user_input = self.entry_ingredients.get().lower()
    input_list = [item.strip() for item in user_input.split(',') if item.strip()]

    if not RECIPE_DATABASE:
        messagebox.showerror("Data Error", "Recipe database is empty.")
        return

    # 2. Search Logic (Matching Score)
    matching_recipes = []

    for recipe in RECIPE_DATABASE:
        match_count = sum(1 for keyword in recipe["keywords"] if keyword in input_list)

        if match_count > 0:
            matching_recipes.append({"recipe": recipe, "matches": match_count})

    matching_recipes.sort(key=lambda x: x["matches"], reverse=True)

    # Limit to Top 3 Matches
    display_matches = matching_recipes[:3]

    # 3. Clear the button frame
    for widget in self.button_frame.winfo_children():
        widget.destroy()

    # 4. Display Buttons for Top 3 Matches
    if not display_matches:
        tk.Label(self.button_frame, text="No matching recipes found.", fg=self.ACCENT_RED, font=("Arial", 12), bg=self.BG_MAIN).pack(padx=10, pady=10)
    else:
        for i, match_item in enumerate(display_matches):
            recipe = match_item["recipe"]
            match_info = match_item["matches"]

            button_text = f"Rank {i+1}: {recipe['name']} (Match: {match_info}) - CLICK HERE!"

            # Highlight Rank 1
            if i == 0:
                btn_bg = self.ACCENT_YELLOW
                btn_fg = self.BG_MAIN
                btn_active_bg = "#d6b05e"
            else:
                btn_bg = self.ACCENT_GREEN
                btn_fg = self.BG_MAIN
                btn_active_bg = "#79b062"

            tk.Button(self.button_frame,
                      text=button_text,
                      font=("Arial", 11, "bold"),
                      bg=btn_bg,
                      fg=btn_fg,
                      activebackground=btn_active_bg,
                      command=lambda r=recipe, m=match_info: self.show_detailed_view(r, m)
            ).pack(side=tk.LEFT, padx=5, pady=5)

    # Update the detailed area with instructions
    self.results_area.config(state='normal')
    self.results_area.delete(1.0, tk.END)
    self.results_area.insert(tk.END, "Click one of the buttons above to view the full details for that recipe.")
    self.results_area.config(state='disabled')

# --- 3. THE EXECUTION BLOCK ---

if __name__ == '__main__':
    if len(RECIPE_DATABASE) != 35:
        print(f"FATAL WARNING: Database size is {len(RECIPE_DATABASE)}, not 35. Please check the RECIPE_DATABASE list.")

    # Removed: Image folder check

root = tk.Tk()
app = RecipeFinderApp(root)
root.mainloop()

```

OUTPUT :

 **Simple Indian Recipe Search (Top 3)**

Enter Ingredients (separated by commas). Searching across 30 Indian recipes:

🔍 **Find Top 3 Recipes**

--- Clickable Top 3 Matches ---

Recipe Detail View:

Enter ingredients and click 'Find Top 3 Recipes' to begin.

EXAMPLE :

The screenshot shows a search interface for Indian recipes. At the top, there's a header with the text "Simple Indian Recipe Search (Top 3)". Below it, a text input field contains the query "paneer,spinach,oil". A button labeled "Find Top 3 Recipes" is positioned next to the input field. Below the input field, there's a link "--- Clickable Top 3 Matches ---". At the bottom of the interface, there are three cards representing recipe matches:

- Rank 1: Palak Paneer (Spinach & Cheese) (Match: 2) - [CLICK HERE!](#)
- Rank 2: Samosa (Fried Pastry) (Match: 1) - [CLICK HERE!](#)
- Rank 3: Malai Kofta (Creamy Balls) (Match: 1) - [CLICK HERE!](#)

Below the search interface, there's a "Recipe Detail View:" section for "PALAK PANEER". It includes the following details:

- MATCH SCORE:** 2 ingredient(s) matched.
- >>> INGREDIENTS NEEDED:**
 - 1 bunch Fresh Spinach
 - 200g Paneer (cubed)
 - Onion
 - Ginger-Garlic Paste
 - Cream
 - Cumin Seeds
 - Ghee
- >>> PROCESS INSTRUCTIONS:**

Blanch and puree spinach. Sauté spices and onion. Add puree, finish with paneer and cream.

CONCLUSION :

By making this project, I learned how to build a GUI using Tkinter, how to structure data, ad how to handle user inputs properly . The project is small but actually useful because it helps users quickly find recipes based on the ingredients they already have.

FUTURE SCOPE :

- Add more recipes to make the results better.
- Add images of dishes for a nicer interface.
- Show nutritional information for each recipe.
- Add a “save or favourite recipe” feature.
- Make a web or mobile app version.
- Add voice based ingredient input.