

Course: AI for Software Engineering

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Week 1: Rule Based Chat-bot.

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Introduction

In this assignment, I developed a simple rule-based chatbot named **CryptoBuddy** to simulate basic AI-driven financial advice. The goal was to design a conversational assistant that could analyze cryptocurrency data and help users make informed investment choices based on **profitability** (price trend and market cap) and **sustainability** (energy usage and environmental viability). This project provided a hands-on opportunity to explore how logical conditions, user interaction, and basic data analysis come together to form the core of an intelligent chatbot. The entire chatbot was coded in Python using beginner-friendly constructs like if-else statements, making it both accessible and functional for new AI developers.

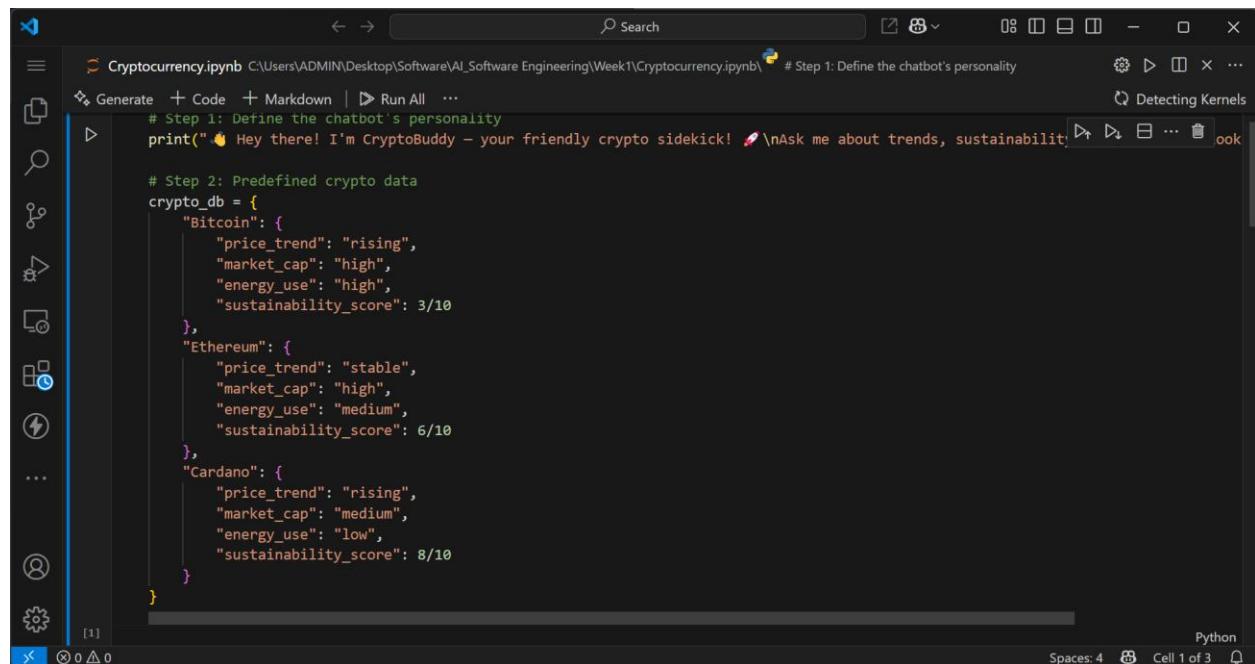
Chatbot Design

Bot Name: CryptoBuddy

Personality Tone: Friendly and supportive, with a bit of flair!

Example Greeting: Hey there! 🚀 I'm CryptoBuddy – your go-to AI for smart crypto advice!
Ready to explore the world of digital coins?

Dataset Used.



```
# Step 1: Define the chatbot's personality
print("👋 Hey there! I'm CryptoBuddy - your friendly crypto sidekick! 🚀\nAsk me about trends, sustainability, or anything else you're curious about!")

# Step 2: Predefined crypto data
crypto_db = [
    {
        "Bitcoin": {
            "price_trend": "rising",
            "market_cap": "high",
            "energy_use": "high",
            "sustainability_score": 3/10
        },
        "Ethereum": {
            "price_trend": "stable",
            "market_cap": "high",
            "energy_use": "medium",
            "sustainability_score": 6/10
        },
        "Cardano": {
            "price_trend": "rising",
            "market_cap": "medium",
            "energy_use": "low",
            "sustainability_score": 8/10
        }
]
```

Chatbot Logic

User Input Types:

- “Which crypto is trending up?”

- “What’s the most sustainable coin?”
- “What should I invest in long-term?”

Decision Rules Used:

- *Profitability*: Rising price trend + High market cap.
- *Sustainability*: Low energy use + sustainability score > 7/10.

```

if "best" in user_query or "recommend" in user_query:
    # Recommend based on both profitability and sustainability
    for coin, data in crypto_db.items():
        if data["price_trend"] == "rising" and data["market_cap"] == "high":
            print(f"💡 Try {coin}! It's profitable and has high market presence.")
            return

    else:
        print("⚠️ I'm not sure how to help with that. Try asking about trends, sustainability, or long-term growth.")
        crypto_advisor("Which crypto is the most sustainable?")
        crypto_advisor("What's trending right now?")
        crypto_advisor("Which crypto should I buy for long-term growth?")
        crypto_advisor("Recommend a coin!")

```

I'd recommend Cardano! It's one of the most eco-friendly options out there.
 These cryptos are on the rise: Bitcoin, Cardano
 Cardano is trending up and eco-friendly — a good long-term option!
 Try Bitcoin! It's profitable and has high market presence.

Sample Conversations

- Me: Hello
- Bot: I'm not sure how to help with that. Try asking about trends, sustainability, or long-term growth.
- You: What is the best coin to buy now
- Bot: Try Bitcoin! It's profitable and has high market presence.
- You: which has more returns
- Bot: I'm not sure how to help with that. Try asking about trends, sustainability, or long-term growth.
- You: which is more sustainable
- Bot: I'd recommend Cardano! It's one of the most eco-friendly options out there.
- You: which has the highest long-term reward
- Bot: Cardano is trending up and eco-friendly — a good long-term option!
- You: exit

➤ Bot: 🙌 Alright, stay safe and invest wisely!

The screenshot shows a Jupyter Notebook titled "Cryptocurrency.ipynb" running in Google Colab. The code defines a simple chatbot loop that prints a welcome message and then enters a while loop. Inside the loop, it prompts the user for input, checks if it's 'exit' or 'quit', and then prints a response from the bot. The bot also calls a function named "crypto_advisor". Below the code, there's a transcript of a conversation between the user and the bot. The user asks about sustainability and profitability, and the bot recommends Bitcoin and Cardano based on those criteria.

```
while True:
    user_input = input("You: ")
    if user_input.lower() in ["exit", "quit"]:
        print("CryptoBuddy: 🙌 Alright, stay safe and invest wisely!")
        break
    crypto_advisor(user_input)

...
You: Hello
CryptoBuddy: 🙌 I'm not sure how to help with that. Try asking about trends, sustainability, or long-term growth.
You: What is the best coin to buy now
CryptoBuddy: 💡 Try Bitcoin! It's profitable and has high market presence.
You: which has more returns
CryptoBuddy: 🙌 I'm not sure how to help with that. Try asking about trends, sustainability, or long-term growth.
You: which is more sustainable
CryptoBuddy: 🌱 I'd recommend Cardano! It's one of the most eco-friendly options out there.
You: which has the highest long-term reward
CryptoBuddy: 🚀 Cardano is trending up and eco-friendly - a good long-term option!
You: [input field]
```

This chatbot mimics basic AI decision-making by using rule-based logic to analyze crypto data. It evaluates sustainability and profitability based on preset conditions and responds accordingly. Though it doesn't "think" like humans, it simulates decision processes by applying logic to structured data—just like a beginner-level financial analyst!

Conclusion

Through building CryptoBuddy, I gained practical insight into how rule-based AI systems function, especially in the context of financial tools. While the chatbot operates on predefined logic rather than machine learning, it effectively showcases how structured data and conditional logic can simulate intelligent decision-making. This foundational approach not only strengthens my understanding of AI-driven workflows but also lays the groundwork for more advanced projects involving real-time data, natural language processing, and ethical considerations in tech. Ultimately, this chatbot serves as a valuable first step toward creating more complex AI-powered financial assistants.