Search engines

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The internet is a fantastic tool that helps you to learn, to share, to communicate and to find entertainment. It has billions of pages filled with information, in the form of words, images, videos and sound. Finding the information you need from these billions of pages can be tricky. If you had to look through each page, it would take many years to find the information you seek. Search engines make the task much simpler.

Search engines are programs that are designed to search the internet for us. They scour through all the billions of webpages, looking for information that matches what you are seeking. By using a search engine you can find information in seconds.

Search engines quickly find relevant information from billions of webpages

How search engines work

When you use a search engine to find information, you type in a search term which consists of one or more keywords that are specific to the information you seek. For example, if you wanted to learn more about how to eat healthily, your search term might include the keywords 'eating' and 'healthily'. The search engine would look through all the webpages on the internet and create a list of links (or results) to all pages that contain these keywords. The list is sorted into order, with the most popular (or most visited) results at the top. You can then choose to follow any of the listed links and websites to see what information they contain.

Search engines such as Google use very complex page ranking algorithms to decide the exact order in which results should appear. The biggest factor is the number of sites linking to that web page.

Refining searches using Boolean expressions

Keywords are used to tell a search engine what information you are looking for. However, the resulting list of websites a search engine returns is often not quite what you want. Boolean expressions, such as AND, OR and NOT, allow you to make your search terms more specific.

Suppose you live in Manchester, and want to go to the cinema to watch a film. You might search for this information using the search term ‘films’. This would generate millions of results, because the keyword ‘films’ is very common – lots of websites would mention that word.

Boolean expressions, such as AND, OR and NOT, allow you to refine your searches further:

- **AND** narrows down the search by adding more keywords that need to appear in your results, eg ‘film’ AND ‘Manchester’. The results will contain both these keywords.
- **OR** widen the search by including alternate words, eg ‘film’ OR ‘movie’. The results will contain either of these words.
- **NOT** excludes certain information, eg ‘film’ AND NOT ‘Transformers’. The results will contain the word ‘film’ but not ‘Transformers’.

Using these expressions often gives you a better chance of finding what you are looking for.

Using ‘AND’

Search engines use the Boolean expression **‘AND’** to refine searches by **combining two or more** keywords in a search term.

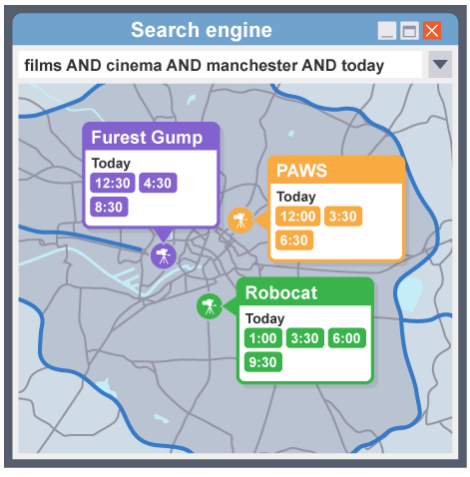
If you were looking for films to watch at the cinema in Manchester today, you could use a search term with two keywords, ‘films’ and ‘cinema’. To the search engine, the search term would look like this:

- films AND cinema

The search engine would then look for any web pages that contain both keywords. This would narrow down the results, but you would find that many of them are not relevant as they would include cinemas from all around the country. Refining your search using two more keywords, ‘manchester’ and ‘today’ would give much more specific results. To the search engine, the search term would look like this:

- films AND cinema AND manchester AND today

From your refined results you could find a cinema close by and see what films are showing.



Because we combine keywords so often, search engines use the Boolean expression ‘AND’ automatically. You do not have to type it in – although it causes no harm to do so.

Using ‘OR’

The expression **‘OR’** allows you to search for **more than one piece of information** at the same time.

Suppose that you wanted to either go cycling or play tennis in Manchester.

To go cycling in Manchester you might use this search term:

- cycling manchester

To play tennis in Manchester, you might use this search term:

- tennis manchester

To find either cycling or tennis in Manchester you could use this search term:

cycling tennis manchester

However, **this might not work**, because the search term you have specified is actually:

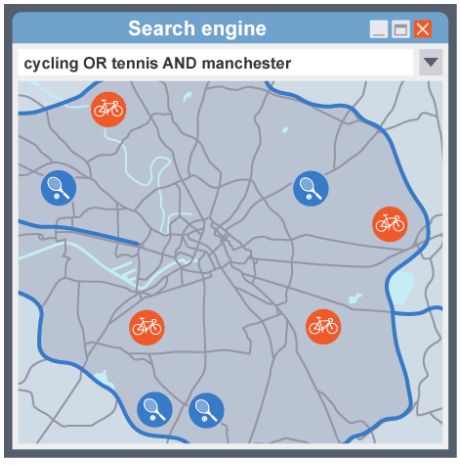
- cycling AND tennis AND manchester

The search engine would look for webpages that contain all three keywords, ie places in Manchester where you can both cycle AND play tennis. Such a place might not exist.

A better way is to combine the two searches by using the Boolean expression ‘OR’:

- cycling OR tennis AND manchester

This search term would give you results showing you where you could cycle OR play tennis in Manchester, giving you a better chance of finding what you are looking for.



Using ‘NOT’

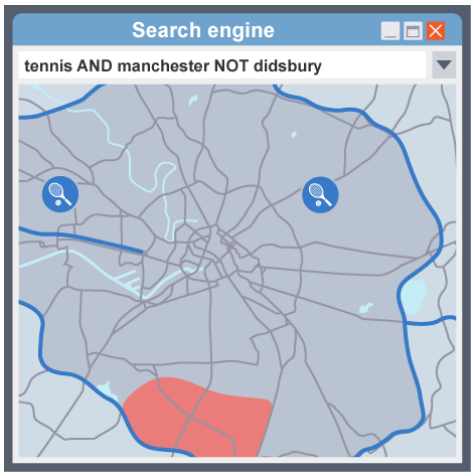
The expression ‘NOT’ allows you to eliminate specific results that you know you don’t want.

Suppose you live in Didsbury, near Manchester and want to play tennis somewhere different. You could use ‘NOT’ to tell the search engine to find places to play tennis in Manchester, but not in Didsbury.

In most search engines, ‘NOT’ is represented with a minus sign. Your search term would look like this:

- tennis manchester - didsbury

Using this search term you would get a list of results for places to play tennis in Manchester, but excluding anywhere in Didsbury.



Using quotes to remove results

You can use the Boolean expression ‘NOT’ to remove results from your searches. You can also use quotes for a similar purpose.

Suppose you wanted to play tennis in Manchester but your racquet is broken. You can use the internet to find out where you can buy a new racquet. To do this, you could use the search term:

- buy AND tennis AND racquets AND manchester

This would work, but your results might not be too specific - some websites may not refer to buying tennis racquets at all, because the search engine simply finds any website that contains all four keywords.

By using quotes, you can tell the search engine to specifically look for sites that tell you where you can buy tennis racquets in Manchester:

- “buy tennis racquets” AND manchester

This search term only finds websites that contain the exact phrase “buy tennis racquets” along with the word ‘manchester’.