ACTIVIDAD #1

Tipo actividad: Pre-reading

7. Pre-reading: Socialize keywords about the reading below:

Key words:

- **Artificial Intelligence:** Meaning: Turing's exploration of whether AI should simulate the neural circuits and reasoning of a human brain.
- **Turing Machine:** Meaning: An abstract computing machine invented by Turing in 1935, laying the foundation for modern computers.
- **Computing Intelligence:** Meaning: Turing believed that future computing intelligence should be a machine learning from experience and altering its own instructions.
- **Turing Code:** Meaning: Turing's contribution to breaking the Enigma code used by Nazi Germany during World War II.
- **Enigma:** Meaning: The German encryption machine used by the Nazis to secure military communications during World War II.
- **Bombe:** Meaning: The name of the digital programmable computer developed by Turing and Welchman to decipher encrypted messages.

8. Reading:

"Alan Turing: The Pioneer of Computing"

Every June 23, tribute is paid to the birth of one of the most important human minds in technological and scientific advancement of all time: Alan Mathison Turing , says Nature magazine in its document "Turing at 100: Legacy of a universal mind." . With the desire to build a brain , the mathematician had the impulse to reconstruct the mind of Christopher Morcom, his best friend who died early in his adolescence.

Turing, outside his time, was one of the first people in science to think of computers as a system capable of answering any kind of problem given . In such a way that Nature debates in its document about whether Artificial Intelligences should simulate the neural circuits

and reasoning of a human brain through a technological resource to be a functional technique today.

Can computers think?

For Turing , this question was an interesting hypothesis to carry out research in the early 1950s, making him one of the first scientists in the world to question such a possibility . According to the Encyclopedia Britannica, all modern computers are, in essence, a product of the advanced technology promoted by the English mathematician.

The first substantial work in the field of artificial intelligence emerged in the mid-20th century through a decoding that would be called the “Turing Machine,” says Britannica. In 1935, the theologian had invented an abstract computing machine that consisted of a memory and a scanner whose task was to identify and read a series of symbols scattered on a tape that moves from one side to the other.

Thus, the machine operated and studied this series of symbols to interpret them and modify its own algorithm according to the instructions organized in its memory. For Turing, the computing intelligence of the future had to be a machine that needs to learn from experience ; and that the way to achieve this was to let such intelligent machinery alter its own instructions provided by its own mechanism.

The Turing code that helped stop World War II

Nazi Germany used encryption in its messages that prevented the allies from deciphering the location of their military troops, war strategies and territorial advance , explains an article in National Geographic Spain titled “ Alan Turing, the secret weapon of the allies .” Such a computer was called “Enigma” and was developed by Arthur Scherbius, a German engineer, during World War I.

The article argues that Enigma's operation was based on sending encrypted messages that altered the form, but not the content, every 24 hours; with the aim of preventing the encryptions from being deciphered in case these messages were intercepted by the enemy.

By the end of 1939, Turing was serving the United Kingdom Government Communications Headquarters , which was among the ranks of Allied countries in World War II . Together with his friend and mathematician Gordon Welchman, they developed the technological counteroffensive that allowed the Allies to decipher the code with which the Germans drew up their strategies.

This precursor to digital programmable computers was named Bombe , a name derived from a Polish word to describe a taste of ice cream. According to National Geographic Spain, in 1942, more than 40,000 messages encrypted by the Nazis had already been intercepted, of which 2 were deciphered per minute : “Turing helped reduce the war in Europe by two to four years, saving, from this way, fourteen million lives,” the article argues in the words of Winston Churchill , former Prime Minister of the United Kingdom.

Adapted from: https://www.nationalgeographicla.com/ciencia/2023/06/quien-fue-alan-turing-pionero-en-el-desarrollo-de-la-inteligencia-artificial-y-la-computacion-moderna