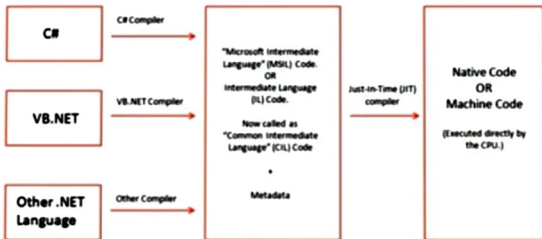


Execution Process of .Net Application



Ques:- what is the role of JIT compiler

in .NET Framework?

- Part of CLR in .NET.
- Responsible for managing execution of .NET programs in any language supported by .NET.

→ Converts Intermediate Language into machine code.

→ enforces type safety in runtime env.

Types:-

(i) Pre-JIT compiler

Intermediate lang
↓
Pre JIT compiler
↓ machine code → execution

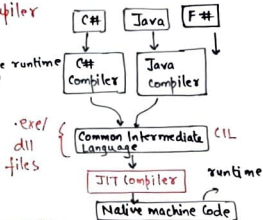
Conversion in Single Cycle.

(ii) Normal JIT compiler

JIT compiler
↓
machine code → Cache
↓
execution

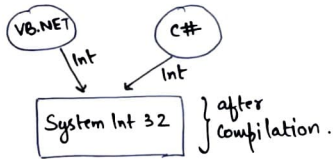
(iii) Econo JIT compiler

→ methods not required anymore



Ques:- what is CTS? what is the significance of CTS in .NET framework.

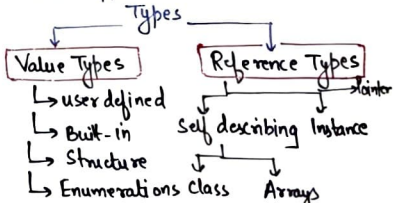
CTS is Common Type System and is used to standardize the datatypes of all the programming languages using .NET.



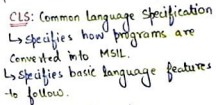
Functions of CTS:-

- i) Cross-language Integration, type-safety.
- ii) complete implementation of many programming languages.

CTS Support:-



- Language Compilers
- Just-In-time Compiler



- ↳ Specifies how types declared, used.
- ↳ Helps in integration.

- ↳ Virtual machine
- ↳ Provides .Net Runtime environment



Ques:- In detail describe the roles of Common Language Runtime (CLR) in .NET framework.

↳ Basic and Virtual machine component of .NET Framework.

↳ run-time environment

→ runs the code

→ Provides Various Services that makes program execution easy.

Components:

↳ i) Common Language Specification (CLS)

ii) Common Type System (CTS)

iii) Garbage Collection (GC)

iv) Just-In-time Compiler (JIT)

Benefits:-

↳ i) Provides rich interaction b/w programs at runtime.

ii) ↑ Portability

iii) ↑ Security

iv) Automatic memory management

v) Scalable and multithreading.

Source code (C#, Java...)

↓
Specifier Compiler

↓

MSIL Code

(CLR)

JIT

Native Code

↓

Microsoft

Intermediate language