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AI FUNDAMENTAL TUTOR CHATBOT

PROJECT OVERVIEW

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DEVELOP A PLAN

PROJECT NAME

AI Fundamentals Tutor

PLATFORM

Bot Press

PURPOSE

To create an interactive, friendly-tutor-style chatbot that helps learners understand the fundamentals of Artificial Intelligence through guided conversations, multimedia, and curated learning paths.

TARGET AUDIENCE

Beginners and early learners in AI, including students and professionals exploring AI concepts.

KEY FEATURES

- No-code chatbot built on BotPress
- 15+ curated Q&A pairs on core AI topics
- 2 guided conversation flows (e.g., "Learn about NLP", "Explore AI Ethics")
- Multimedia support (diagrams, visual aids)
- Follow-up question handling (up to 3 levels deep)
- "Further Learning" recommendations with course links
- Cross-linking between related AI concepts
- Citations from bootcamp materials

CONVERSATION FLOW DESIGN

CONVERSATION FLOW #1: WHAT IS ARTIFICIAL INTELLIGENCE?

Goal: Introduce the concept of AI in a simple, engaging way

Flow Outline:

1. Greeting & Hook

   "Hey there! Curious about Artificial Intelligence? Let's explore it together!"

2. Definition & Analogy

   "AI is like teaching a computer to think and learn like a human. Imagine a robot that can play chess or recommend your next movie!"

3. Mini Quiz or Visual Aid

   "Can you guess which of these is an example of AI?" (Show 2–3 options with images)

4. Follow-up Options:

   "How is AI different from Machine Learning?"

   "Where is AI used in real life?"

   "What are the types of AI?"

5. Further Learning Suggestion:

   "Want to dive deeper? Check out Module 1: Introduction to AI in your bootcamp portal."

   "Recommended course: Introduction to AI"

CONVERSATION FLOW #2: LEARN ABOUT NATURAL LANGUAGE PROCESSING

Goal: Help learners understand what NLP is, how it works, and where it's used.

Flow Outline:

1. Friendly Intro

   "Ever wondered how Siri understands you? That's NLP in action! Let's explore how machines make sense of human language."

2. Definition & Analogy

   "NLP is a branch of AI that helps computers understand, interpret, and respond to human language. Think of it like teaching a robot to read and talk!"

3. Mini Visual or Example:

"Here's a simple diagram showing how NLP breaks down a sentence into parts like nouns, verbs, and meaning."

4. Follow-up Options:
   "How does NLP work under the hood?"
   "Where is NLP used in real life?"
   "What's the difference between NLP and speech recognition?"
5. Further Learning Suggestion:
   "Want to go deeper? Check out Module 3: NLP Basics in your bootcamp course."
   "Recommended course : NLP"
6. Cross-Link Opportunity:
   "Curious how NLP connects to Machine Learning? Let's explore that next!"

CONVERSATION FLOW #3: EXPLORE AI ETHICS

Goal: Help learners understand the ethical challenges and responsibilities in AI development and use.

Flow Outline:

1. Warm Welcome:

   "Let's talk about the heart of responsible AI — ethics! Ever wondered if AI can be biased or unfair? Let's unpack that."

2. Simple Definition:

   "AI Ethics is about making sure AI systems are fair, transparent, and used responsibly. It's like teaching AI to 'do the right thing.'"

3. Real-world Scenario:

   "Imagine an AI that screens job applications. What if it favors one gender over another? That's an ethical issue."

4. Follow-up Options:

   "What causes bias in AI?"

   "Who is responsible when AI makes a mistake?"

   "How can we build ethical AI systems?"

5. Further Learning Suggestion:

   "Check out Module 5: Responsible AI Practices in your bootcamp course for deeper insights."
   "Recommend course : AI Ethics"

6. Cross-Link Opportunity:
   "Want to see how ethics connects to real-world applications? Let's explore that next!"

CONVERSATION FLOW #4: AL VS ML VS DEEP LEARNING

Goal: Help learners clearly understand the differences and relationships between AI, Machine Learning, and Deep Learning.

Flow Outline:

1. Friendly Opener:

   "These three terms get tossed around a lot — let's break them down together!"

2. Simple Definition with Visual Aid :

   "Think of it like this: AI is the big umbrella 🪁, ML is a branch under it 🌿, and Deep Learning is a sub-branch 🌱 of ML."

   → Show a simple Venn diagram or tree diagram.

3. Real-World Examples:

   AI: Chatbots, smart assistants

   ML: Spam filters, recommendation engines

   Deep Learning: Self-driving cars, facial recognition

4. Follow-up Options:

   "How does Machine Learning actually work?"

   "Is Deep Learning better than ML?"

   "Can you give more real-world examples?

5. Further Learning Suggestion:

   "Explore Module 2: AI vs ML vs DL in your bootcamp course to go deeper."

   "Recommend course: ALvsMLvsDL"

6. Cross-Link Opportunity:

   "Want to see how Deep Learning powers Computer Vision? Let's explore that next!"

CONVERSATION FLOW #5: HOW NEURAL NETWORKS WORK

Goal: Help learners understand the basic structure and function of neural networks in a simple, visual way.

Flow Outline:

1. Friendly Opener:

   "Ever heard of neural networks? They're the brains behind a lot of AI magic — let's break them down together!"

2. Simple Definition + Analogy:

   "A neural network is like a web of digital neurons — inspired by the human brain — that helps machines learn from data."

   "Imagine a network of light switches passing signals to each other — that's kind of how it works!"

3. Visual Aid:

   Show a basic diagram: input layer → hidden layers → output layer.

4. Follow-up Options:

   "What are layers and weights in a neural network?"

   "How does a neural network learn?"

   "What's the difference between a neural network and deep learning?"

5. Further Learning Suggestion:

   "Check out Module 4: Neural Networks 101 in your bootcamp course."

   "Recommend course: Neural Networks"

6. Cross-Link Opportunity:

   "Want to see how neural networks power Computer Vision? Let's explore that next!"

CONVERSATION FLOW #6: REAL-WORLD AI APPLICATIONS

Goal: Show learners how AI is used across industries to make the topic feel practical and exciting.

Flow Outline:

1. Friendly Opener:

   "AI isn't just theory — it's everywhere! Let's explore how it's transforming the world around us."

2. Industry Examples (with visuals if possible):

   Healthcare: Diagnosing diseases, drug discovery

   Finance: Fraud detection, algorithmic trading

   Retail: Personalized shopping, inventory forecasting

Transportation: Self-driving cars, route optimization

3. Interactive Prompt:

   Smart tutors, grading automation

4. Visual Aid:

   Show a basic diagram: input layer → hidden layers → output layer.

5. Follow-up Options:

   "What are layers and weights in a neural network?"

   "How does a neural network learn?"

   "What's the difference between a neural network and deep learning?"

6. Further Learning Suggestion:

   "Check out Module 4: Neural Networks 101 in your bootcamp course."

   "Recommend course: AI Applications"

7. Cross-Link Opportunity:

   "Want to see how neural networks power Computer Vision? Let's explore that next!"

CONVERSATION FLOW #7: ETHICAL DILEMMAS IN AI

Goal: Encourage learners to think deeply about real-world ethical challenges in AI through scenarios and guided reflection.

Flow Outline:

1. Engaging Opener**:**

   "Let's play out some 'what ifs' in AI. What happens when smart systems make decisions that affect real lives?"

2. Scenario-Based Prompt:

   "Imagine an AI used in hiring that unintentionally favors certain candidates. What should be done?"

   → Offer 2–3 response options to spark reflection.

3. Mini Discussion:

   "This is a real ethical dilemma. It raises questions about fairness, accountability, and transparency."

4. Follow-up Options:

"What are the most common ethical issues in AI?"

"Can AI ever be truly unbiased?"

"Who decides what's ethical in AI?"

5. Further Learning Suggestion:

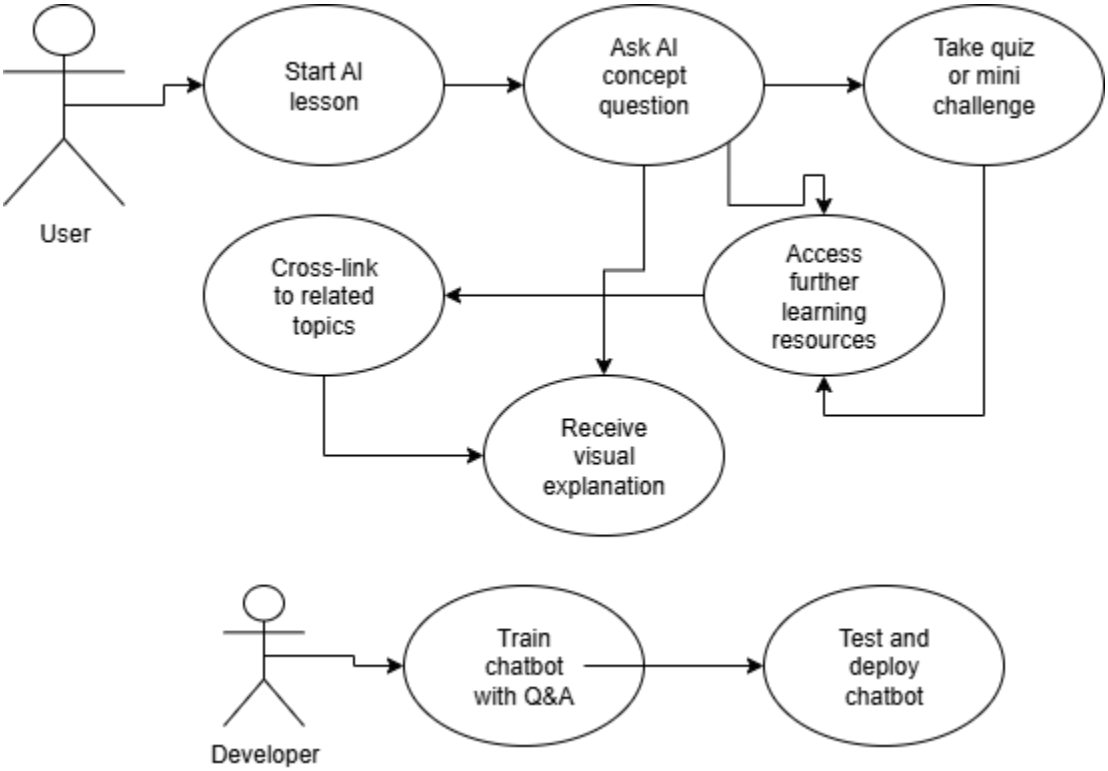
   "Explore Module 7: AI Ethics in Action in your bootcamp course."

   "Recommend course : AI Ethics"

6. Cross-Link Opportunity:

   "Want to understand how ethics ties into real-world AI applications? Let's explore that next!

USE-CASE DIAGRAM



RESPONSIBILITIES

I researched and compared chatbot development platforms which are Poe.com vs Bot press, based on user experience, customization, integration capabilities, and AI functionality. I went on to document key differences in usability, automation features, and deployment flexibility to support informed decision making. I selected Bot press as the preferred platform and continued to build a no-code educational chatbot focused on AI literacy. I designed interactive conversations flows using autonomous nodes to teach complex AI topics in a fun and user-friendly way. Tested and iterated both responses for clarity engagement, and accuracy.

I leveraged Microsoft Copilot to generate structured, context-aware training questions and prompts for chatbot conversations. Also curated and refined Copilot-generated prompts to align with AI literacy goals, including topics like Machine Learning, NLP, and Ethics in AI. Integrated prompted-based training into Botpress nodes, ensuring the chatbot delivers clear, accurate, and engaging responses. I later applied basic prompt engineering techniques to shape user experience and guide logical flow of educational dialogue.

TESTING THE CHATBOT

TRAINING QUESTIONS AND ANSWERS

Q: What is Machine Learning (ML)?

A: ML is a subset of AI that enables systems to learn from data and improve over time without being explicitly programmed.

Q: What is Natural Language Processing (NLP)?

A: NLP is a field of AI that helps computers understand, interpret, and generate human language.

Q: What are Large Language Models (LLMs)?

A: LLMs are advanced AI models trained on massive text datasets to understand and generate human-like language.

Q: What is a Neural Network?

A: A neural network is a system of algorithms modeled after the human brain that helps machines recognize patterns and make decisions.

Q: What is Computer Vision?

A: Computer Vision is a field of AI that enables machines to interpret and understand visual information from the world.

Q: What is the difference between AI, Machine Learning, and Deep Learning?

A: AI is the broad field of making machines intelligent. ML is a subset of AI that focuses on learning from data. Deep Learning is a subset of ML that uses neural networks with many layers.

Q: Is Machine Learning the same as Artificial Intelligence?

A: Not exactly. ML is a technique used within AI. AI includes ML, but also other approaches like rule-based systems and robotics.

Q: What makes Deep Learning different from traditional Machine Learning?

A: Deep Learning uses multi-layered neural networks to learn complex patterns, while traditional ML often relies on simpler models and manual feature engineering.

Q: Can you give examples of AI, ML, and Deep Learning in action?

A: AI: Chatbots; ML: Email spam filters; Deep Learning: Facial recognition systems.

Q: Why is Deep Learning so popular today?

A: Because it performs exceptionally well on tasks like image and speech recognition, thanks to large datasets and powerful computing.

Q: How is AI used in healthcare?

A: AI helps doctors detect diseases early, personalize treatments, and even assist in surgeries using computer vision and predictive analytics.

Q: What role does AI play in finance?

A: AI is used for fraud detection, credit scoring, algorithmic trading, and customer service chatbots in the financial sector.

Q: How is AI transforming education?

A: AI powers personalized learning platforms, automates grading, and supports students with intelligent tutoring systems.

Q: What are some AI applications in transportation?

A: AI is used in self-driving cars, traffic prediction, route optimization, and smart logistics.

Q: Can AI be used in creative industries?

A: Absolutely! AI is used in music composition, graphic design, video editing, and even writing assistance.

Q: Why is ethics important in AI?

A: Because AI systems can impact people's lives — from hiring to healthcare — and must be fair, transparent, and accountable.

Q: What is algorithmic bias?

A: It's when an AI system produces unfair or prejudiced outcomes due to biased training data or flawed design.

Q: Can AI make decisions without human input?

A: Yes, but it raises ethical concerns — especially when those decisions affect people's rights, safety, or opportunities.

Q: Who is responsible when an AI system causes harm?

A: That's a complex issue. Responsibility can lie with developers, companies, or even regulators, depending on the context.

Q: How can we make AI more ethical?

A: By using diverse data, testing for bias, involving ethicists in design, and being transparent about how AI systems work.

CHALLENGES AND SOLUTIONS

One major challenge was that the chatbot kept pulling nonexistent images even after I removed the instructions to do so. I realized the visualization logic was hardcoded into the nodes, so I had to rebuild the chatbot from scratch by eliminating residual instructions and fixing the response behavior.

Another challenge was the lack of built-in knowledge on Large Language Models (LLM's). The bot returned an error message. To fix this, I sourced reliable external content and linked it directly into the training flows, which improves accuracy and gives the bot deeper educational value

DEPLOYMENT

RESULTS

The chatbot successfully delivered interactive, beginner-friendly lessons on core AI topics including AI vs ML, NLP, neural networks, and ethics. The refined conversation flows improved engagement and comprehension. All integrated trusted resources enhanced content accuracy, especially on LLM's. The final product demonstrated the ability to simulate guided learning through autonomous, no-code conversational design.

CHATBOT LINK

Here is the link for the chatbot : EduGuide.AI

CONCLUSION

I learned how to design structured, human-like dialogues that support real learning outcomes.Facing and overcoming limitations around images and inaccurate responses helped me build resilience and adaptability in a no-code development environment. This project strengthened my skills in problem solving, prompt engineering, and building with user experience in mind. Most importantly, I now approach future chatbot or software projects with a clearer understanding of how balance creativity, technical limits, and user needs.