What is AI?

AI (Artificial Intelligence): Technology that enables machines to perform tasks that typically require human intelligence, like learning, problem-solving, and understanding natural language.

Key Concepts and Uses:

1. **Deep Learning:** A subset of AI that uses neural networks with many layers to learn and make decisions from large amounts of data.
   - **Uses:** Used in image and speech recognition, autonomous vehicles, and healthcare diagnostics.
2. **CNN (Convolutional Neural Networks):** A type of deep learning network designed for processing and analyzing visual data, like images and videos.
   - **Uses:** Power applications such as facial recognition, object detection in images, and video analysis.
3. **NLP (Natural Language Processing):** AI technology that allows machines to understand, interpret, and generate human language.
   - **Uses:** Used in chatbots, language translation, sentiment analysis of text, and speech recognition systems.

Static Websites:

1. **Fixed Content:** The content doesn't change unless manually updated by someone.
2. **Faster Loading:** Generally loads quickly because the content is pre-built.
3. **Simple:** Easier to create and host. Great for small sites like personal blogs or company info pages.

Dynamic Websites:

- **Changing Content:** The content can change based on user interaction or other factors (like time, location, etc.).
- **Slower Loading**: Might take slightly longer to load because the content is often generated on the fly.
- **Complex:** More complex to create and manage. Used for larger sites like social media platforms, e-commerce sites, or web applications.

DOM (Document Object Model):

DOM is a representation of a web page in a structured format that allows programs and scripts to dynamically access and update the content, structure, and style of the document. Think of it as a tree of objects representing the HTML elements of a web page.

Virtual DOM:

Virtual DOM is a concept used in modern web development frameworks like React. It is a lightweight copy of the actual DOM. Changes are first applied to the Virtual DOM, and then a comparison is made between the Virtual DOM and the actual DOM. Only the differences are updated in the actual DOM, making the updates more efficient and faster.