# A Document Preparation System LATEX

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# Outline

1. What's LATEX
   (a) History
   (b) Architecture
2. Why LATEX
   (a) Features
   (b) Comparing with "WORD" and "POWERPOINT"
3. Interface & Demo

# *What is the LATEX ?*

LaTex is powerful tool for writing and formating the document

–The inventor of LATEX is *Donald E. Knuth*

- LATEX is a TEX macro package, written by Leslie Lamport.

- LATEX is supported by every journal and conference.

goal of inventor: To solve the format problems encountered by "word" before

# *History*

- Donald can't bear the low quality of format that origianl computer can provide

- He decided to develop high quality documents preapration system

- First Edition was launched at 1978

- Second Edition was launched at 1982

- Almost all operating systems have corresponding software to TeX

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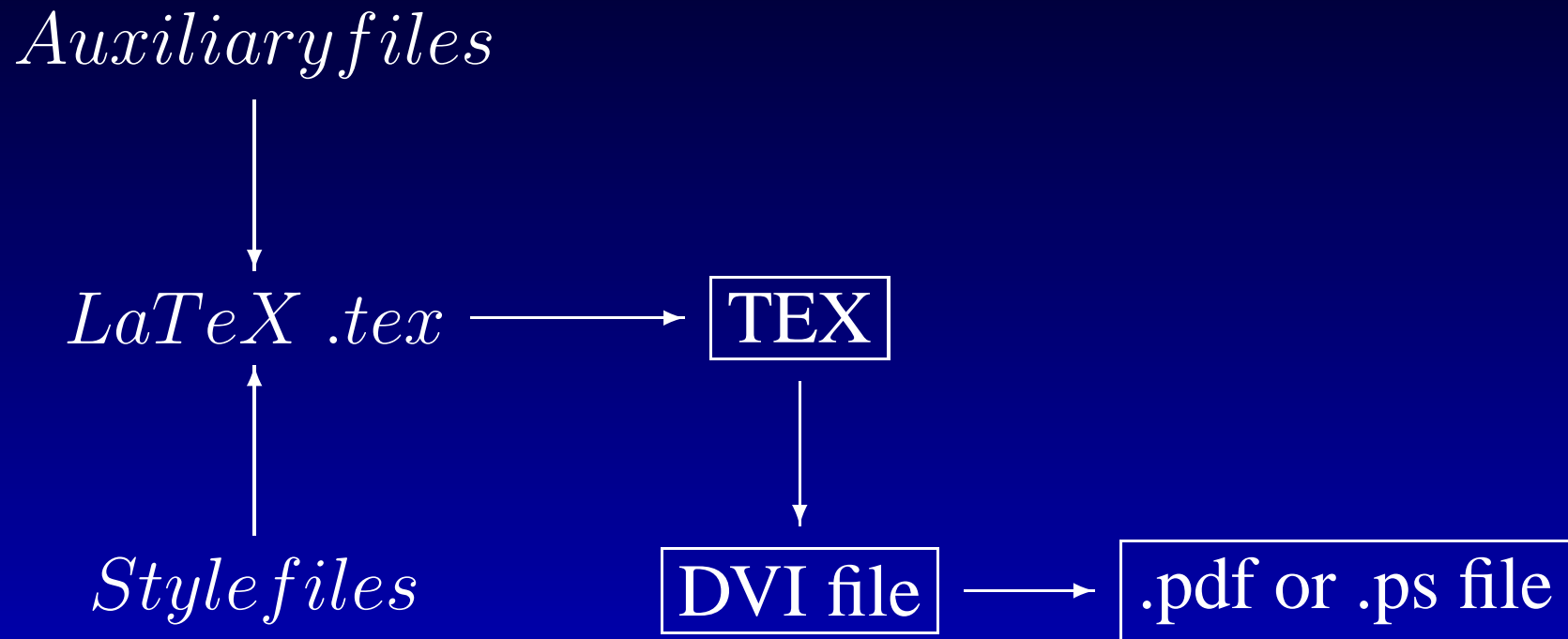- Almost all operating systems have corresponding software to TeX

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# *Architecture*

$Auxiliary\,files$

$\downarrow$

$LaTeX\ .tex \longrightarrow$ | TEX |

$\uparrow$                              $\downarrow$

$Style\,files$            | DVI file | $\longrightarrow$ | .pdf or .ps file |

- style files (*.sty , *.cls)
- auxiliary files ( *.aux , *.idx , ...)

# Why LATEX?

# *Features*

- Format

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- PC without Office

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- Everyone can develop packages and improve it's function!

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- Everyone can develop packages and improve it's function!

<span style="color:red">If you like programming!!</span>

# LATEX V.S.Word and Power-point

- Advantage
  1. LATEX can be used in any OS with wordpad or any thing that can edit document
  2. LATEX can easily make the document formated...if we use word that will take effort
  3. LATEX can make many kinds of files without importing the other files so you don't have to setup a lot of software...

# LATEX V.S. Word and Power-point

- Disadvantage
  1. Of course you have to be familiar with LATEX, then you can make thing faster...
  2. You can not see what you will get directly...

# Interface and Demo

- math equation

- music score

- checker board

# Use latex to write the math equation

$$\left(\int_{-\infty}^{\infty} e^{-r^2}\right) dr = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} e^{-(x^2+y^2)} dx, dy$$

$$\begin{bmatrix} x - \lambda & 1 & 0 \\ 0 & x - \lambda & 1 \\ 0 & 0 & x - \lambda \end{bmatrix}$$

# Use latex to write the math equation

$$\left(\int_{-\infty}^{\infty} e^{-r^2}\right) dr = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} e^{-(x^2+y^2)} dx dy$$

But now we already have equation editor!

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