Reasoning Based Models vs Instruction Based Models

**Introduction:**

Artificial Intelligence is growing very fast in today's world. One important part of AI is Large Language Models. These models can understand text, generate answers, and help in solving problems.
In large language models, there are mainly two types. One is Instruction Based Model and another one is Reasoning Based Model. Even though both are language models, they work in different ways. Understanding the difference between them helps us to choose the correct model for different tasks like education, healthcare, and software development.

**Instruction Based Models:**

Instruction based models are mainly designed to follow the instructions given by the user. When we give a command or question, the model tries to give a direct answer based on what it has learned during training. These models mostly depend on patterns and examples.

Instruction based models are very good for simple tasks like summarizing text, translating languages, answering direct questions, and writing content. Since they do not think deeply step by step, they respond very fast and use less computing power. But when the problem becomes complex or needs logical thinking, these models may give wrong answers.

For example, if we ask an instruction based model to *"Summarize this paragraph"*, it will give a short summary immediately without explaining how it understood the paragraph.

examples of instruction based models are GPT-3, FLAN-T5, AWS Nova-Micro, and Gemini Flash.

**Reasoning Based Models:**

Reasoning based models work in a different way. These models try to think step by step before giving the final answer. They break a problem into smaller parts and then solve it. Because of this, they are better at handling complex tasks.

These models are trained using methods like chain of thought learning and reinforcement learning. Reasoning based models are useful for tasks like solving math problems, coding, logical questions, and planning tasks. However, since they do more thinking, they take more time to respond and need more computing power. Sometimes they may even think too much for very simple questions.

Examples of reasoning based models include GPT-4, DeepSeek-R1, Claude 3, Gemini Pro, and Qwen reasoning models.

**Conclusion:**

Both instruction based models and reasoning based models have their own advantages and disadvantages. Instruction based models are fast and suitable for simple tasks, while reasoning based models are better for complex and logical problems. Based on the task requirement, we should choose the appropriate model.