Charles Babbage's Analytical Engine

While working on the **Difference engine**, a simpler calculating machine commissioned by the British government, Babbage began to imagine ways to improve it: a general-purpose computing machine called the **Analytical Engine**.

The machine was designed to consist of four components: the mill, the store, the reader, and the printer. These components are the essential components of every computer today. The **mill** was the calculating unit, analogous to the central processing unit (CPU) in a modern computer; the **store** was where data was held prior to processing, exactly analogous to memory and storage in today's computers; and the **reader** and **printer** were the input and output devices.

The store was to be large enough to hold 1,000 50-digit numbers; this was larger than the storage capacity of any computer built before 1960. The machine was to be steam-driven and run by one attendant. The printing capability was also ambitious. Babbage wanted to automate the process as much as possible, right up to producing printed tables of numbers. The reader was another new feature of the Analytical Engine. Data (numbers) were to be entered on punched cards.

By most definitions, the analytical engine was a real computer as understood today – or would have been, had Babbage not run into implementation problems. All the same, Babbage's Analytical Engine was something new under the sun. Its most revolutionary feature was the ability to change its operation by changing the instructions on punched cards.

Adapted from: *https://www.britannica.com/technology/Analytical-Engine*
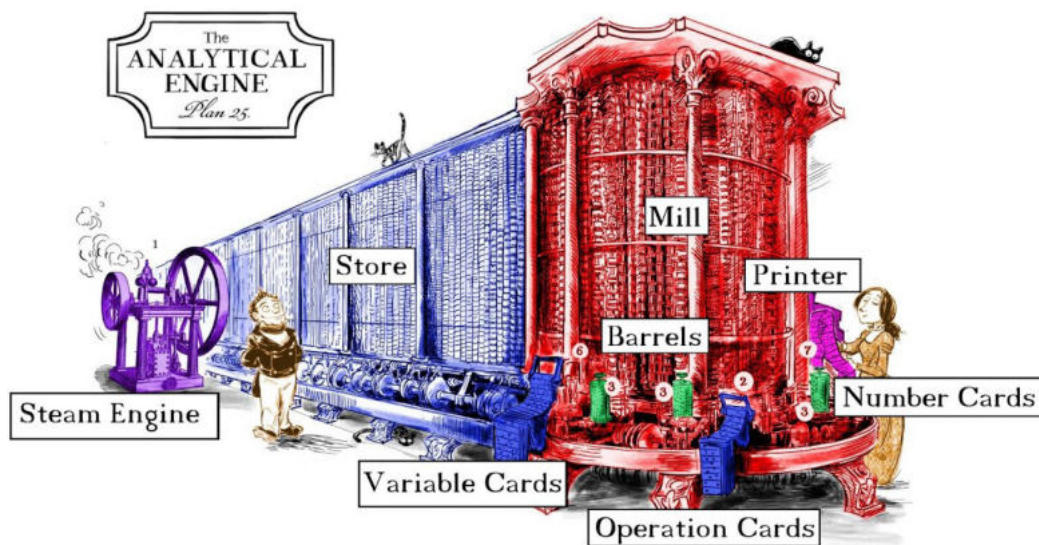
1 📝 **Answer the questions.**

1. With reference to a modern computer, what do the mill, store, reader and printer of the Analytical Engine correspond to?

2. What were the problems related to the store and mill?

3. How was data entered?

4. What was the real novelty of the Analytical Engine if compared to a simple calculator?