Object Orientation

Programming Fundamentals

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Outline

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- **Why???**

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  - A Boeing 787 reportedly has 14 million lines of code

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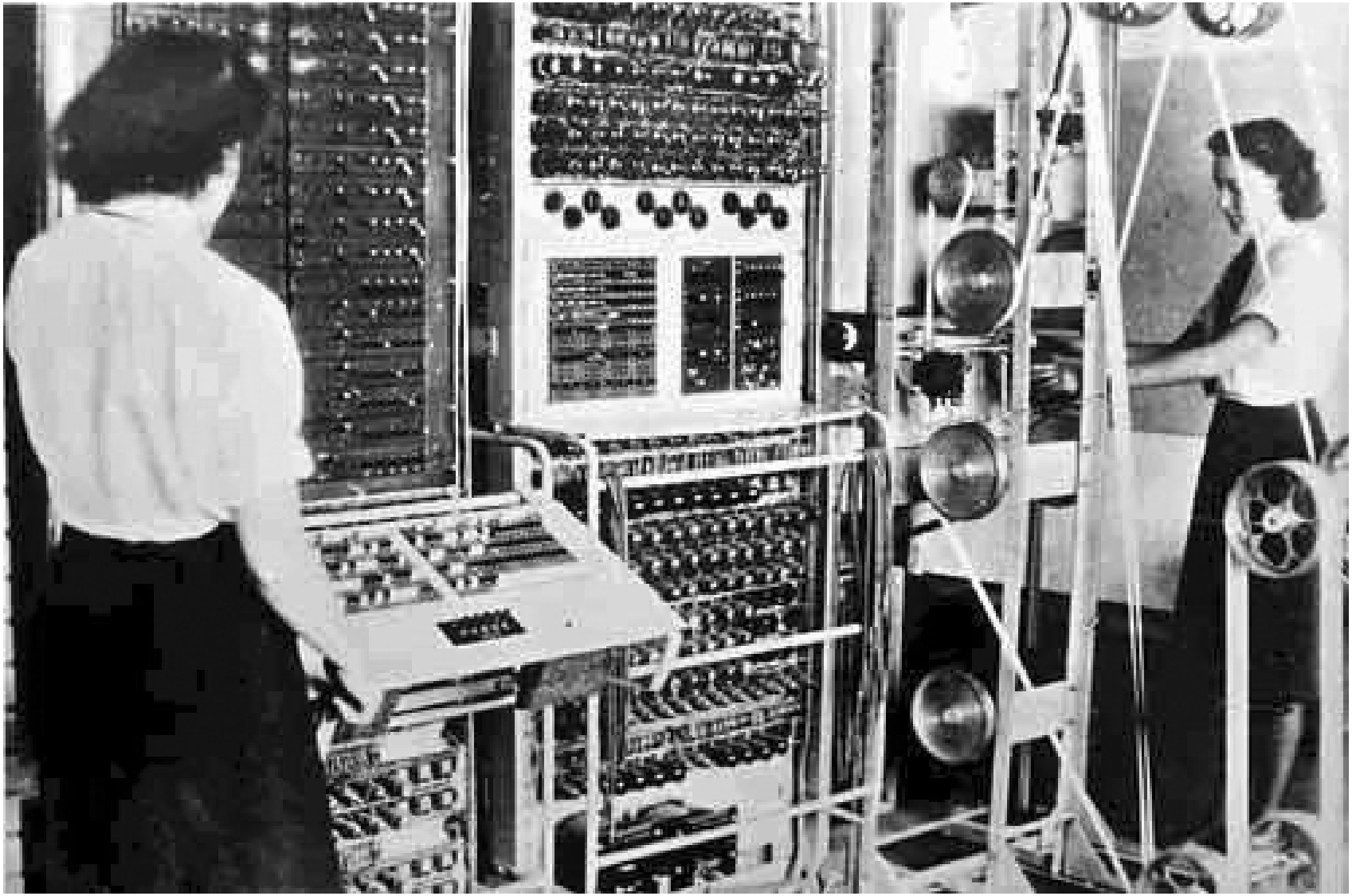
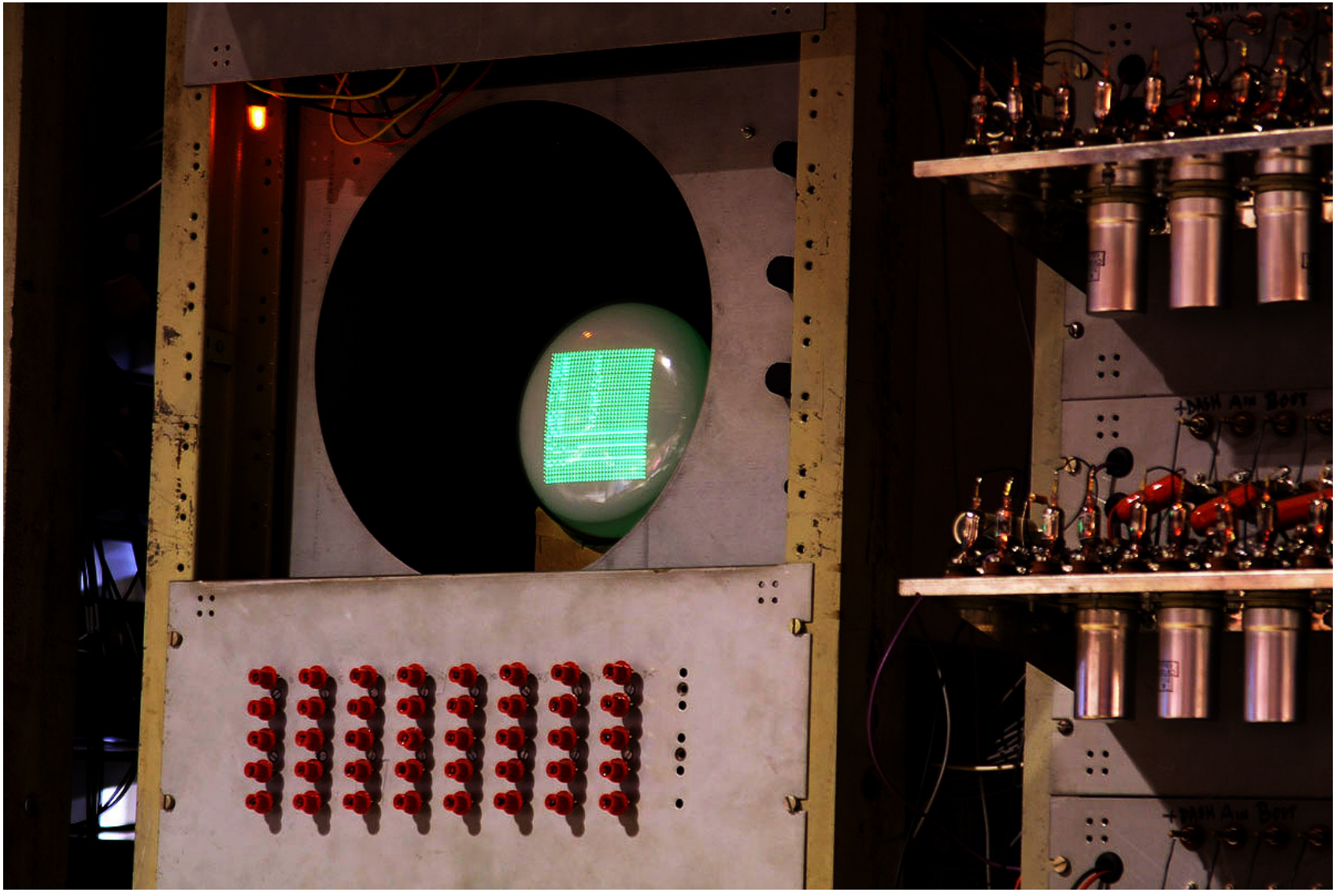


Taken from Wikipedia

The Manchester Baby



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- The Manchester Baby only had eight possible machine instructions

PDP-10

Taken from Columbia University `http://www.columbia.edu/cu/computinghistory/pdp10.html`

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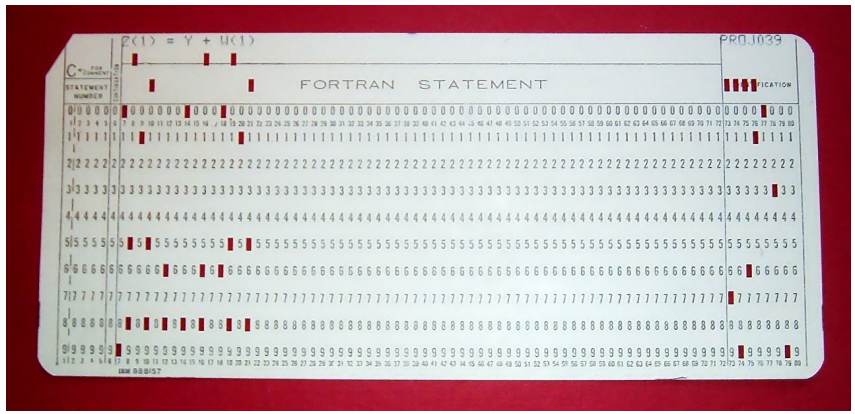

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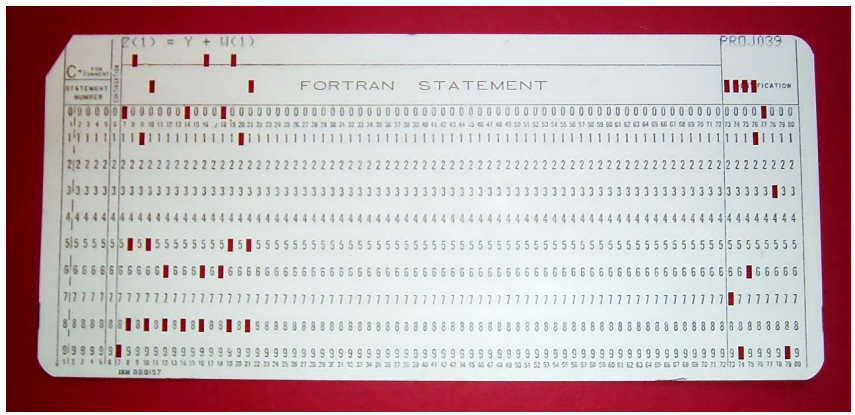

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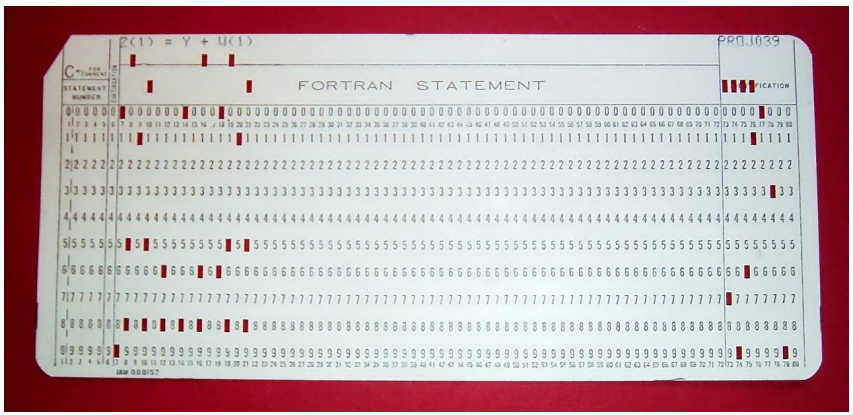

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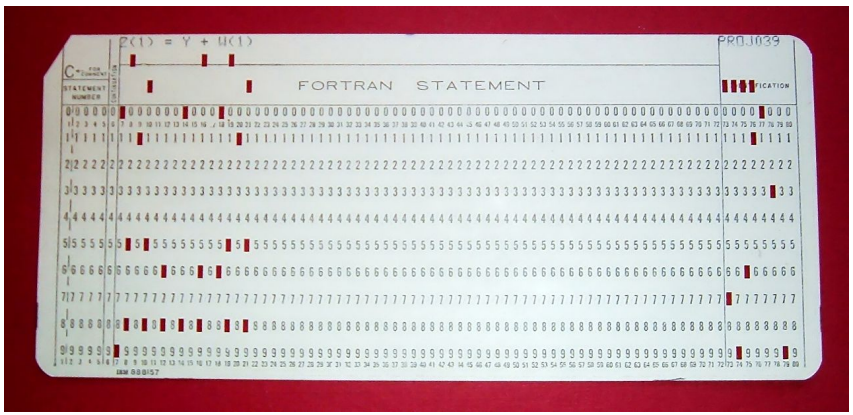

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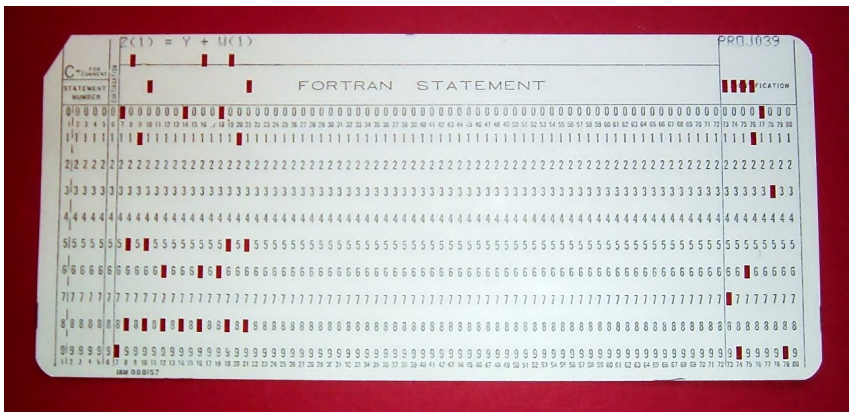

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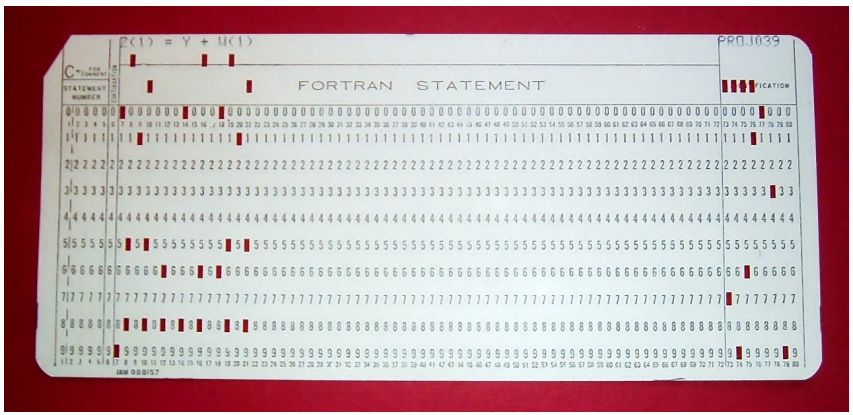
- Punch cards are actually from looms, and were introduced in 1725



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- You can spend a long time arguing with a group of programmers on what a language is

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- These steps are instructions from the programming language

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- The most widely known logical paradigm language is Prolog

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  Object-Oriented `data.do_something();`
- Numerous languages, but the most commonly discussed are Smalltalk, Ruby, Python, C++, Java, and C#

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  - As you develop as a programmer you will likely adjust your viewpoint of object-orientation

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  - **public** visible externally from the object
  - **private** only visible to the object (or objects of the same type)
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- You need to keep track of your scope! In pure object-orientation, there is very little global and local state. Normally you have the object's state

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  - So a class can evolve internally over time to better suit its design, but without necessarily affecting the rest of the program

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  - Related to the idea of *Domain Specific Languages*

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  - car, bus, lorry, are vehicles. They are child classes of a vehicle

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  - We will look at this further in the workbook. However, this becomes more important later in your programming education

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  - **Note** might also be motivated to perform an action waiting to be asked

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- Next week - virtual behaviour and polymorphism.