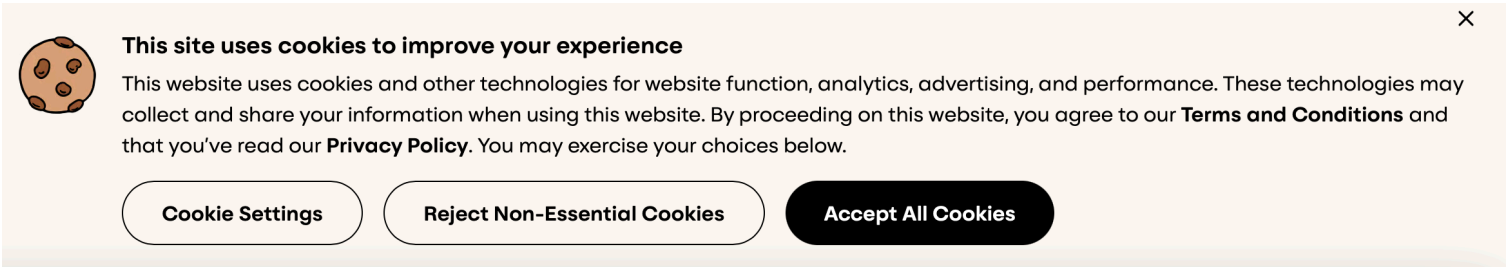
The Cookie- Soul Filling Dessert and Technological Marvel

With a world that exists in a large part online, it is seemingly impossible to not go online searching for things. When one opens Google Chrome (or any other web browser), and begins to search for a website, it is inevitable that they will run into a pop up that looks similar to this:



Cookie pop-up window. Source: crumbl.com

The vast majority of users will simply select the option, "Accept All Cookies" and proceed onward with their business, taking no thought for what they just agreed to. So the question then stands, "What is a cookie, and what does it do?".

A cookie is a piece of information that is stored on a user's computer browser such as Chrome, Safari, or Microsoft Edge. As the user searches through varying websites, the browser keeps information about their activity including such web page preferences (dark versus light mode etc.), login status, and interactions the user has with the site.

History of the Cookie

Cookies were first developed by Lou Montulli in 1994. At the time, when a user added different items to their shopping cart such as Amazon (even though Amazon didn't exist then), that information would be stored on the server, and then sent back to the user when they revisited the website. However, it became really expensive for the companies serving the websites to store all of that information. Montulli developed the first cookie that changed this storage from the server, to the browser. This freed up space on the servers providing a more seamless experience for the users of the websites. The name "cookie" come from the concept "magic cookie" in which information is passed between programs to manage sessions and state. This name is thought to have derived from fortune cookies in that they have a hidden message within them, similar to how a "magic cookie" works.

There are several different ways of categorizing cookies. They can be classified by party, security types, or category. Typically, they are grouped by two main parties: First-party cookies, and Third-party cookies.

First party cookies are kept on the website. When users visit the page, the website, via the cookie, will collect relevant information for their own use. This includes saving website settings (including the language), sign in details and items in the shopping cart. When a user log outs, and logs back in, because

of the first-party cookies, all the configurations will remain. The website administrator can also use first-party cookies to see how many unique visits they get to their site.

Third-party cookies behave differently in that they are not administered from the specific website you visit. These cookies track users as they go from website to website. They collect behavior on the user to create a profile that can be utilized for more specific ads. A website like Facebook could initialize a cookie when you visit it, but as you search for things on other websites, they can learn what you prefer, and then offer ads on their website that you would be more likely to visit. However, web browsers such as Safari have ended support for third-party cookies due to potential privacy concerns.

Creating a Cookie

There are a few different variants of a cookie, primarily client-side cookies (the user) and server-side cookies. Here is an example of the code that details a client side cookie:

`let date = new Date();`
`date.setTime(date.getTime() + (7*24*60*60*1000));` let expires = "expires=" + date.toUTCString(); document.cookie = "username=JohnDoe; " + expires + "; path=/; Secure; SameSite=Lax";`

The first line, `let date = new Date();` creates a new Date object that holds the date and time in the variable 'date' at the time the code is executed.

The next line, `date.setTime(date.getTime() + (7*24*60*60*1000));` sets an expiration date to seven days in the future from when the code runs. It converts the seven days into milliseconds.

The third line `let expires = "expires=" + date.toUTCString();` creates a new variable called 'expires' sets that equal to the date object which is converted into Coordinated Universal Time (UTC).

The final two lines `document.cookie = "username=JohnDoe; " + expires + "; path=/; Secure; SameSite=Lax";` create a new cookie by setting the name of it to the user's name, affixing the expiration date, setting the location to be available in certain places on a website, and creating a secure HTTPS connection. The `SameSite=Lax";` line adds an extra line of security by preventing Cross-Site Request Forger. You can read more about that here.

The client side will use a programming language knows as JavaScript (as seen above). On the server side however, the code can be written in a language called PHP or Hypertext Preprocessor. The syntax for creating a server-side cookie might look something like this:

`setcookie("username", "JohnDoe", time() + (86400 * 7), "/");`

This line of code sets the username of the cookie to JohnDoe who is the user. It also sets the expiration to 7 days. The "/" ensures that the cookie is available on the entire domain.

Annotations

w3schools.com

- This website does a fantastic job in detailing how cookies are created using clear examples and code to demonstrate them in action. It describes how to set, get, and check cookies as well as showing the code necessary for each. It should be noted that there is an assumption that the user has some prior knowledge with programming, but generally, it does a great job in outlining all the necessary information.

cookie-script.com

- This website outlines the varying types of web cookies and how they are classified. It is very beginner friendly and has a 'Frequently Asked Questions' section at the bottom of the page. It also includes helpful information about current happenings, such as Google Search no longer allowing third-party cookies on their search engine. The section detailing the differences between first and third party cookies was particularly helpful.

What are Cookies? And How They Work | Explained for Beginners! - Youtube

- This short Youtube video from the channel *Create a Pro Website* is extremely helpful for the person who has no idea what a cookie is. He provides very clear and concise information in a very usable format. He also provides several examples which really assists in comprehending the concepts of how a cookie works between the user, browser, and server of a system.

What Happens When You Click "Accept All?"

- This Youtube vide from *Techquickie* is also very informative. They break down what happens when you accept the cookies (hence the name of the video). They also discuss what the legal side of things with regulation of cookies and private user information. This is very instructive for those who do not understand why website require users to accept or reject certain cookies.

How ads follow you around the internect - Youtube

- This video from Vox is very beginner friendly for understanding cookies. Their audience is for people do not understand technology very well which makes it super informative in an entertaining way. The video outlines the history of cookies, as well as the difference between first and third-party cookies. It was really interesting that they even had Lou Montulli (the creator of cookies) in the video for an interview. He gave his opinions on how his idea has been taken and used for advertisements. They also discuss the tactics that major corporations use to circumnavigate laws regarding privacy.