Language Processing System

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Language Processing System:

It is a system that allows the computer to understand and process natural language. This system includes the analysis and interpretation of texts and orders in the human language and their conversion into automated implementation. One of the main applications of language processing systems is the Language Translator, which translates the code from one programming language into another.

Translation:

1 .Check Syntax:

Purpose: To ensure that the source code follows the grammatical structure of the target programming language.

Process: The code structure is checked to ensure the presence of keywords, correct command structures, and other correct morphological aspects.

2. Check Semantics:

Purpose: Verifying the meanings of the code and their correctness from a linguistic and moral standpoint.

Process: Verifies that variables are used correctly, and that operations and instructions conform to the rules of the programming language. Verifies the correctness of the verbal and semantic operations of the code.

3. Code Generation:

Purpose: To generate targeted code that is executable by a computer.

Process: The source code is converted into target code. This code can be direct for execution or be in the form of an intermediate stage such as machine code or source code for a second language.

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Steps to Translation language:

1) **Source Code Analysis:**

   Code analysis to extract linguistic and morphological structure.

2) **Syntax Checking:**

   Verifying that the code follows the morphological rules of the programming language.

3) **Semantic Checking:**

   Validate the correct meanings and use of variables and instructions.

4) **Target code generation:**

   Converting the source code into target code.

5) **Target Code Analysis:**

   Analyze the target code to ensure its correctness and readiness for implementation.

6) **Code Execution:**

   Executing the targeted code on the target computer.

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Interpretation:

1. Fetch:

Purpose: To retrieve the current line of source code.

Process: The interpreter reads the current line of source code and prepares to execute it.

2. Execute the code:

Purpose: Execute the current line of source code.

Process: The parser interprets and executes the current line, and the commands specified in the code are executed. This can include converting commands into automated commands or using its own execution engine.

Steps to interpret language:

1) **Source Code Analysis:**

   Read and analyze the source code to extract the linguistic structure.

2) **Fetch:**

   Read the current line of exported code.

3) **Execute the line:**

   Interpret and execute commands on the prepared line.

4) **Semantic Verification:**

   Validate the correct meanings and use of variables and instructions.

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5) **Iteration:**

   If there are more lines of code, they are invoked and executed repeatedly.

6) **Error Handling:**

   Check for errors in the code and manage these errors if necessary.

7) **Termination:**

   Terminating the execution process when the end of the code is reached or when there is a command requesting that execution be terminated.
