CAPTCHAs

| Term	Definition
Bot	A software program that performs automated, repetitive, pre-defined tasks, and aim to copy human behavior
CAPTCHA	A test that separates human input from machine input; stands for **C**ompletely **A**utomated **P**ublic **T**uring test to tell **C**omputers and **H**umans **A**part
reCAPTCHA	An advanced form of CAPTCHA tests; requires users to enter images that computers have trouble deciphering, like pictures of street addresses, text from printed books, text from old newspapers, etc.

What is a CAPTCHA?
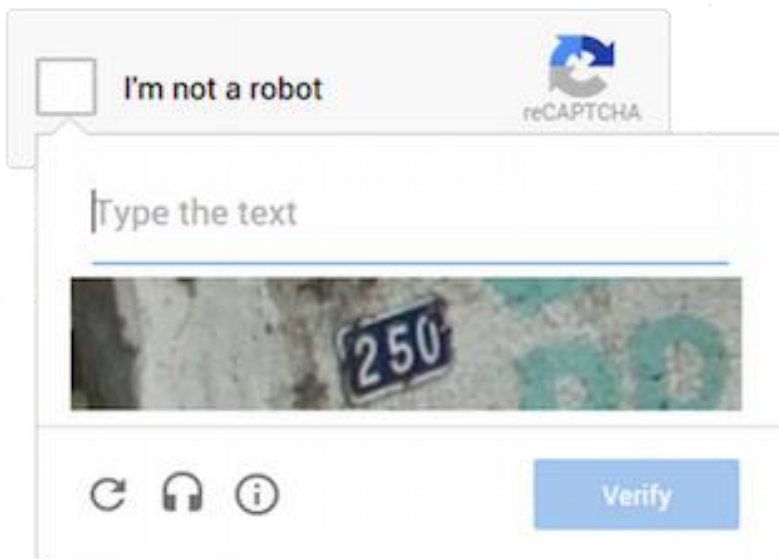
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Sometimes, when you're trying to log into an account or buying something online, you might be required to click a box, identify a certain item in pictures, or listen and type a word to "confirm you're not a robot". This is done to ensure that a human is the one completing the action, and not a bot. **Bots** are programs that created to complete automated and repetitive tasks, in an attempt to mimic human behavior.

As bad actors have become more sophisticated, in turn they have used more sophisticated methods to get information from Internet users. In the past, you might have answered a privacy question to access an account. However, this method is not used regularly anymore, since the site would then have access to your otherwise private information, like a street name or address or your grandparent's middle names. Instead, you need to complete a short activity, called a CAPTCHA. Though you will find completing the CAPTCHA to be a quick and easy task, it is almost impossible for bots to solve!

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How does CAPTCHA work?

The term **CAPTCHA** is an acronym for **Completely Automated Public Turing test to tell Computers and Humans Apart**. This name might seem complicated – but if we read the words individually, we begin to see what they do.

Let's break it down:

- *Completely Automated* – Everything is done by the site hosting the test. All you need to do is complete the task!
- *Public* – When you complete a CAPTCHA, its results are used to improve CAPTCHA tests all over the Internet.
- *Turing test* – A test that is used to determine whether a machine can demonstrate human intelligence.
- *to tell Computers and Humans Apart* – By identifying and typing squiggly letters, clicking on every stop light, or completing a math problem, you are beating the computer at "solving the problem", proving you are a human.

Although CAPTCHAs like typing squiggly letters or identifying all the buses may seem pointless or too simple, they are actually very hard for computers or bots to solve. This makes CAPTCHAs effective tools at preventing bots from spamming websites. There are two common CAPTCHAs: **text-based** and **picture-based**.

Text-based CAPTCHAs require you to type in one or two words that may have something wrong with them – a gradient background, squiggly text, a line through them, or something else. People – who look at lots of different fonts and handwritings – are able to easily interpret what these words are, while bots will not be able to identify the letters.

Picture-based CAPTCHAs require you to identify all the pictures with similar aspects – buses, streetlights, trucks, etc. – by clicking on all of them. People are able to recognize the images using context clues, but machines are not able to – so they are unable to complete the CAPTCHA.

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Examples of CAPTCHAs
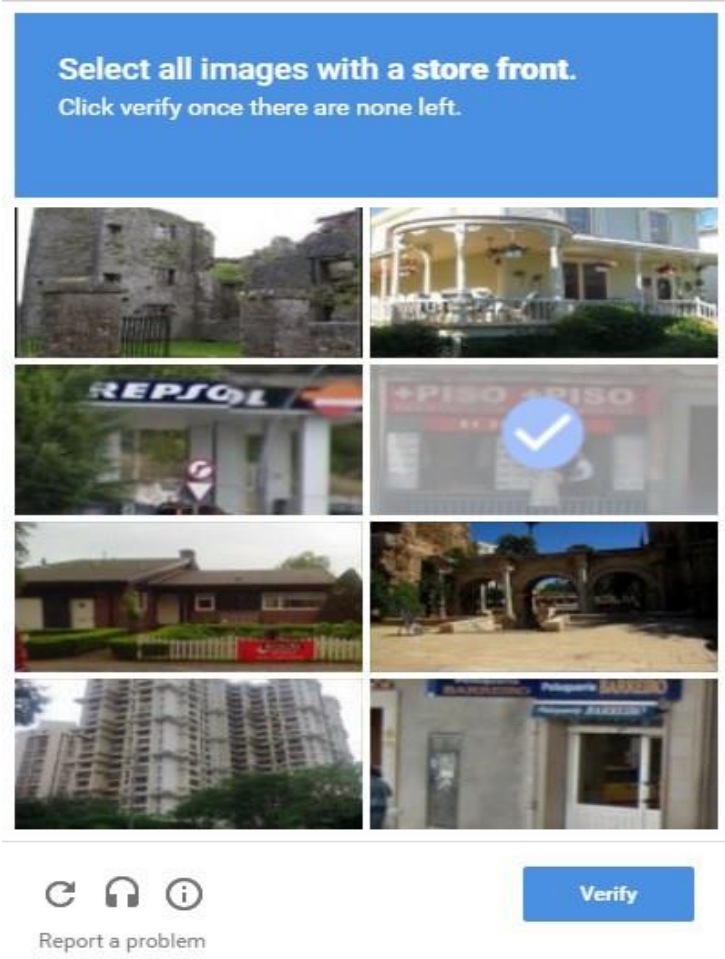
Example of a picture-based CAPTCHA. This Photo by Unknown Author is licensed under CC BY-SA

Example of a text-based CAPTCHA. This Photo by Unknown Author is licensed under CC BY

Example of a math-based CAPTCHA. This Photo by Unknown Author is licensed under CC BY-SA

Resources
CAPTCHA Definition: https://en.wikipedia.org/wiki/CAPTCHA
How CAPTCHA Works: https://computer.howstuffworks.com/captcha.htm