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System Programming is an art of
designing & implementing system
program.

System: is a collection of various
components

Programming - art of designing &
implementing the programs

System Software:

↳ Runtime execution

↳ OS, Loader, dynamic linker, ^{Program} Libraries

↳ To create program development
environment.

↳ ~~tools~~ text editor

↳ compiler, Assembler, Linker

~~System~~ System Programming

Software :- Computer program or set of computer programs are called software.

Types

↳ System Software. → Softwares that supports system / O.S. to run application programs.
↳ provides platform to other software

↳ Application Software → which is used by users to accomplish specific task. - Word, Microsoft office.

System Softwares :

Compiler, linker, loader, Debugger
Assembler.

(*) Software Hierarchy.

Machine language.

↓
Assembly language.

↓
Operating System

↓ — Higher level language

Application Program

→ (X) Machine language - The fundamental language of computer's processor. also called low level language.

All programs are converted into machine language.

Combination of 0's & 1's that represent high & low electrical voltage.

→ (X) Assembly language !.

A low level language which is similar to machine language.

It uses symbolic operation code to represent machine operation code.

→ (X) Operating System !

Interface between software & hardware.

OS is a set of commands that perform common system tasks.

→ (X) Application program :- Software written by professional programmer for specific O.S. to perform specific task.

(*)

High level language: -

Computer programming languages which are easier to learn than machine language.

e.g. C, C++, Java.

(*)

System Programming

is used to describe the collection of techniques used in design of programs.

(*)

System Software is a collection of programs that bridges the gap between the level at which user wants to interact with computer and the level at which the computer is capable of interacting.

(*)

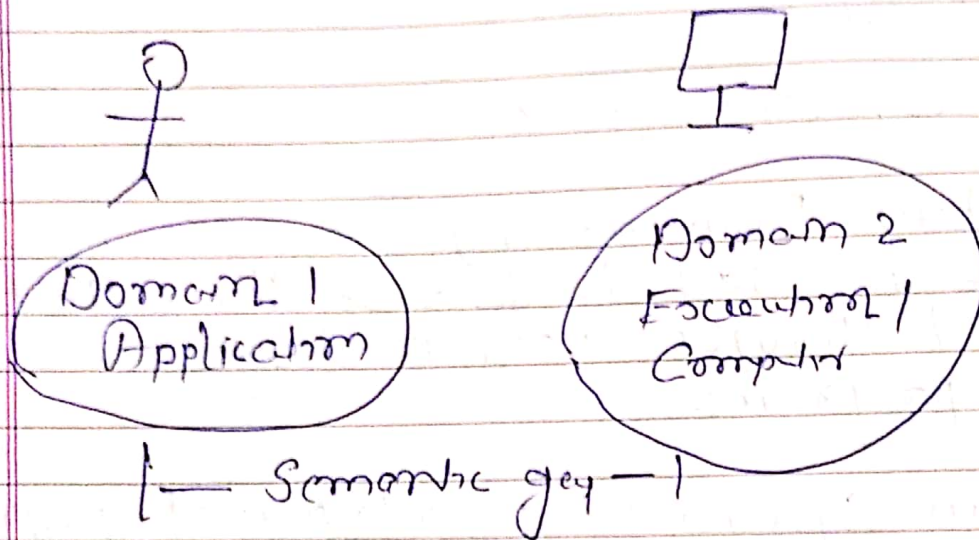
Language Processors: - are programs such as compilers that assist the programmer in developing programs.

Semantic - It represents rules of
semantics of a domain

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Semantic Gap:

It represents the difference between
the semantics of two domains.



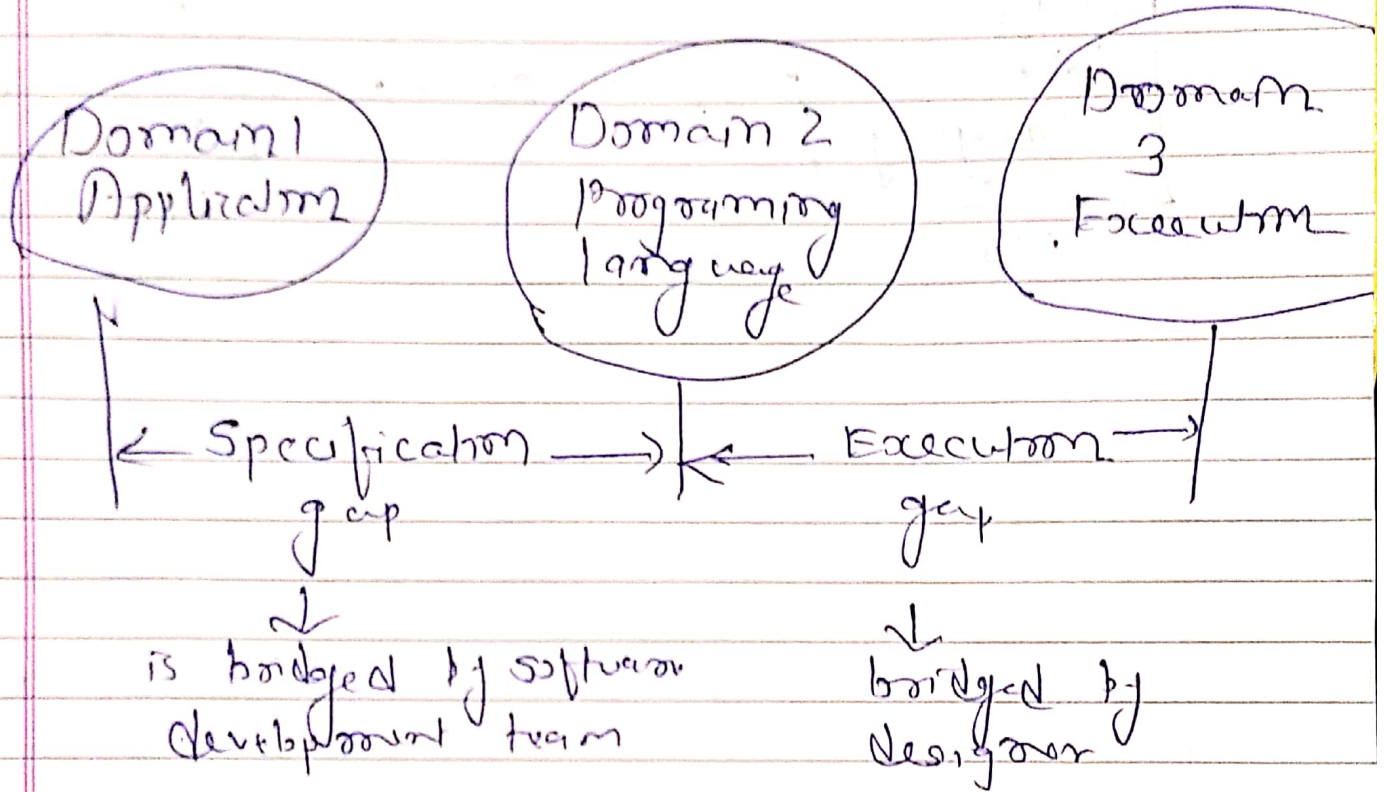
→ The programmer's job is to overcome the semantic gap by translating human language into programming language.

→ Problems of Semantic Gap.

1. Poor quality of SLW.
2. Large development efforts.
3. Development time is large.

Specification gap is between application domain and PL Domain

Execution gap is between PL Domain & execution domain



PL Domain helps in improving the quality of software.

(X) Interpreter is a language processor
It links an execution gap without
generating a machine language
program.

