Complier VS Interpreter VS Transpiler

Compiler

Definition: Converts high-level code to machine code.

Process: Translates entire code at once.

Example: V8 engine in Chrome and Node.js (JIT compilation).

Interpreter

Definition: Executes high-level code line-by-line.

Process: Reads, translates, and executes one instruction at a time.

Example: SpiderMonkey in Firefox.

Transpiler

Definition: Converts code from one high-level language to another.

Process: Translates code to another high-level language.

Examples:

- Babel (modern JavaScript to ES5)

- TypeScript Compiler (TypeScript to JavaScript)

- CoffeeScript Compiler (CoffeeScript to JavaScript)