



SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF CSE-IoT ENGINEERING



Artificial Intelligence & Natural Language Processing

Contributes to AI- Programming Without and with AI

Prepared by,

P.Ramya

Assistant Professor/CSE-IoT

SNS College of Engineering



Without & with AI

When programming without AI, developers manually write code for every function, often requiring extensive knowledge of algorithms and syntax.

While programming with AI utilizes techniques like machine learning and natural language processing to automate parts of the coding process, allowing developers to focus on complex problem-solving and design aspects, significantly increasing productivity and potentially enabling faster development cycles; the key AI technique that enables this shift is code generation, where AI models can produce code snippets or entire functions based on user prompts, effectively automating repetitive coding tasks.



Key points about programming without AI:

- **Manual coding:** Developers write all code from scratch, relying solely on their understanding of programming languages and logic.
- **Time-consuming:** Repetitive tasks like data validation or basic function creation can take significant time.
- **Error prone:** Human error in coding can lead to bugs and inconsistencies.



Key points about programming with AI:

Code generation:

AI tools can generate code based on natural language descriptions, significantly reducing manual coding effort.

Code completion:

AI can suggest relevant code snippets to complete lines of code faster.

Error detection:

AI can identify potential errors in code before execution, improving code quality.

Refactoring suggestions:

AI can propose improvements to existing code, making it more efficient and readable.



Relevant AI techniques used in programming with AI:

Machine Learning (ML):

- Used to train models on large datasets of code to learn patterns and generate code suggestions.

Natural Language Processing (NLP):

- Enables users to provide instructions in natural language for code generation.

Deep Learning:

- Advanced neural networks that can understand complex code structures and generate highly accurate code.



Difference between with AI & Without AI

Aspect	With AI	Without AI
Definition	Systems capable of simulating human intelligence and making decisions independently.	Systems that follow predefined instructions without adapting or learning.
Learning Ability	Can learn and improve performance over time using data (e.g., machine learning).	No learning ability; works based on static, predefined rules.
Decision-Making	Makes decisions based on patterns, analysis, and predictions.	Executes tasks as per fixed instructions without analysis or adaptation.
Adaptability	Adapts to new information and environments dynamically.	Unable to adapt; requires manual updates for new scenarios.
Examples	Self-driving cars, virtual assistants (e.g., Alexa), recommendation systems.	Traditional software applications, calculators, static web pages.
Complexity	Handles complex, unpredictable tasks requiring reasoning and decision-making.	Limited to straightforward, predefined tasks.



Difference between with AI & Without AI

Aspect	With AI	Without AI
Complexity	Handles complex, unpredictable tasks requiring reasoning and decision-making.	Limited to straightforward, predefined tasks.
Error Handling	Can learn from errors and adjust behavior.	Errors must be corrected manually; lacks self-improvement.
Data Utilization	Processes and analyzes vast amounts of data to generate insights.	Limited or no data processing capability.
Interactivity	Enables Natural interactions (e.g., Voice commands, chat bots).	Interaction is rigid and based on structured commands.
Automation	Automates tasks with minimal human intervention, often beyond simple repetitive tasks.	Automates repetitive tasks but lacks flexibility for complex scenarios.



Thank you