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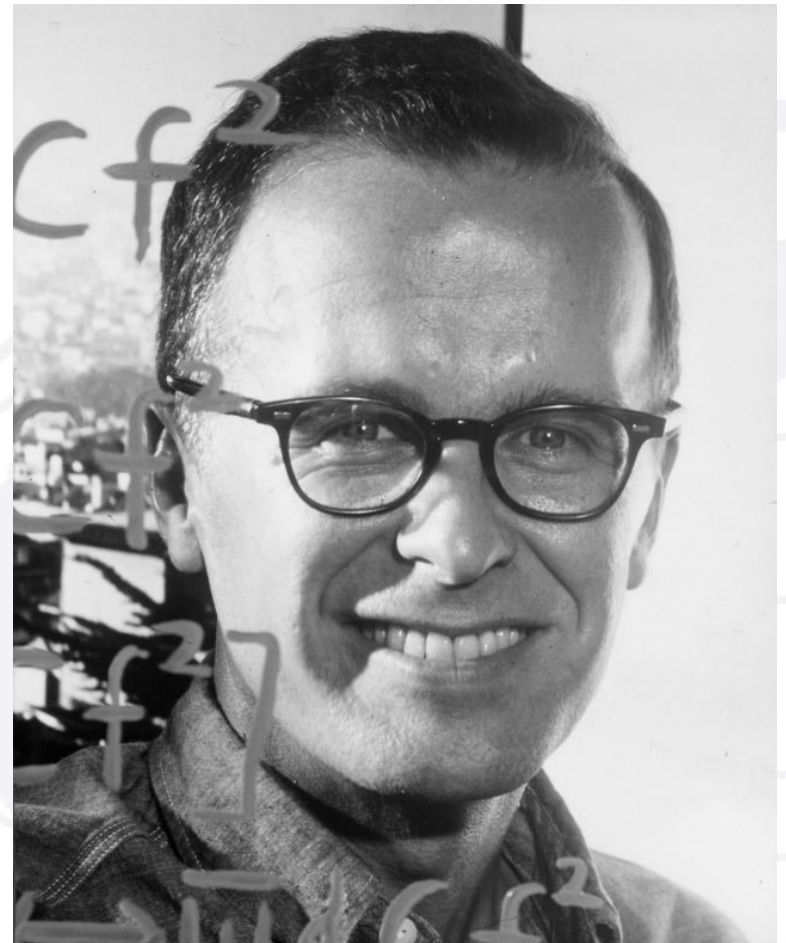
# FORTRAN Coding Language

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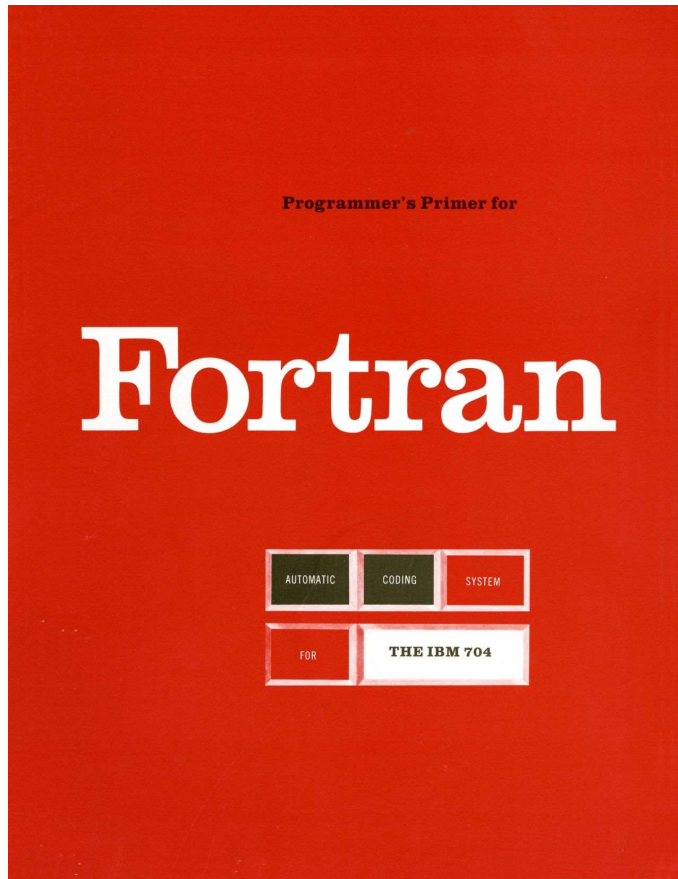
- 1950s coding
  - Expert only
  - Very tedious and complex
  - Programs were coded by hand
- 1953 IBM
  - John Backus
  - Develop a language that could process mathematical notation
  - “Those who enjoy playing chess or solving puzzles will find this work absorbing.”





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# Historical Background



- Developed in 1954 and commercially released in 1957
- Most influential coding language in history
- Fortran *democratized* computer programming
- Eliminated reliance on programmers to translate needs into machine code
- Fortran program could run on any system with a Fortran compiler



# Revolutionary Language

- Two fundamental problems:
  - How to create a language that made programming faster, cheaper, and accessible to a wider range of users.
  - How to structure the underlying code to make all of that possible.
- “No one was worried about seeming stupid or possessive of his or her code. We were all just learning together.”
- 6-month project turned into 3 years







# Modern Language of Fortran

- First use of a compiler
- Produced more efficient code than “hand produced”
- Eliminated the need for a *programming specialist*
- Increased productivity
- Lowered software costs
- First national computing standard





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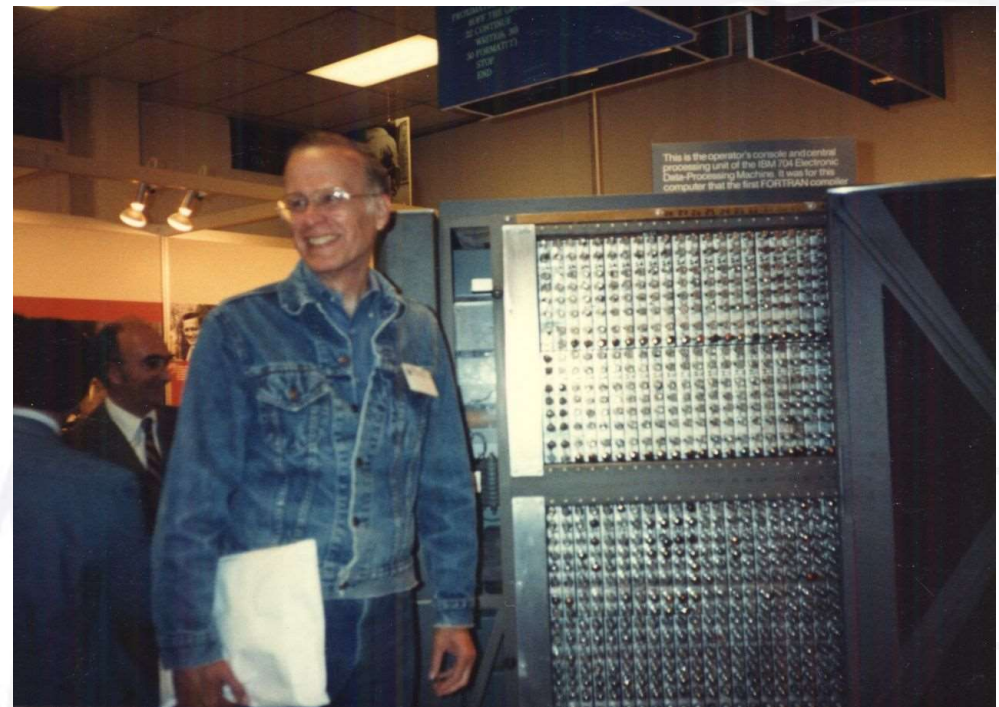
# Examples of Use and Military Application



- NASA flight patterns
- Economic and statistical models
- Data Centers
- Climate modeling
- Simulate ballistics trajectories
- Computational fluid dynamics
- Nuclear Research and Deterrence
- War-gaming simulations, flight simulators, and battlefield dynamics modeling



- Continued Releases following 1957:
  - FORTRAN I-V
  - FORTRAN 66
  - FORTRAN 77
  - FORTRAN 90
  - FORTRAN 95
  - FORTRAN 2003
  - FORTRAN 2008
  - FORTRAN 2018
  - FORTRAN 2023





- <https://www.ibm.com/history/fortran>
- <https://www.ibm.com/history/700>
- <https://www.ibm.com/history/john-backus>