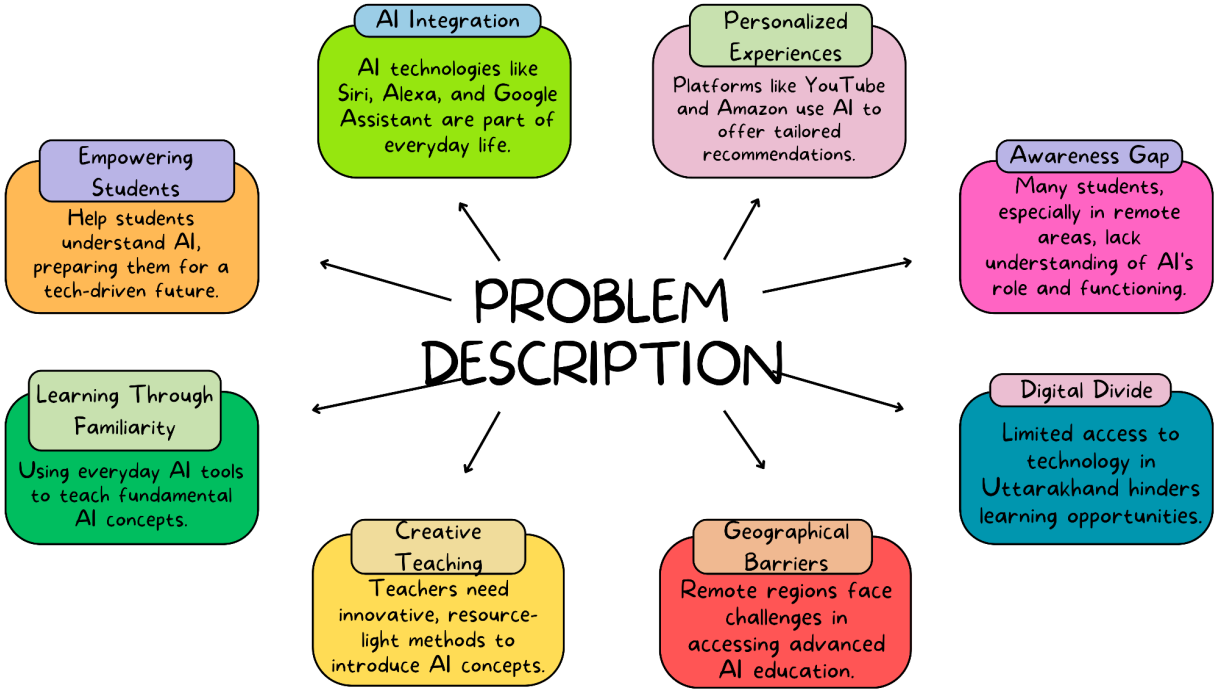
Bhaskar joshi ,Head Teacher GPS Mateeladhura Tarikhet Almora

Understanding AI: Basics and Everyday Use

Project Background : As a primary school teacher in a remote village, I have introduced my young students to Artificial Intelligence (AI) in a way that's simple, engaging, and filled with hands-on fun. This project explores AI basics and its application in everyday life, aiming to share fundamental concepts in a way that's both interesting and accessible for primary school kids. Through interactive sessions, students not only learn about AI's role in simplifying tasks but also experience how it impacts various fields around them. They love engaging with AI applications like image recognition and virtual assistants, finding the activities both fun and fascinating. This project provides students with foundational knowledge of AI in a practical format that's easy to grasp, showing them how technology shapes their daily lives. By interacting with AI-based tools and discussing AI's influence on daily tasks, students in primary , upper primary and middle school will build a meaningful understanding of this technology, preparing them for a world where AI plays an ever-growing role.

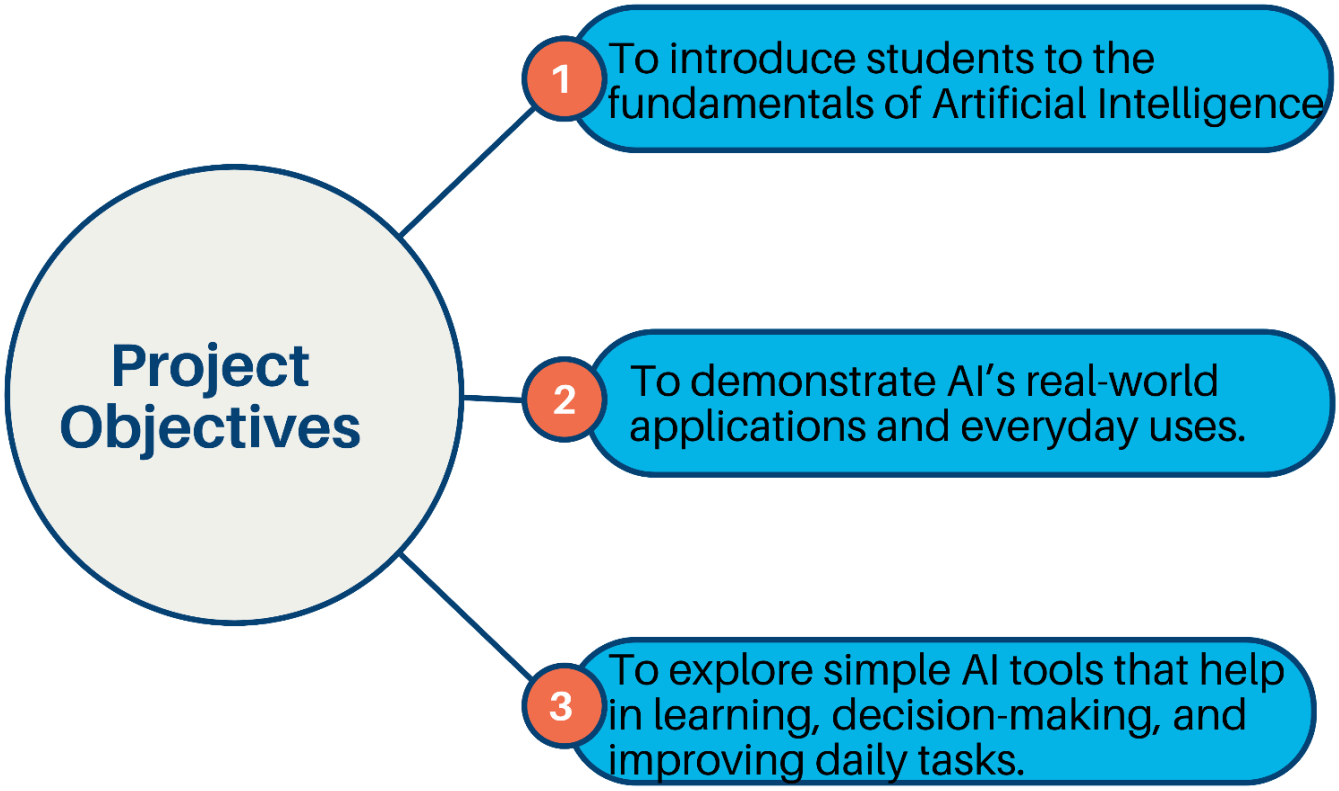
Problem Description: Artificial Intelligence (AI) is becoming a vital part of daily life, with technologies like Google Assistant, Google Now, Cortana, Siri, and Alexa bringing voice recognition, natural language processing, and smart home control to our fingertips. From recommending videos on YouTube to suggesting products on Amazon, AI is embedded in many tools we use every day. However, despite this growing presence, students especially those in remote areas like **Uttarakhand often lack a basic understanding of how these systems work or the influence they have on our lives.Uttarakhand's unique geographical challenges and the ongoing digital divide make access to advanced technology resources limited.** As a teacher, introducing AI to students in these areas requires creative approaches with minimal resources. **This project aims to bridge the knowledge gap by introducing AI concepts through accessible, engaging activities that connect with students' everyday experiences.** By exploring familiar AI tools, students will learn the fundamentals of AI, enabling them to better understand and interact with the technology shaping their future, despite geographical and resource constraints.



Project Objectives:

- To introduce students to the fundamentals of Artificial Intelligence.
- To demonstrate AI's real-world applications and everyday uses.

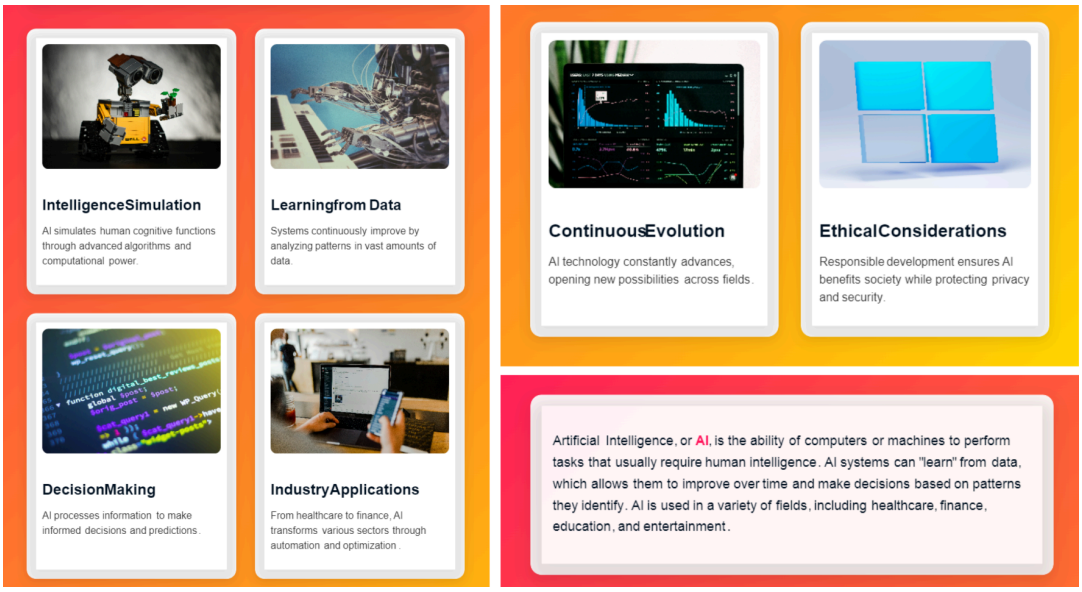
- To explore simple AI tools that help in learning, decision-making, and improving daily tasks.



Project Outline:

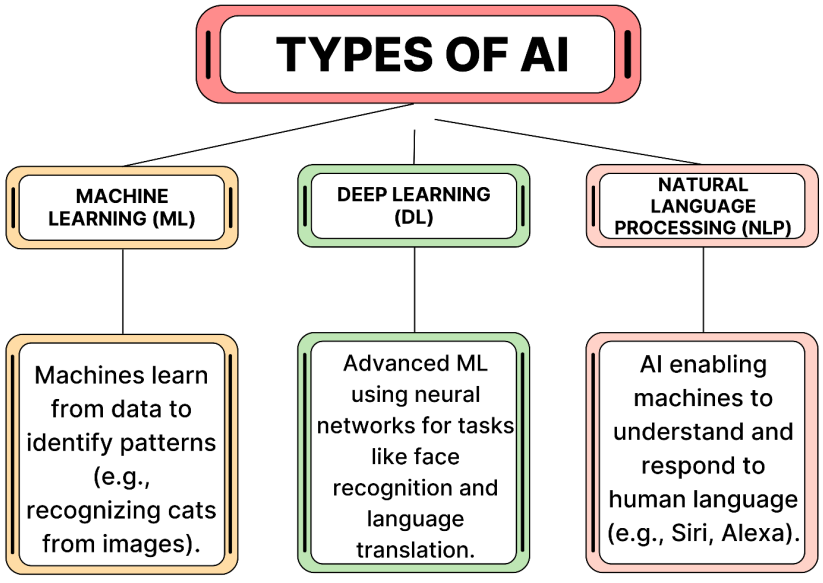
1. Understanding AI Basics:

1. 1 Definition and Overview of AI: Artificial Intelligence, or AI, is the ability of computers or machines to perform tasks that usually require human intelligence. AI systems can "learn" from data, which allows them to improve over time and make decisions based on patterns they identify. AI is used in a variety of fields, including healthcare, finance, education, and entertainment.

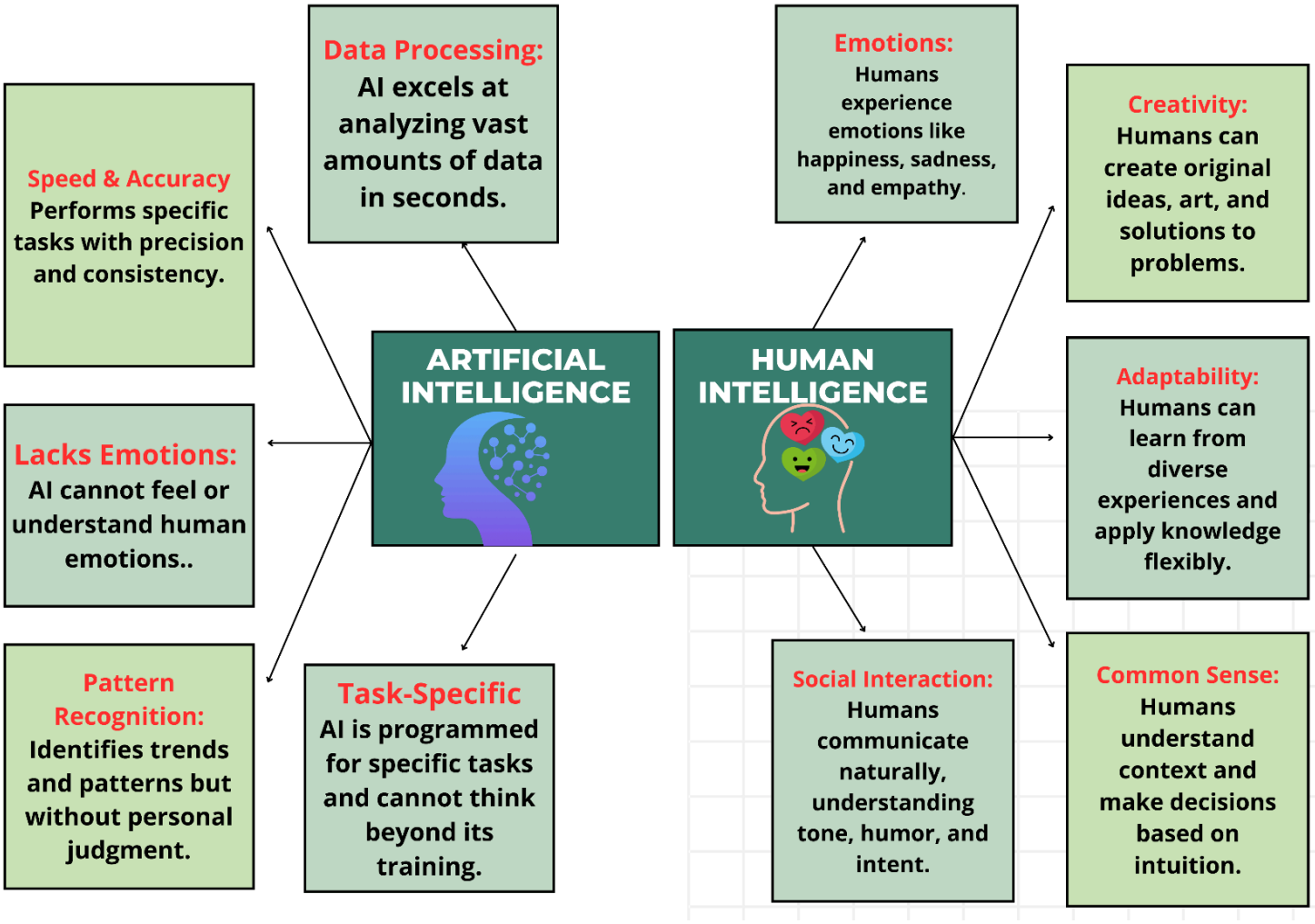


There are different types of AI, each with unique ways of functioning:

- **Machine Learning (ML):** Machine learning is a type of AI where machines learn from data without being explicitly programmed. For example, a machine learning system might look at thousands of images of cats and then learn to identify a cat in a new picture.
- **Deep Learning (DL):** Deep learning is a more advanced type of machine learning that uses complex structures called neural networks. This allows it to handle very detailed tasks, like identifying faces or translating languages.
- **Natural Language Processing (NLP):** NLP is the type of AI that allows machines to understand and respond to human language, like when you use Google Assistant, Siri, or Alexa to ask a question.



1.2. AI vs. Human Intelligence: AI is inspired by how the human brain works, but it is very different from human intelligence. Human intelligence involves emotions, creativity, and common sense, while AI focuses mainly on patterns and data. AI systems can process huge amounts of information quickly and perform specific tasks with great accuracy. However, they lack the ability to understand emotions or think creatively like humans. For example, an AI can analyze thousands of pictures in seconds, but it cannot appreciate art or feel joy from music as a human can.



1.3 Historical Context: The history of Artificial Intelligence (AI) is a story of fascinating advancements, ambitious ideas, and breakthrough achievements. Here is a deeper look into some key moments and milestones in AI's development:

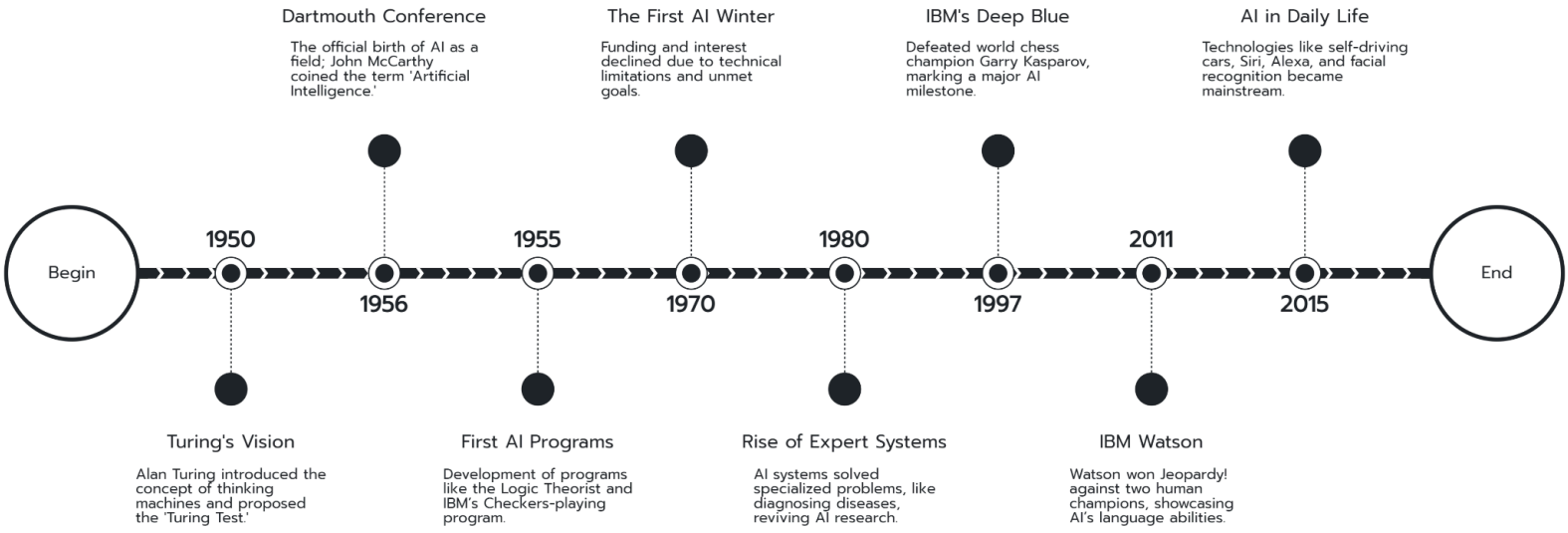
The Birth of AI (1950s):

- **Turing's Vision (1950):** Alan Turing, a British mathematician, introduced the idea that machines could think, sparking early research in AI. He proposed the famous "Turing Test," a method to determine whether a machine could exhibit intelligent behavior indistinguishable from a human.
- **Dartmouth Conference (1956):** This conference is considered the official "birth" of AI as a field. Researchers like John McCarthy (who coined the term "Artificial Intelligence"), Marvin Minsky, and others gathered to explore the potential of machines to simulate human intelligence. They aimed to create machines that could reason, learn, and solve problems.
- **First AI Programs:** In the late 1950s and 1960s, researchers developed the first AI programs, including programs that could solve math problems and play games. For example, the Logic Theorist (1955) and IBM's Checkers-playing program demonstrated machines' problem-solving abilities.

The First "AI Winter" (1970s–1980s):

- **Setbacks and Reduced Funding:** Progress in AI slowed as researchers faced technical limitations and could not meet their ambitious goals. This led to an "AI Winter," where interest and funding declined significantly.
- **Expert Systems (1980s):** In the 1980s, a type of AI called "Expert Systems" revived interest. These systems used databases of expert knowledge to solve specialized problems, like diagnosing diseases or troubleshooting machinery. While limited in scope, expert systems were widely adopted in businesses.
- **1997:** IBM's Deep Blue became the first computer to beat a world chess champion, Garry Kasparov.
- **2011:** IBM's Watson AI won the quiz show Jeopardy!, beating two human champions.
- **2015 to Present:** AI technologies like self-driving cars, facial recognition, and voice assistants (like Siri and Alexa) became widely used in everyday life.

AI has evolved from simple programs that follow instructions to complex systems that can make predictions, interact with humans, and even learn from their mistakes. Understanding AI's journey helps us see how this technology has developed and how it is shaping our future.



2. Everyday Applications of AI:

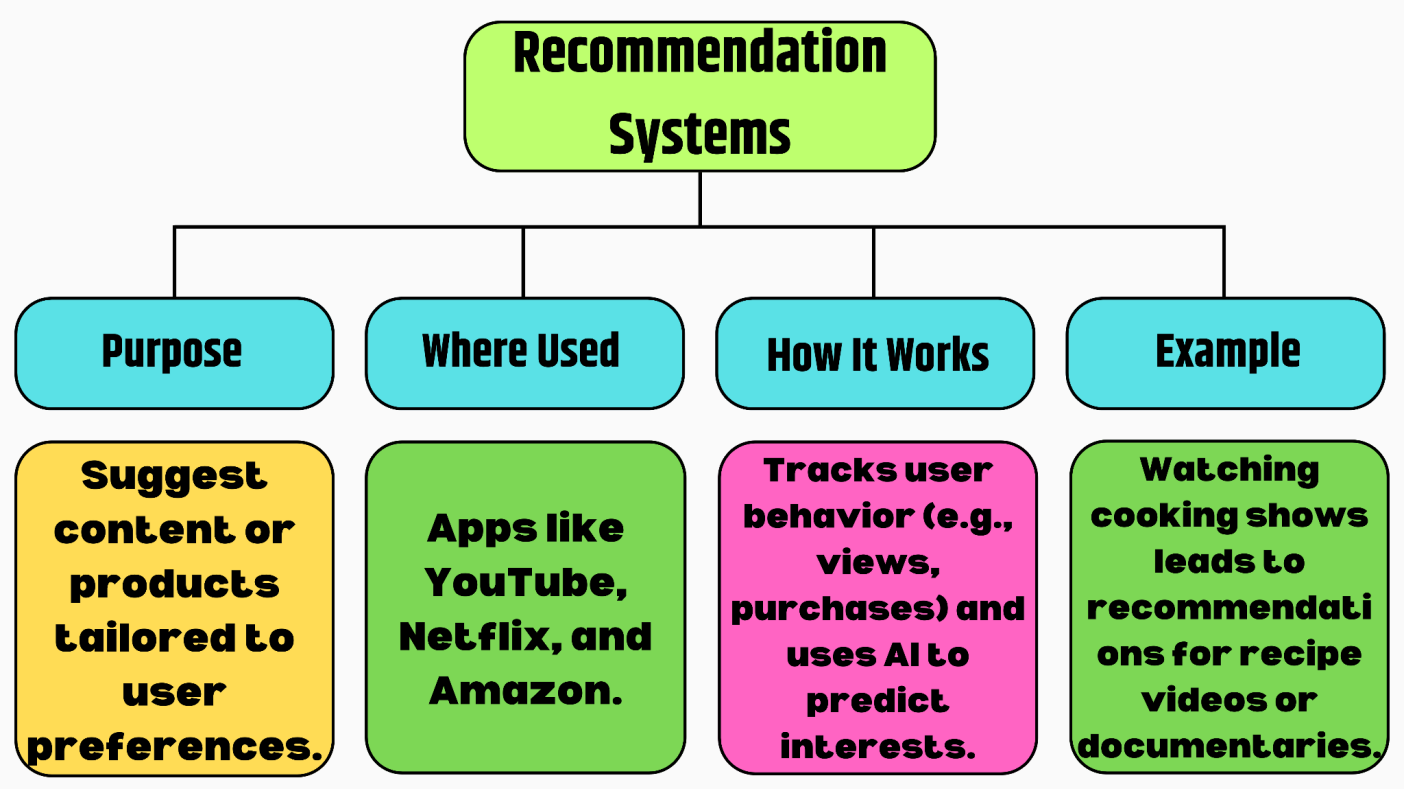
Artificial Intelligence has become a part of our daily lives, often in ways we don't even realize. Here are some common applications of AI that we interact with every day:

1. Virtual Assistants:

Virtual assistants like **Alexa, Siri, Google Assistant,** and **Cortana** use AI to understand and respond to our voices. These assistants recognize our speech and respond with helpful information, like answering questions, setting reminders, playing music, or controlling smart devices around the house. For example, you might ask, "What's the weather today?" or "Remind me to call Mom at 6 p.m.," and the assistant will process the request and respond almost immediately.

2. Recommendation Systems:

Recommendation systems are behind the scenes in apps like **YouTube, Netflix,** and **Amazon** to suggest videos, shows, or products you might like based on what you've watched or purchased in the past. These systems use AI to track viewing or shopping habits, learning about your preferences to provide you with content and products tailored just for you. So, if you watch a lot of cooking shows, YouTube might start recommending more recipe videos, or Netflix may suggest cooking documentaries.



3. Image Recognition:

AI's image recognition technology can identify people, animals, or objects in photos and videos. This feature is used in:

- **Social Media:** Platforms like Facebook can recognize faces and suggest tags for friends in photos.
- **Mobile Apps:** Many smartphones use AI for unlocking with facial recognition or to improve the quality of photos.
- **Security:** AI is used in security cameras to detect people, identify license plates, and even recognize specific individuals.

Image recognition is all about teaching machines to "see" and understand what's in a picture, making it useful in many different settings.

4. Smart Home Devices:

AI powers **smart home devices** like smart lights, thermostats, and security systems, which adapt to your preferences. For example:

- **Smart Thermostats:** These learn your routine to automatically adjust the temperature, saving energy and keeping your home comfortable.
- **Smart Lights:** You can control smart lights with your voice or phone and even set them to adjust brightness based on the time of day.
- **Security Cameras:** AI-enhanced security systems can detect motion, recognize familiar faces, and alert you to any unusual activity around your home.

With these AI-powered smart devices, managing home tasks becomes easier and more personalized, creating a more convenient and connected living environment.

Each of these examples shows how AI improves our daily experiences, often making our routines smoother, more enjoyable, and customized to our needs.

3. Interactive Activities and Demos:

Activity 1: Image Recognition Game

Objective: Help students understand how AI uses image recognition to identify objects.

Materials Needed: A computer with internet access, an AI-based image recognition tool (such as IMAGE RECOGNIZE , api4ai , Teachable Machine Google Vision API or an app that identifies objects in photos).

Steps:

1. **Introduction:** Begin by explaining what image recognition is and how AI "learns" to recognize objects in pictures. As a teacher you can say "Imagine you have a big box of animal pictures—cats, dogs, and birds. At first, the computer doesn't know what's in the pictures. So, we show

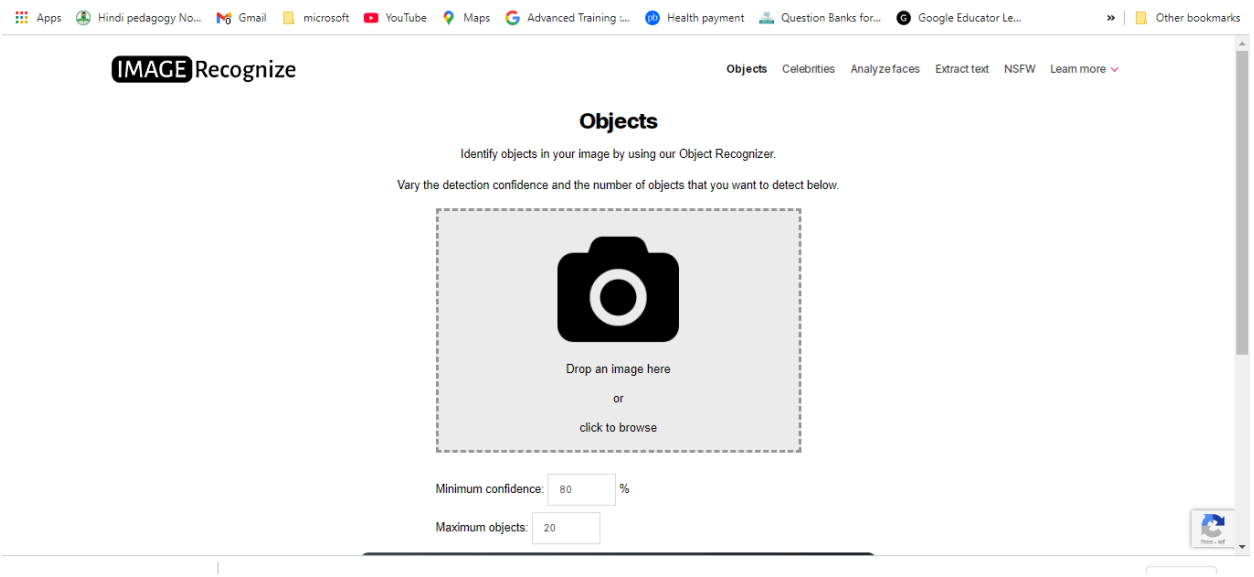
it lots of cat pictures and say, 'This is a cat,' then lots of dog pictures and say, 'This is a dog.' The computer starts to notice patterns, like cats have pointy ears and dogs have floppy ears. Once it learns these patterns, we can show it a new picture, and it can say, 'Oh, that's a cat!' Just like how you learn to tell your friends apart by looking at their faces!"

2. **Activity Setup:** Show students some examples of objects (like fruits, animals, or classroom items) and explain that AI will try to identify these objects.
3. **Interactive Demo:** Take a few pictures of different objects or use images from the internet. Upload them to the image recognition tool and have it identify each one.
4. **Student Involvement:** Let students bring items from their bags or around the classroom for the AI tool to identify.
5. **Discussion:** Discuss with students how accurate the AI was, what it got wrong, and why this technology is helpful in apps like social media or security.

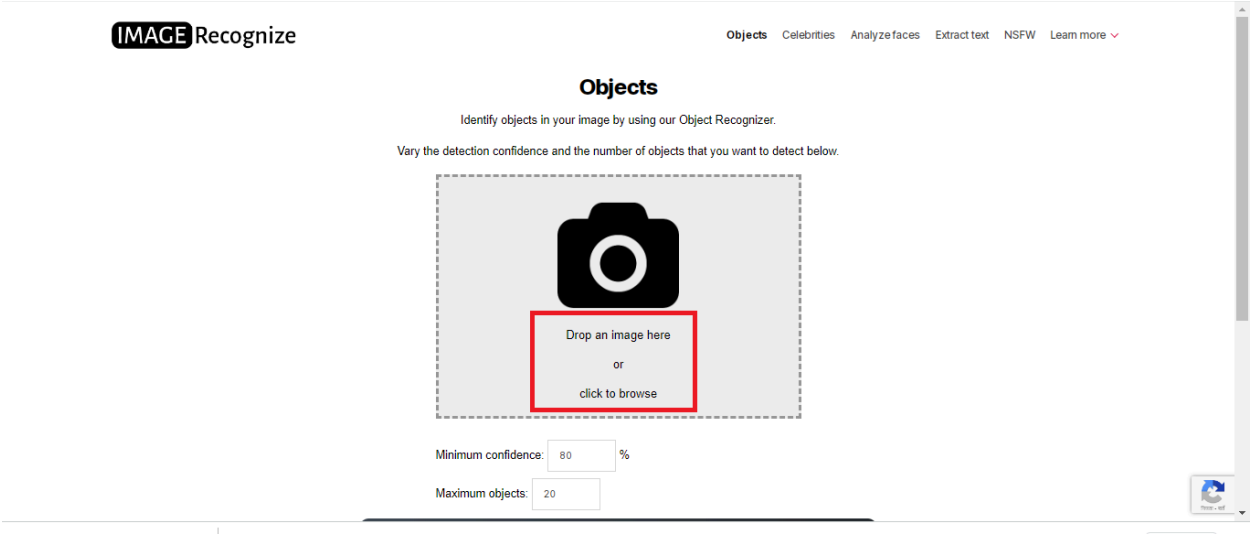
★ **Here's a general procedure for using the Image Recognize app on imagerecognize.com:**

Steps to Use Image Recognize App:

1. **Open the Website or App:**
    - Go to https://imagerecognize.com in your browser .



2. **Upload an Image:**
    - Click on the **"Upload Image"** button or drag and drop the image you want to analyze into the designated area.



3. **Image Analysis Process:**
    - Once uploaded, the app processes the image using AI algorithms to recognize objects, scenes, or patterns.

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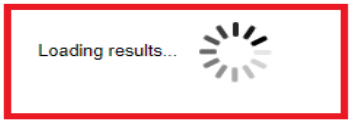
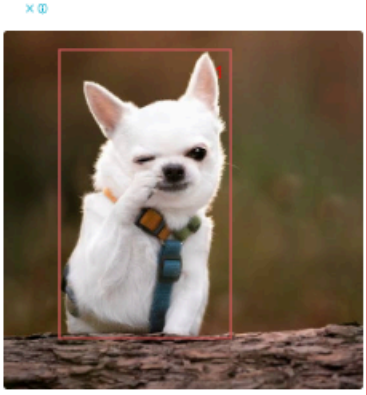


4. **View Results:**
    - The app will display results, which may include:
        - Object names or descriptions.
        - Confidence levels (e.g., 95% certain it's a cat /dog etc.).
        - Related tags or categories.



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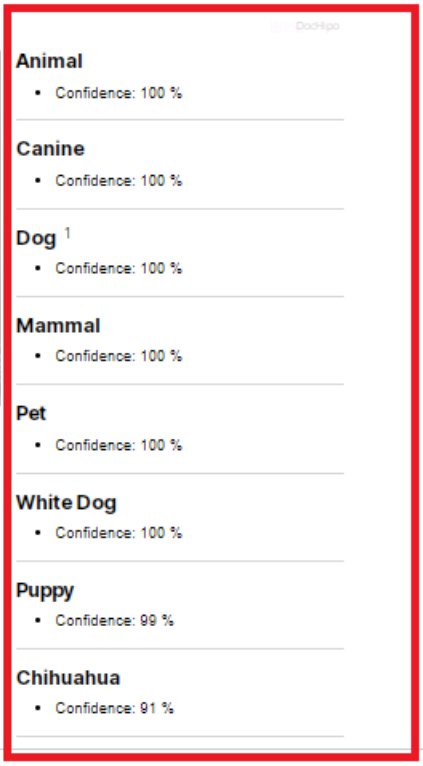


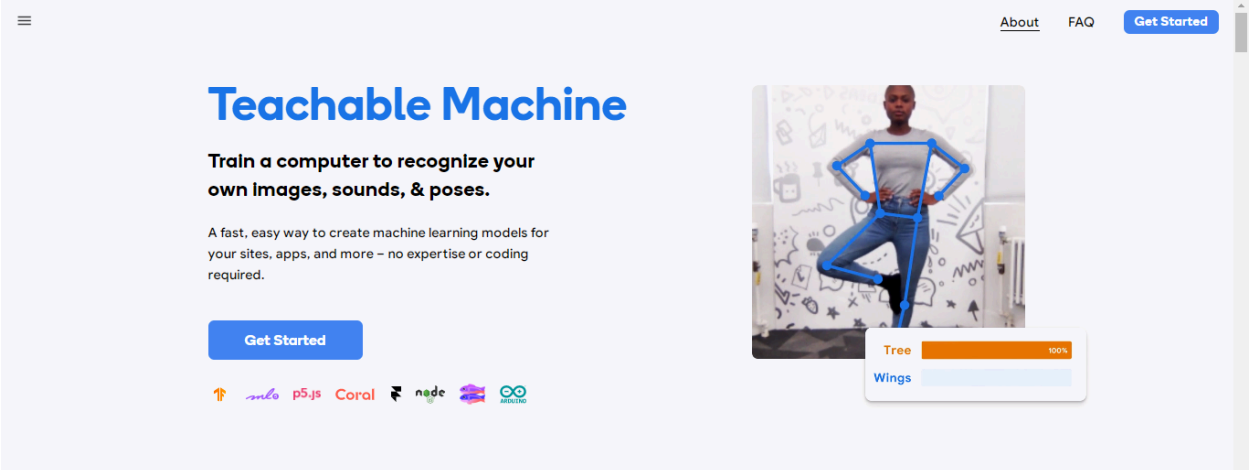
5. **Repeat for New Images:**
    - You can upload another image or clear the existing one to start over.

This procedure may vary slightly depending on updates to the site or app features.

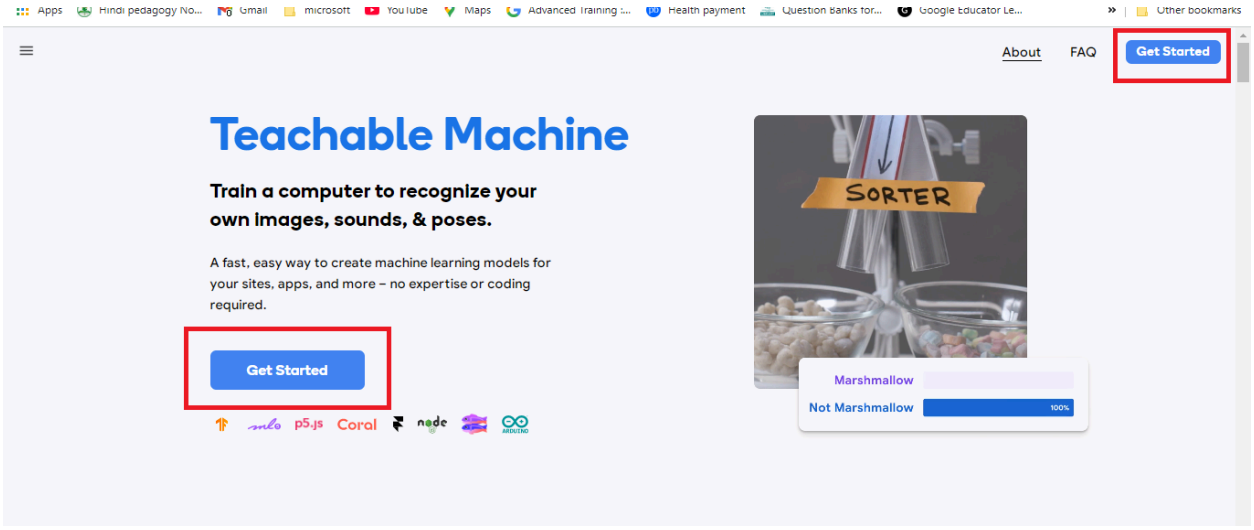
★ Now ,here's a step-by-step procedure to use Google Teachable Machine:

Steps to Use Google Teachable Machine

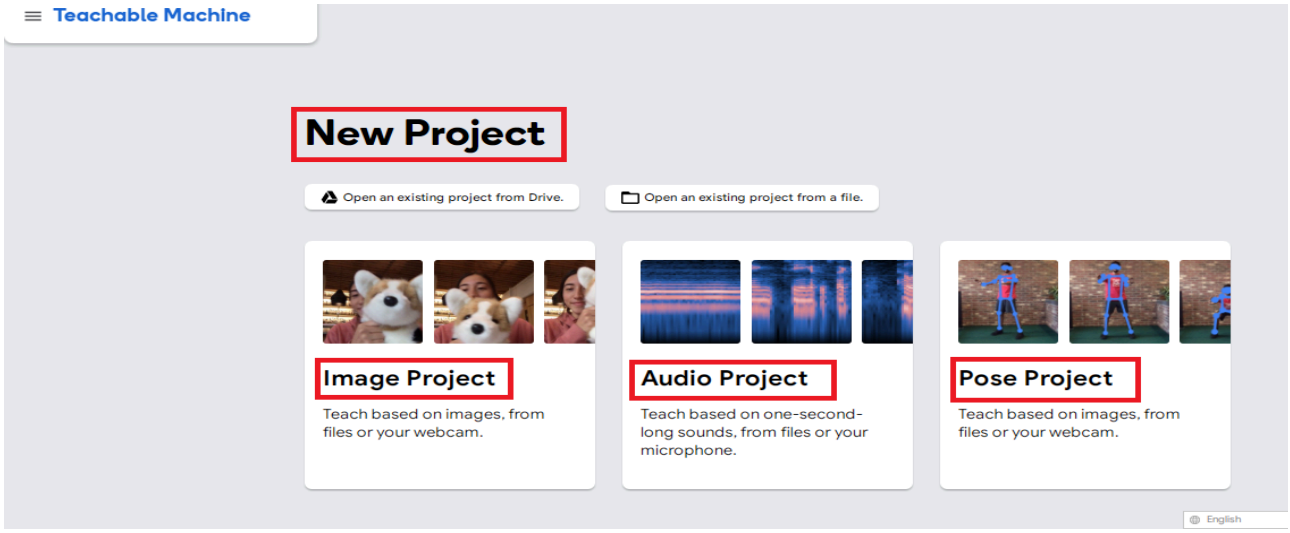
1. **Access the Platform:**
    - Visit https://teachablemachine.withgoogle.com.



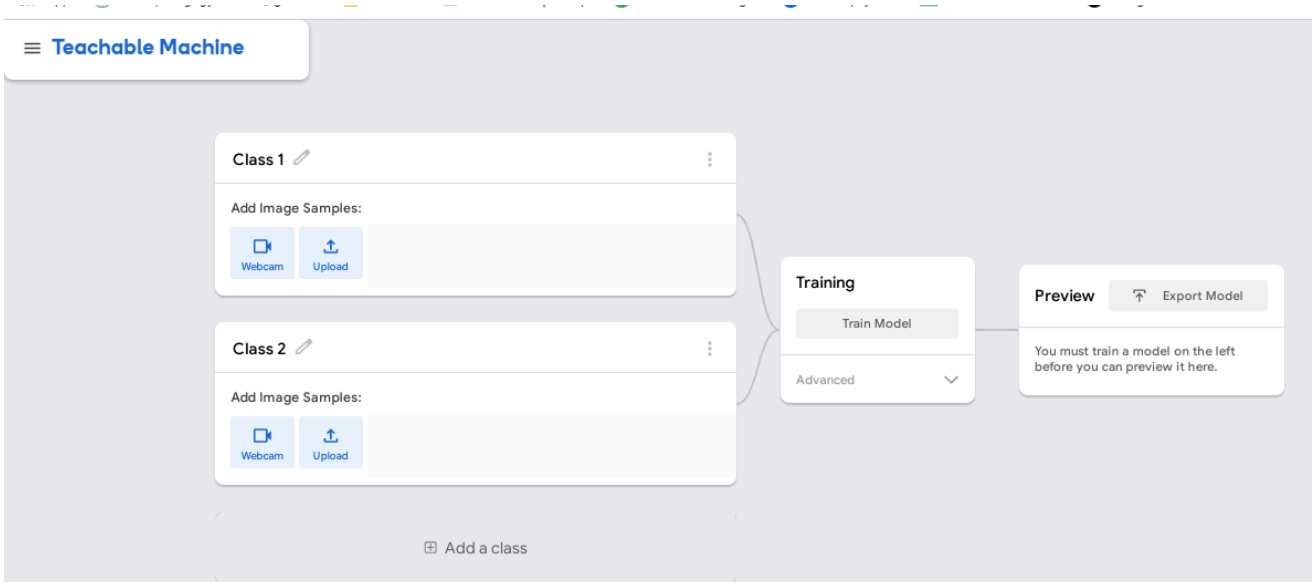
2. **Click Get Started:**



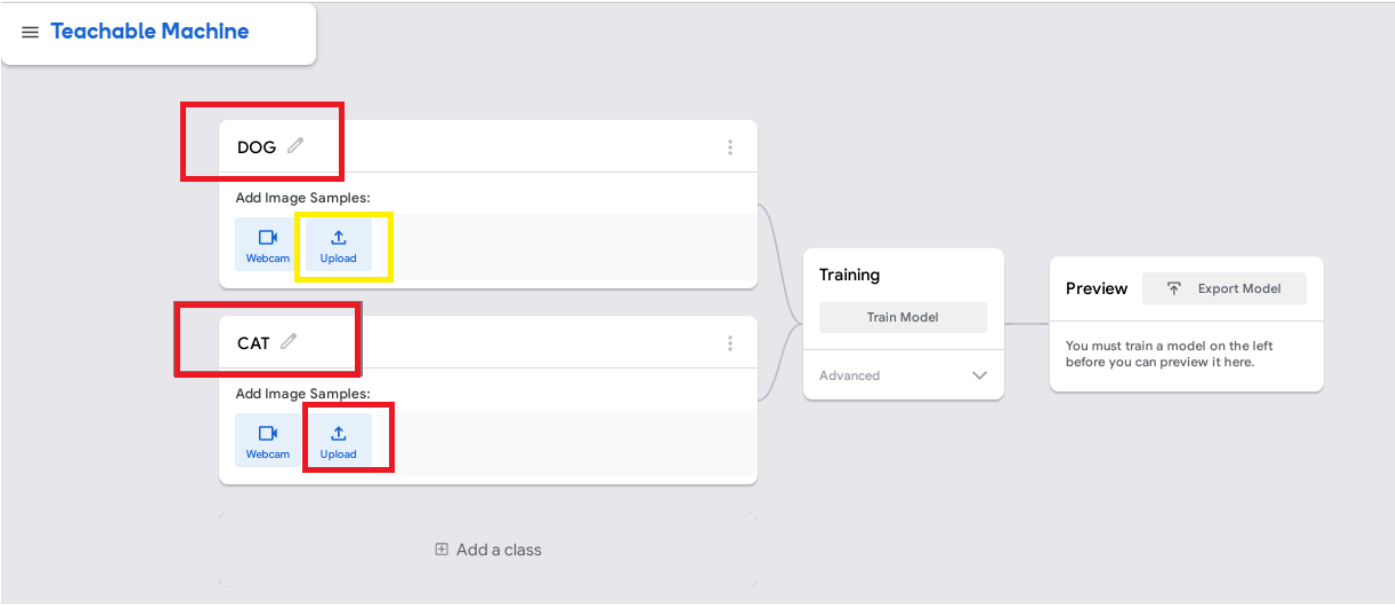
3. **Choose a Project:**
    - Select the type of project you want to create:
        - **Image Project:** Recognizes objects or images.
        - **Audio Project:** Recognizes sound patterns.
        - **Pose Project:** Recognizes body poses or gestures.



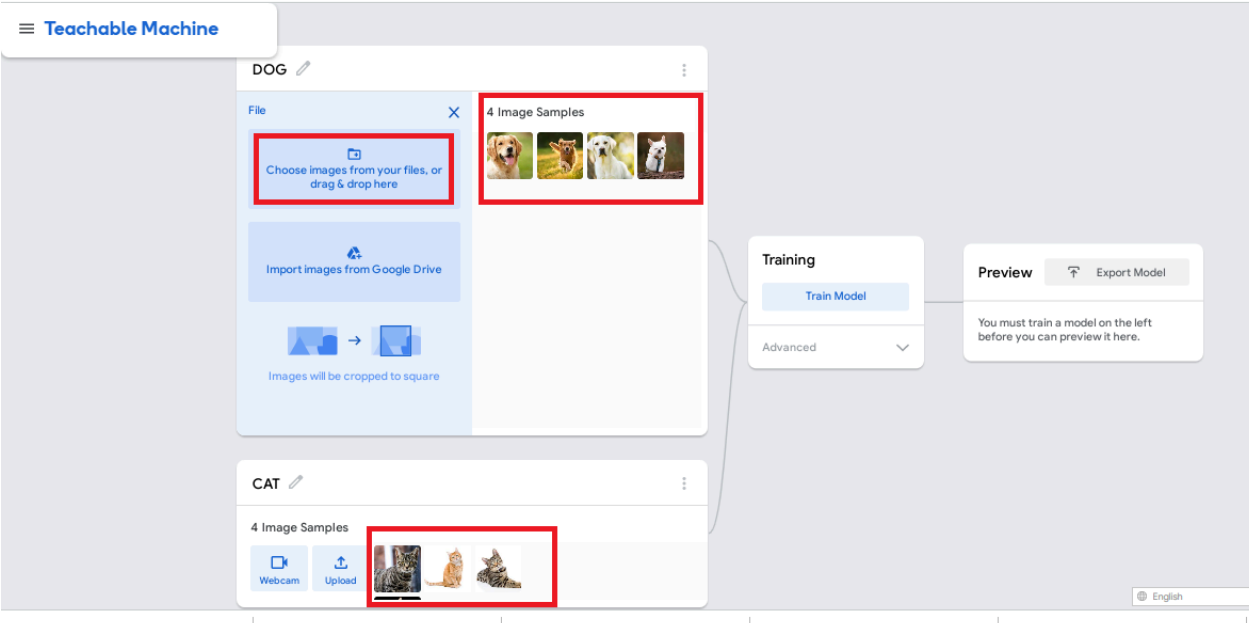
4. **Click on Image Project**



5. **Create Classes:**
    - Define categories or labels (classes) for your model.
        - For example, if building an image project, create classes like **"Cat"** and **"Dog"**.

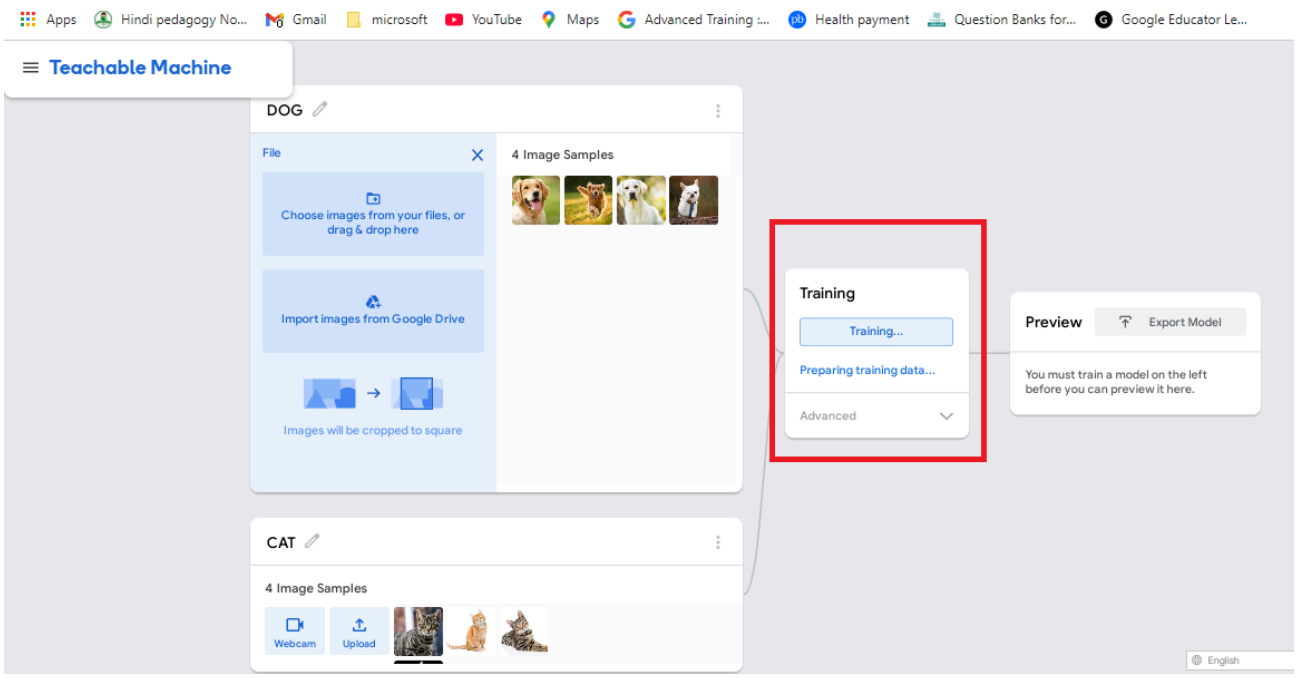


6. **Add Data:**
   - Use your webcam or upload files to provide training data for each class.
   - Example: For the "Cat" class, upload or capture multiple cat images.
   - Include images or data from various angles, lighting, or environments for better accuracy.

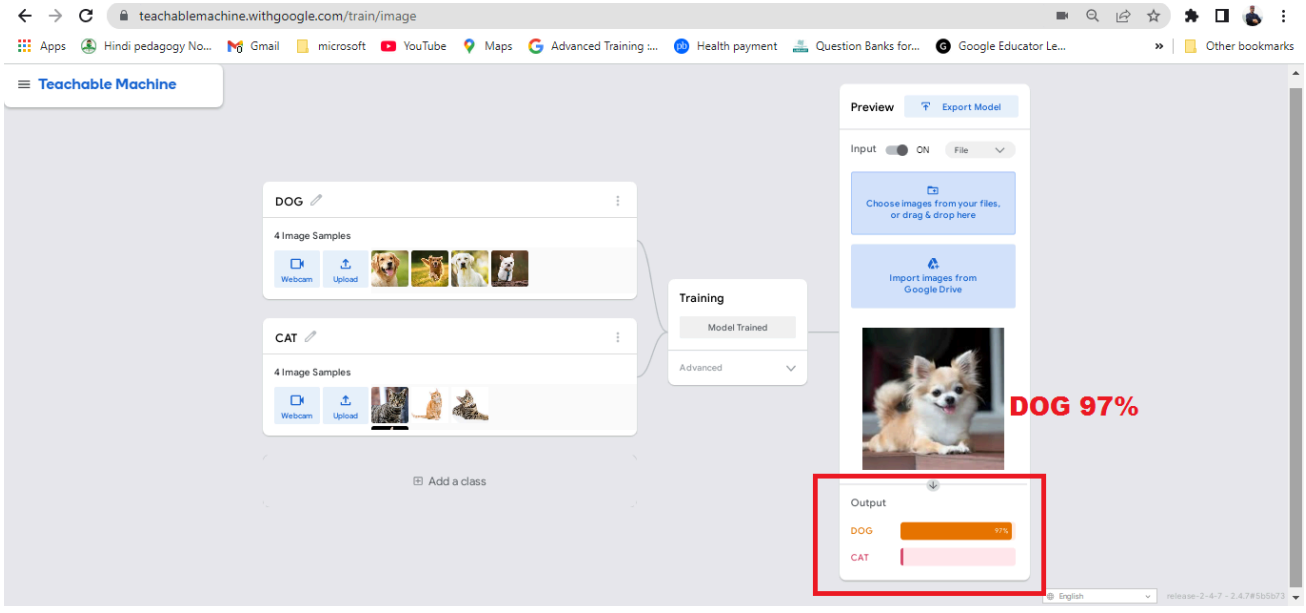


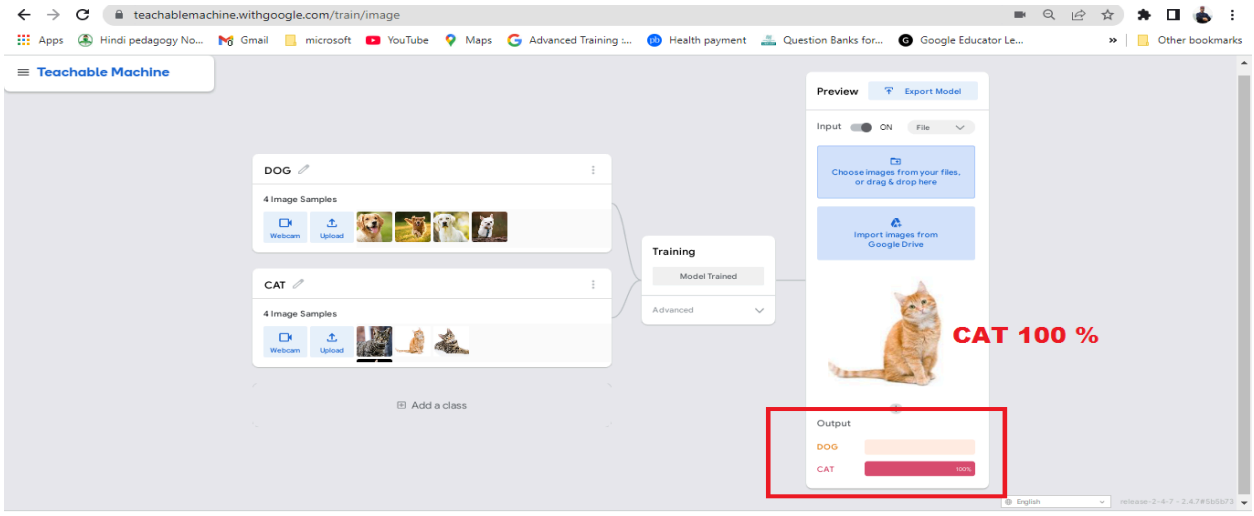
7. **Train the AI:**
   - Click **"Train Model"** to let the Teachable Machine process and learn from the uploaded data.

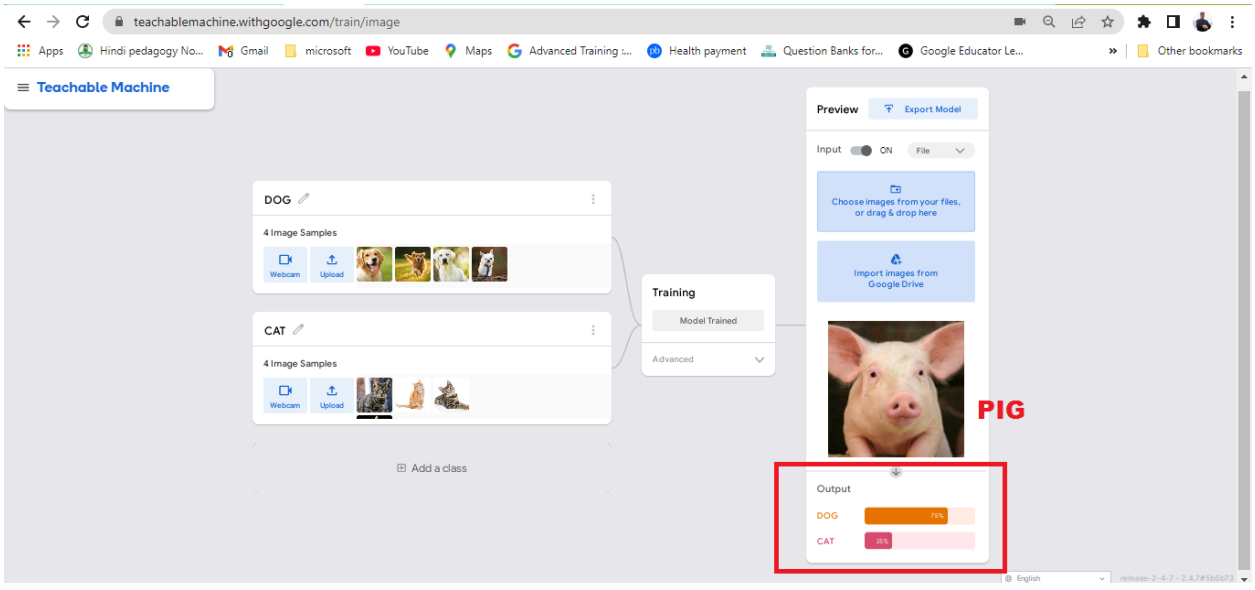
- Wait for the training process to complete.



8. **Test the Model:**
   - Test your model in real-time by uploading an image or using the webcam/audio.
   - Check if the AI correctly identifies the class.







9. **Export the Model:**
    - If the model performs well, click **"Export Model"** to save it.
        - Choose an export option (e.g., TensorFlow, TF Lite, or in-browser link).
        - You can integrate it into apps, websites, or other projects.
10. **Iterate (Optional):**
    - If the accuracy isn't satisfactory, add more data or refine existing data for better results.
    - Retrain the model as needed.

Activity 2: Chatbot Experiment

Objective: Show students how AI chatbots can hold simple conversations and answer questions.

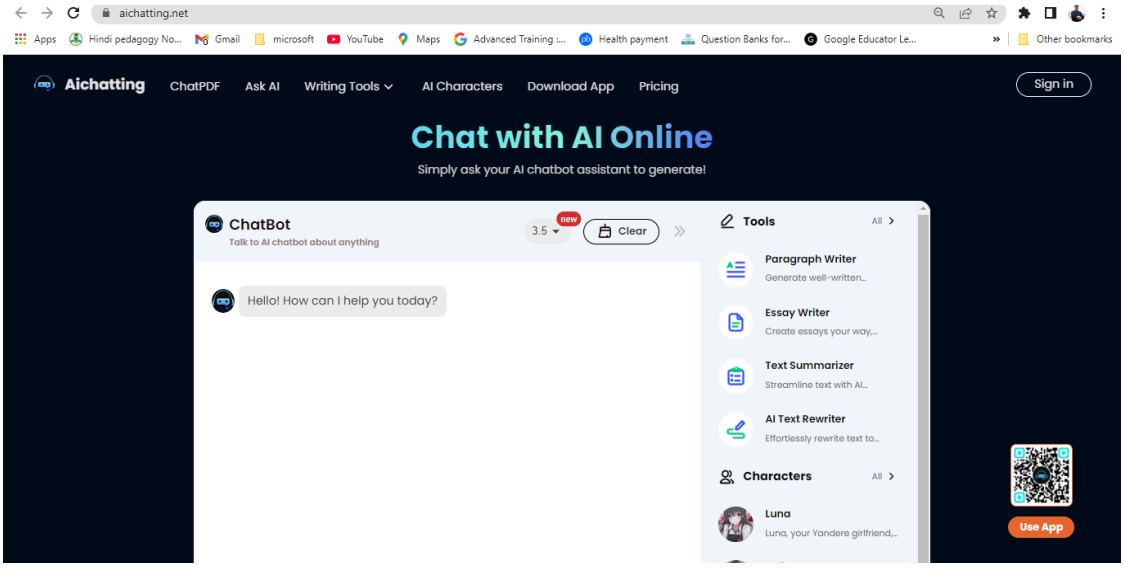
Materials Needed: A computer or tablet with access to a basic chatbot (like DeepAI , AIChatting , Julius ,TalkAI ChatGPT or a kid-friendly chatbot app).

Steps:

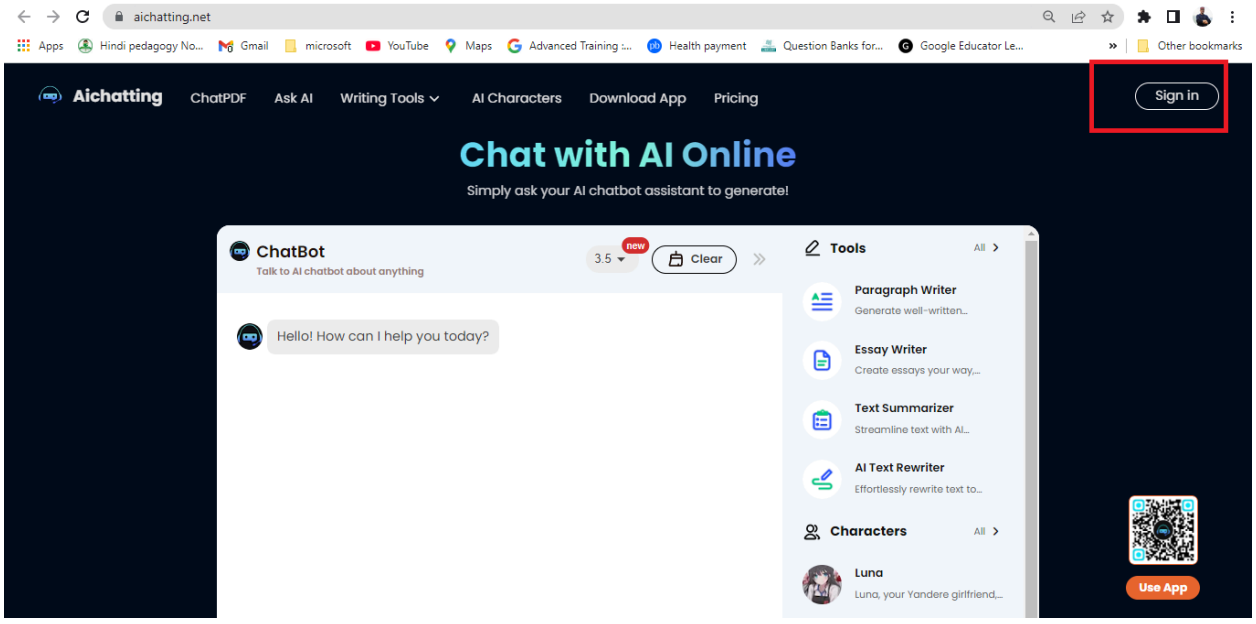
1. **Introduction:** Explain how chatbots are trained to understand questions and respond based on patterns in data.
2. **Hands-On Demo:** Open the chatbot on a screen where all students can see. Ask the chatbot simple questions like "What's your favorite color?" or "Tell me a fun fact."
3. **Student Interaction:** Let students take turns asking the chatbot questions. Encourage them to ask both simple questions (like "What's the weather?") and trickier ones (like "Do you have emotions?").
4. **Reflection:** Discuss how the chatbot's answers reflect programmed responses rather than personal opinions, and explain the difference between AI responses and human thinking.

★ Step-by-Step Procedure to Use an AI Chatbot (e.g., AIChatting)

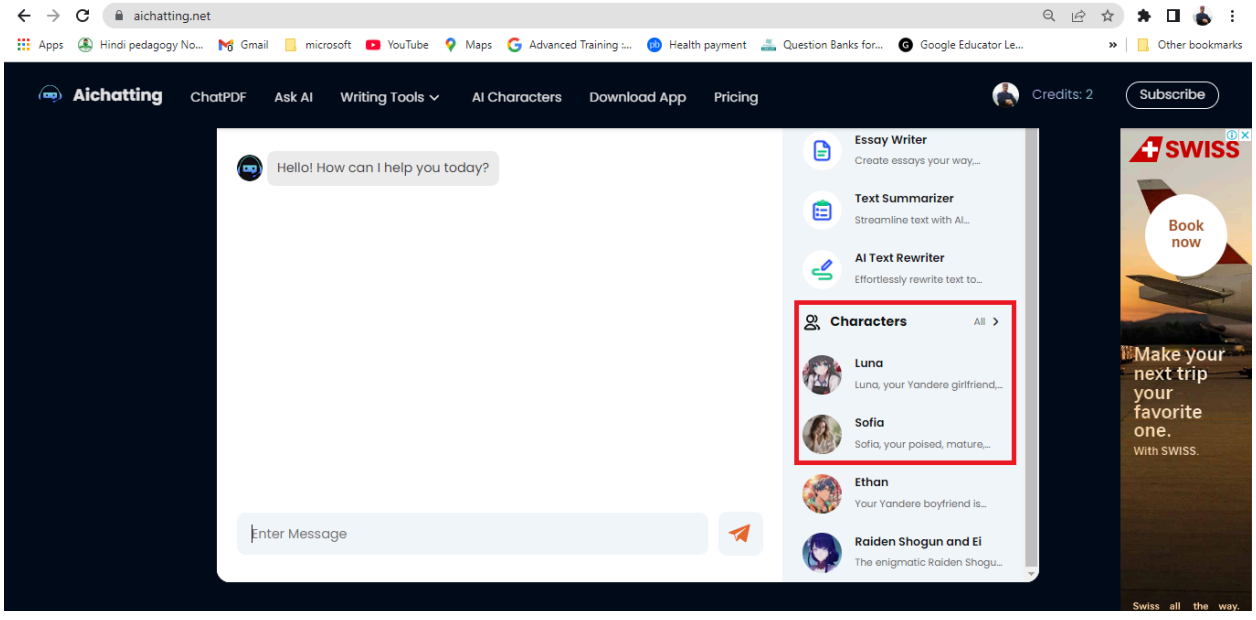
1. **Access the Chatbot Platform:**
    - Visit the official website of **AIChatting** at https://aichatting.com.
    - Alternatively, open the chatbot application if it's installed on your device.



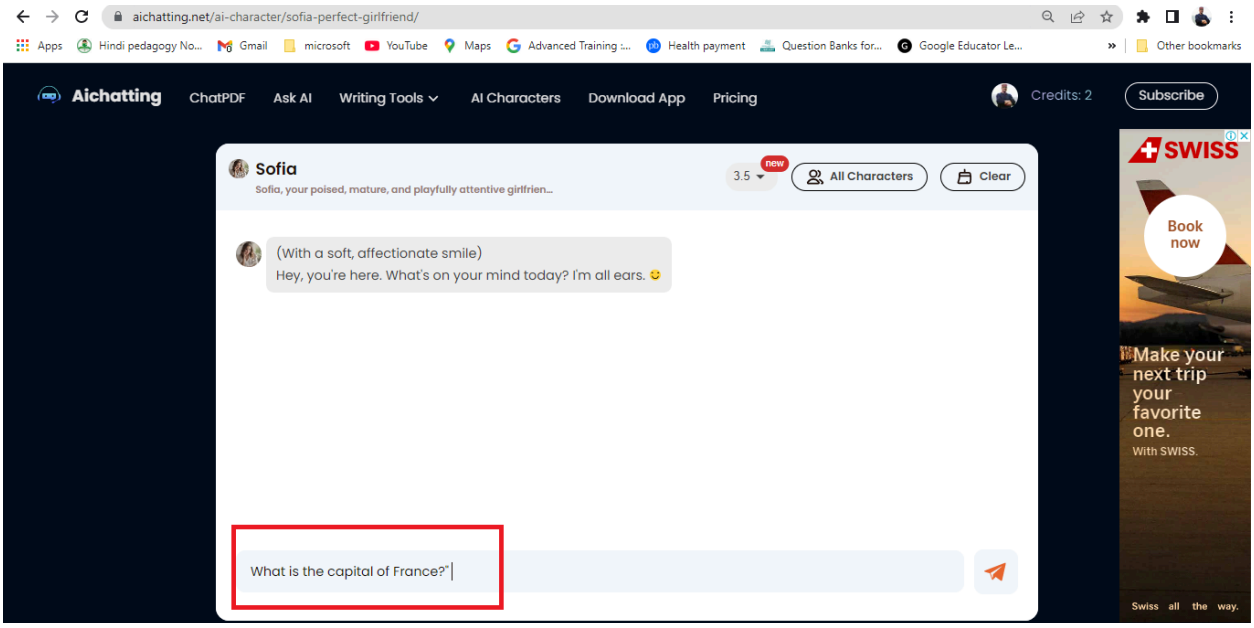
2. **Sign Up or Log In (if required):**
    - **New User:** Create an account by signing up with your email or social media account.
    - **Returning User:** Log in using your credentials.

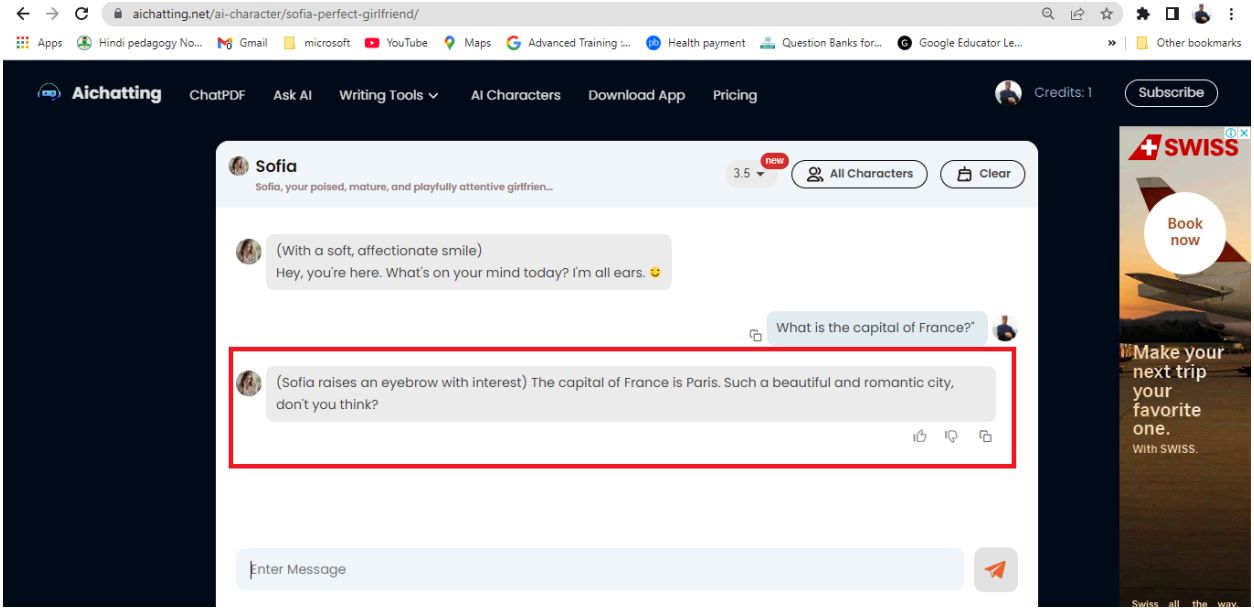


3. **Select a Chatbot Template or character:**

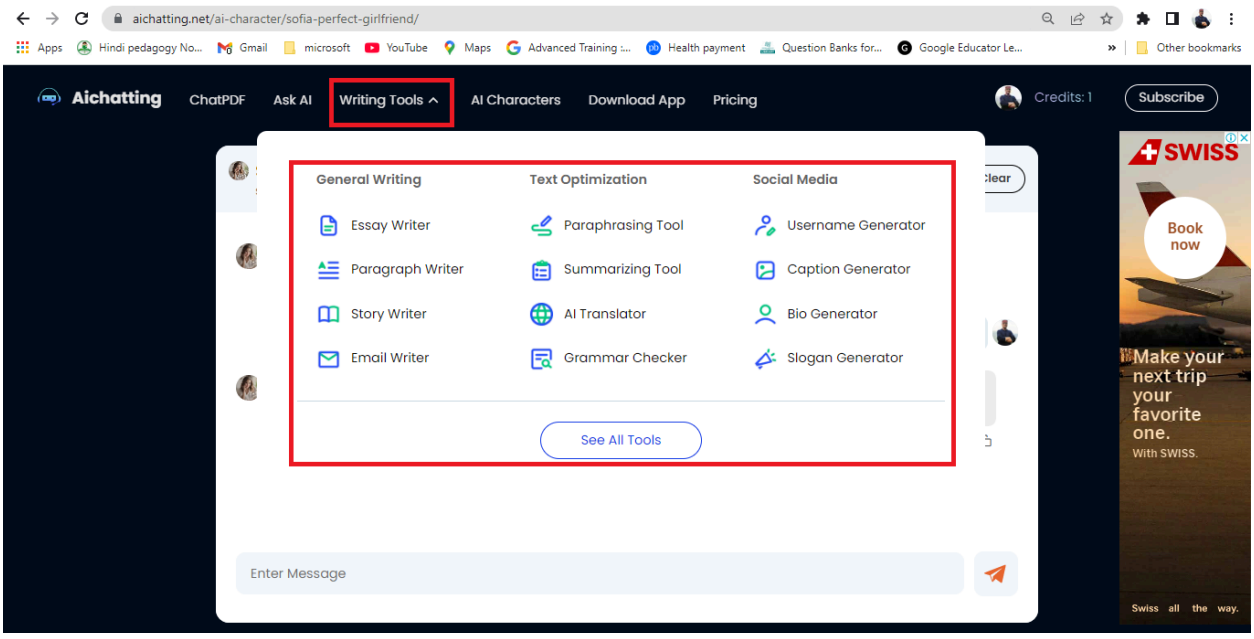


4. **Input Your Query or Topic:**
    - Type your question or start a conversation in the chatbox.
    - For example: Ask, *"What is the capital of France?"* or *"Explain photosynthesis."*

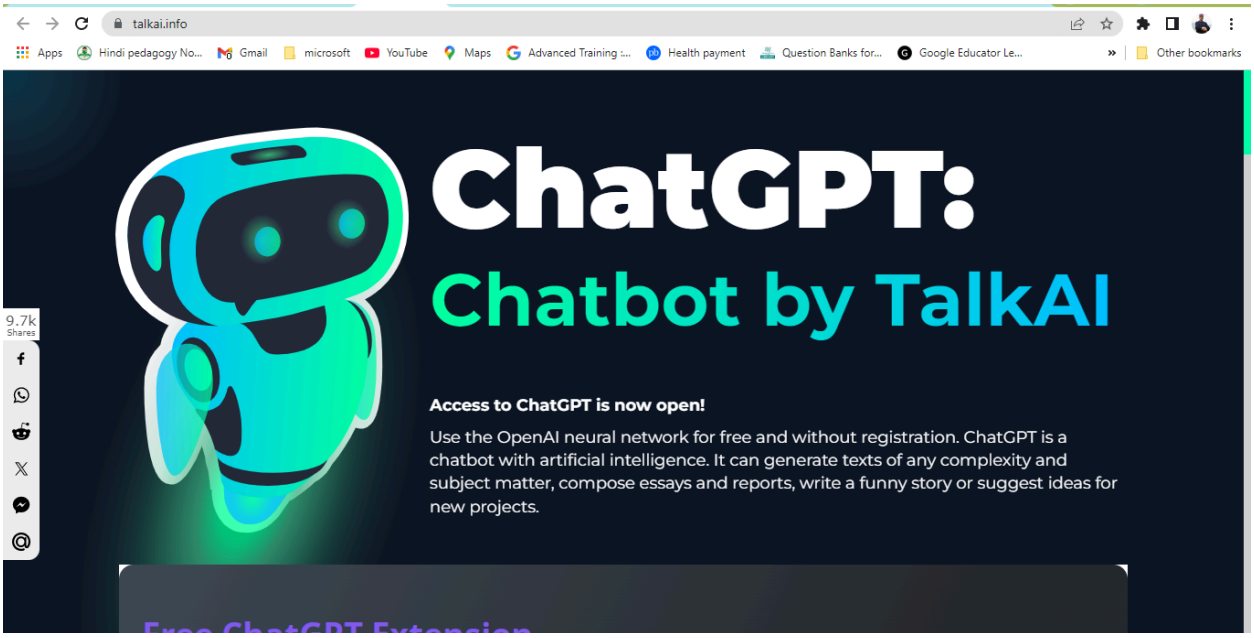




5. **Interact with the Bot:**
    - Review the AI's responses and follow up with more questions or commands to refine the conversation.
    - Example: If the chatbot explains something, you can ask, *"Can you simplify that further?"*
6. **Alternatively, you can use different writing tools by clicking on the "Writing Tool" option.**



7 . Likewise, you can explore various features with TalkAI by selecting the different Tools. This allows you to choose from multiple modes to suit your communication needs.



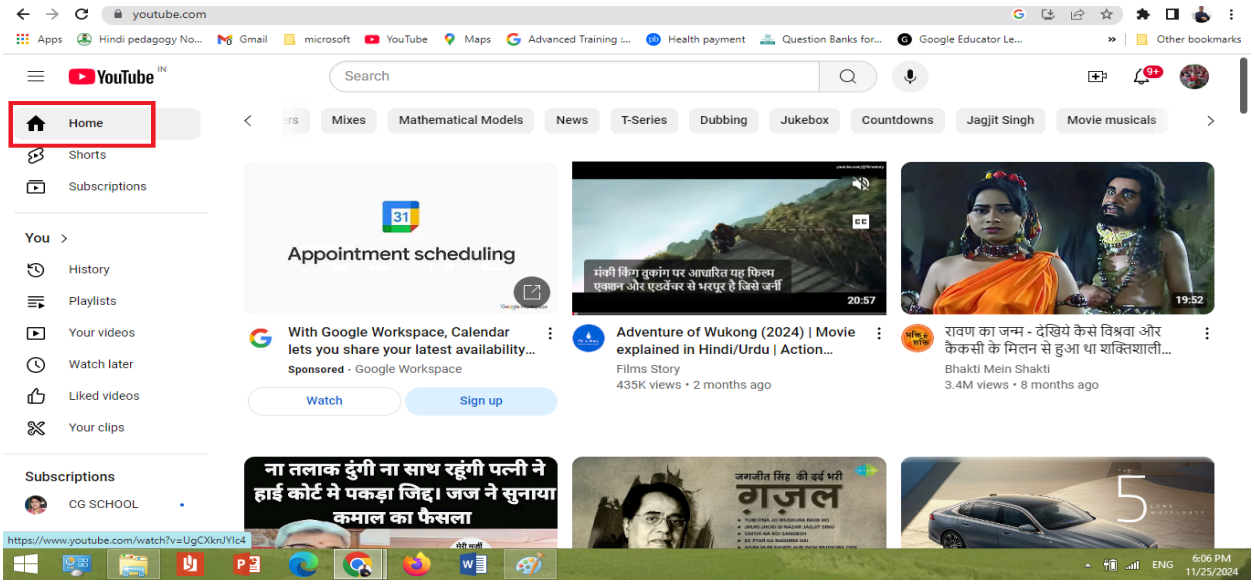
Activity 3: Recommendation Experiment

Objective: Help students see how recommendation systems use past preferences to suggest new content.

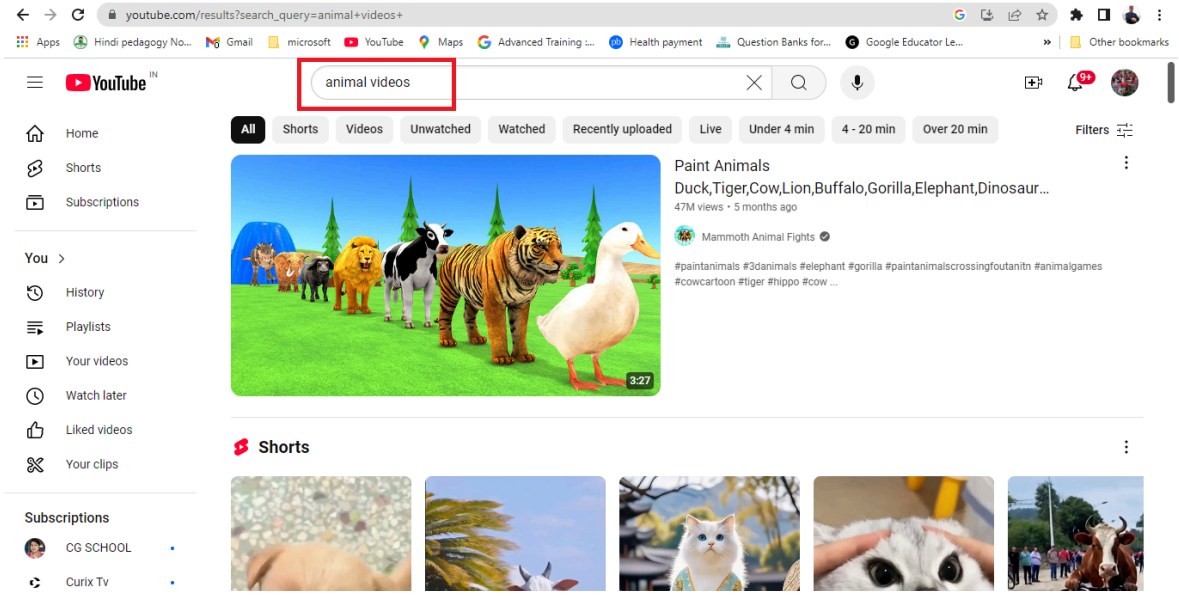
Materials Needed: Access to a video streaming platform like YouTube (consider setting up a supervised account if needed).

Steps:

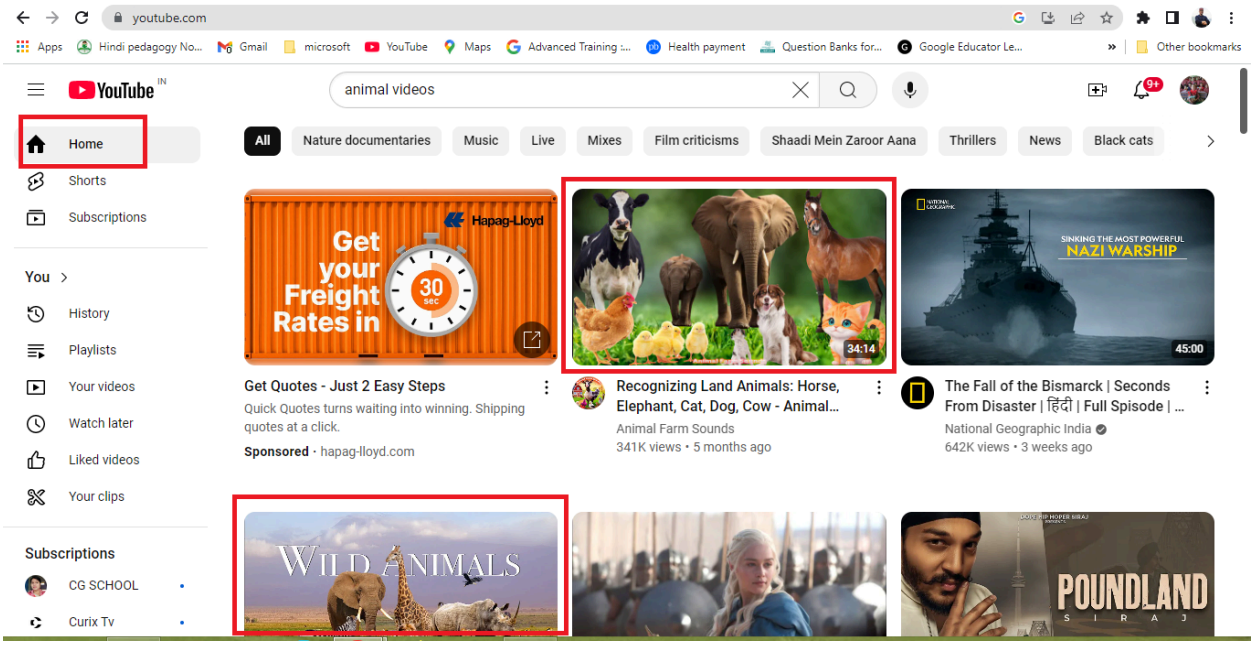
1. **Introduction:** Explain that recommendation systems use previous choices to suggest things you might like in the future.
2. **Explore Recommendations:** Open YouTube and show the "Recommended" section on the home page. Point out how the suggestions are based on viewing history.



3. **Hands-On Demo:** Have students search for a type of video (e.g., animal videos or art tutorials) and watch a couple of videos.



4. **Check Recommendations Again:** Refresh the page and show students how the recommendations have changed to feature similar videos.



5. **Discussion:** Ask students why they think YouTube suggested certain videos and how this type of AI could be useful or annoying at times.

Activity 4: Virtual Assistant Demo: Ask the AI Assistant

Objective: Demonstrate how virtual assistants like Siri, Alexa, or Google Assistant can help with everyday questions.

Materials Needed: A smartphone or device with a virtual assistant (make sure it's connected to Wi-Fi).

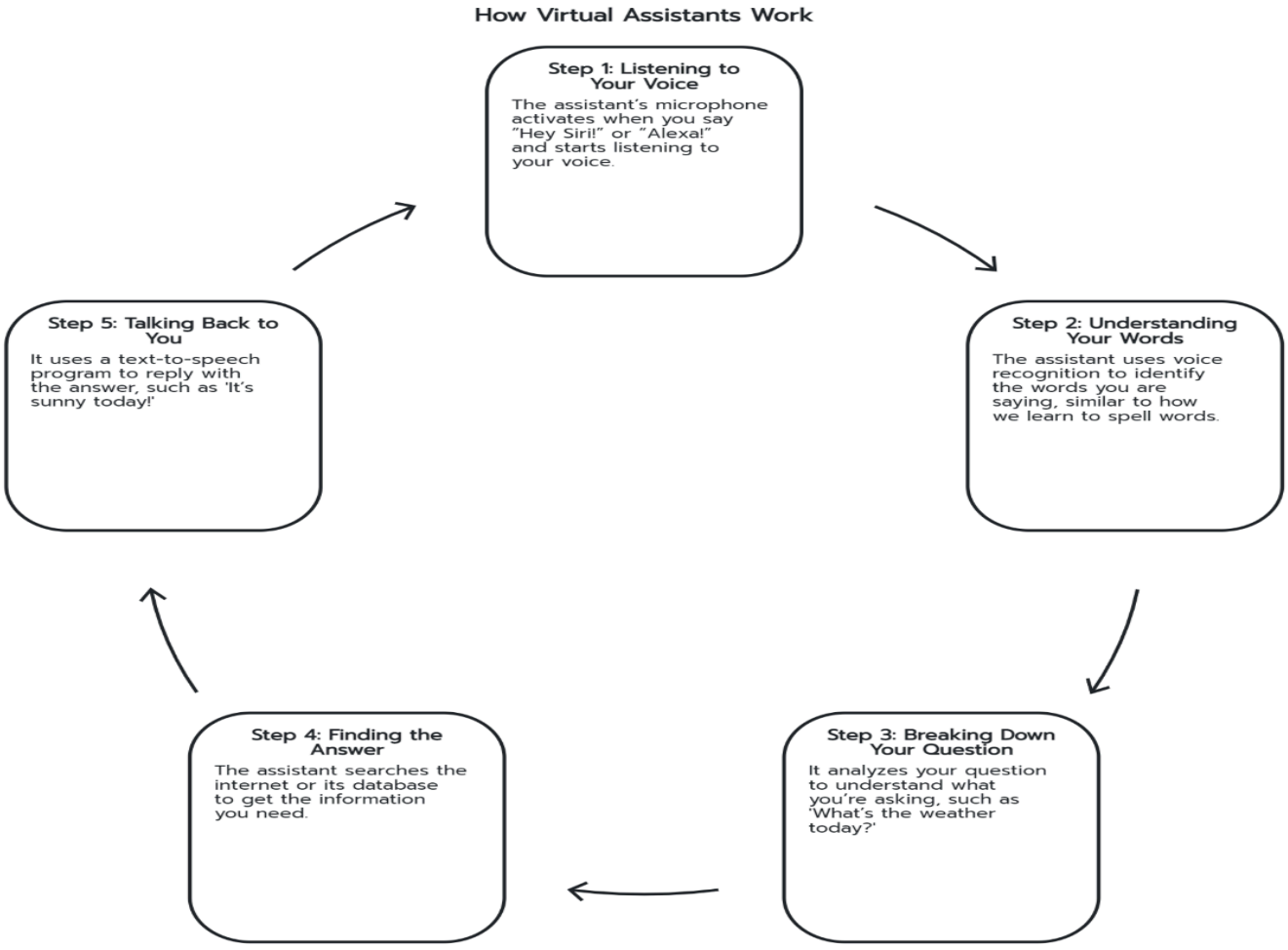
Steps:

1. **Introduction:** Explain how virtual assistants use voice recognition to understand questions and respond with helpful information

   ."Imagine you have a really smart friend who listens to you very carefully and tries to help you whenever you ask something. That's exactly what a virtual assistant, like Siri, Alexa, or Google Assistant, does!

Here's how it works:

1. **Listening to Your Voice:**
   When you say, 'Hey Siri!' or 'Alexa!', the virtual assistant's 'ears' (its microphone) start listening to your voice.
2. **Understanding Your Words:**
   It uses something called *voice recognition* to figure out what you are saying. Think of it as the assistant learning the sounds of your words, like how you learn to spell words in school.
3. **Breaking Down Your Question:**
   Once it knows your words, it uses its 'brain' (AI) to understand what you mean. For example, if you say, 'What's the weather like?', it figures out that you want to know if it's sunny, rainy, or cloudy.
4. **Finding the Answer:**
   The assistant then looks for the answer on the internet or in its memory, just like you might look in a book to find an answer to a question.
5. **Talking Back to You:**
   Finally, it uses a special program to 'talk' to you and share the answer. For example, it might say, 'It's sunny today!'



Example:
If you ask, 'What's 2 plus 2?', it listens to your voice, understands the question, does the math, and replies, '2 plus 2 equals 4.'

It's like having a little helper who knows a lot of things and always tries to give you the right answer!"

2. **Demo:** Ask the assistant a few common questions, like "What's the time?" or "What's the capital of India?"
3. **Student Participation:** Let students each take a turn asking the assistant a question (fun or informative ones).
4. **Discussion:** Discuss with students how the assistant understood them and why sometimes it might get things wrong. Explain how it learns from user inputs over time.

These activities bring AI concepts to life, making the classroom experience engaging and interactive. Through these hands-on demos, students can see AI's practical uses and gain a clearer understanding of its impact on everyday life.

AI and Technological Applications:

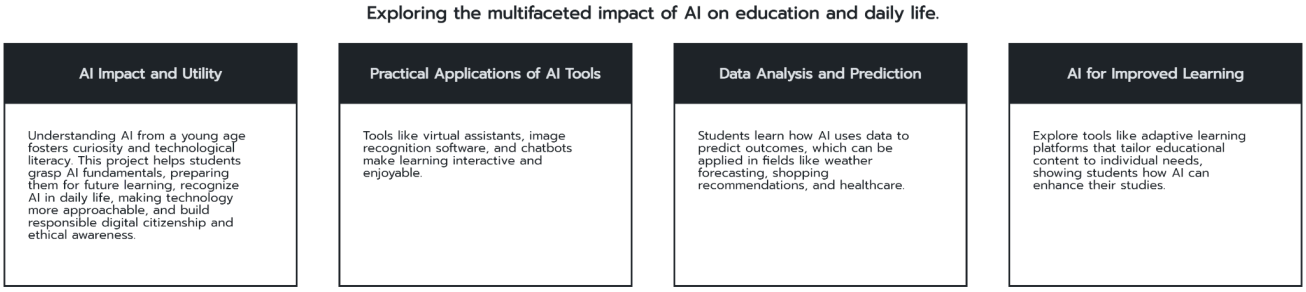
This project integrates AI concepts with real-world applications, making it engaging and relatable for students:

1. **Practical Applications of AI Tools:** Tools like virtual assistants, image recognition software, and chatbots make learning interactive and enjoyable.
2. **Data Analysis and Prediction:** Students learn how AI uses data to predict outcomes, which can be applied in fields like weather forecasting, shopping recommendations, and healthcare.
3. **AI for Improved Learning:** Explore tools like adaptive learning platforms that tailor educational content to individual needs, showing students how AI can enhance their studies.

Impact and Utility:

Understanding AI from a young age fosters curiosity and technological literacy. This project helps students:

- Grasp AI fundamentals, preparing them for future learning.
- Recognize AI in daily life, making technology more approachable.
- Build responsible digital citizenship and ethical awareness.



Conclusion:

This project provides students with a foundation in Artificial Intelligence, encouraging them to explore AI's potential responsibly. By incorporating everyday examples and interactive sessions, students can understand AI as a beneficial tool in problem-solving and decision-making. This knowledge will empower them to leverage AI's possibilities in various areas of life, from academics to future career paths.

Future Work Plan:

1. Integrating AI Coding Modules

- **Goal:** Introduce students to the basics of AI and coding, using platforms like **Scratch** or **Tynker** that are fun and easy to learn.
- **Activities:**
    - Students will create simple AI-based projects, like a character that can recognize shapes or respond to specific keywords.
    - Through these projects, students will learn how AI uses instructions and data to perform tasks.
- **Why It's Important:** This activity makes coding more accessible and helps students understand that they can build with AI, not just use it.

It’s a fun way to develop problem-solving skills while understanding AI basics!