Lecture 2

Compiler Design

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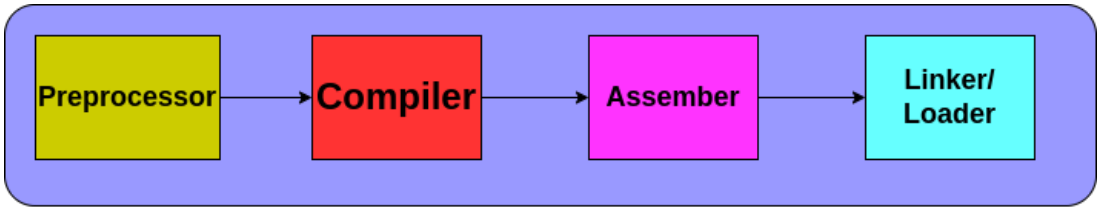
Basic flow



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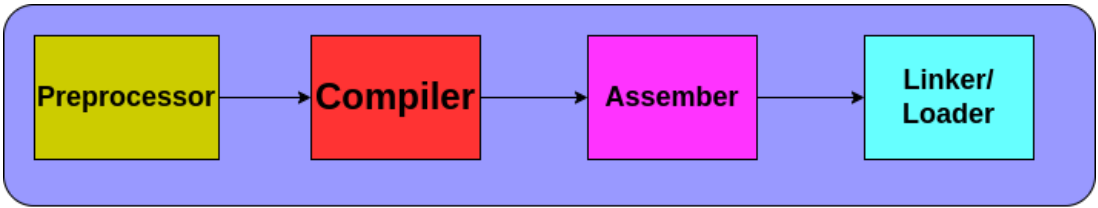

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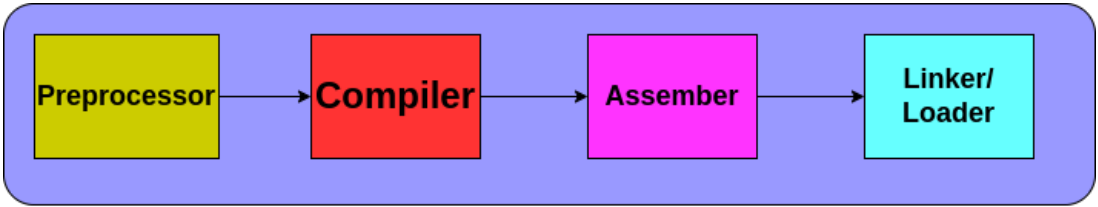

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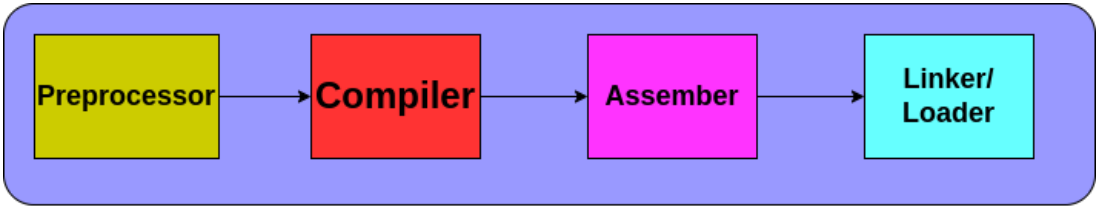

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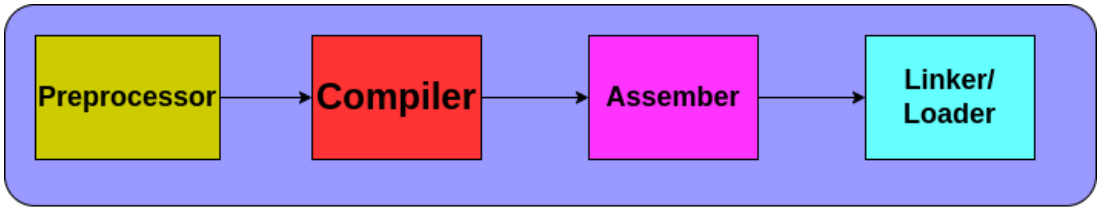

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- Compiler: generate assembly file
- Assembler: generate the relocatable object file
- Linker/loader: link different object files into a single binary. Load it to the main memory.

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- Design a series of program representations
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- Representations become more machine-specific and less language-specific as the translation proceeds

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  - Programming languages have a dictionary (keywords etc.) and rules for constructing words (identifiers, numbers etc.)

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  - `if a == b then a = 1 ; else a = 2 ;`
  - Sequence of words (total 14 words)
    `"if", "a", "==", "b", "then", "a", "=", "1", ";", "else", "a", "=", "2", ";",`

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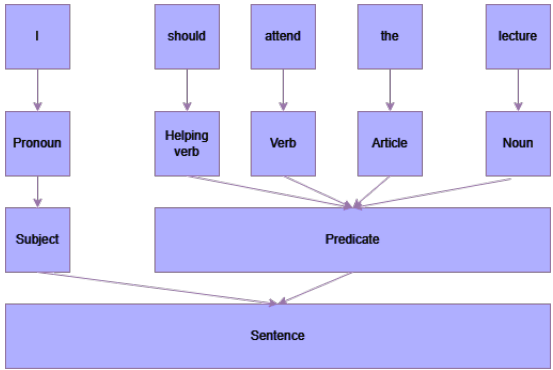

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- Is this correct? `a = b + c;` based on **C** Programming Language

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$X = R * R$
$Area = 12.56636 * X$
$Volume = 4.18879 * X * R$