Session 1:

Search Engines

Objectives

- Explain a search engine
- Describe components of search engine
- Describe Web pages and Websites
- Determine the timeline of search engines
- Identify advance Google search techniques
- Describe how Google search works

What is a Search Engine? (1-2)

A software system.

Executes query based Web search. Example Google

Queries are called **keywords**.

Keywords appear as one begins typing.

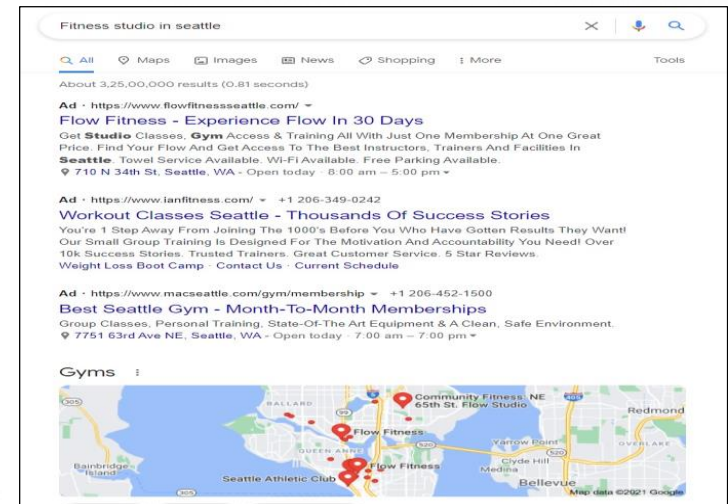Figure 1.1: Google Search
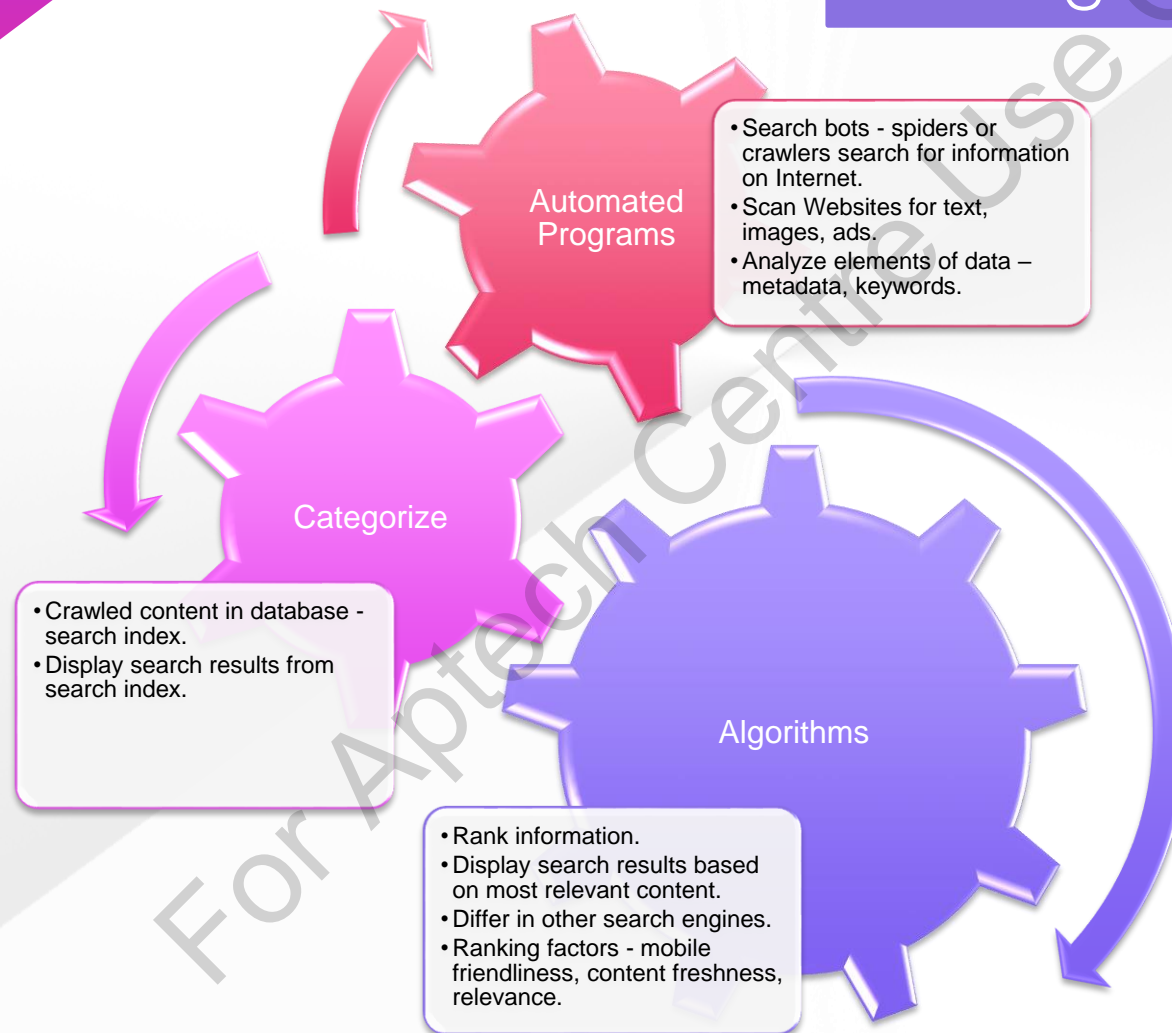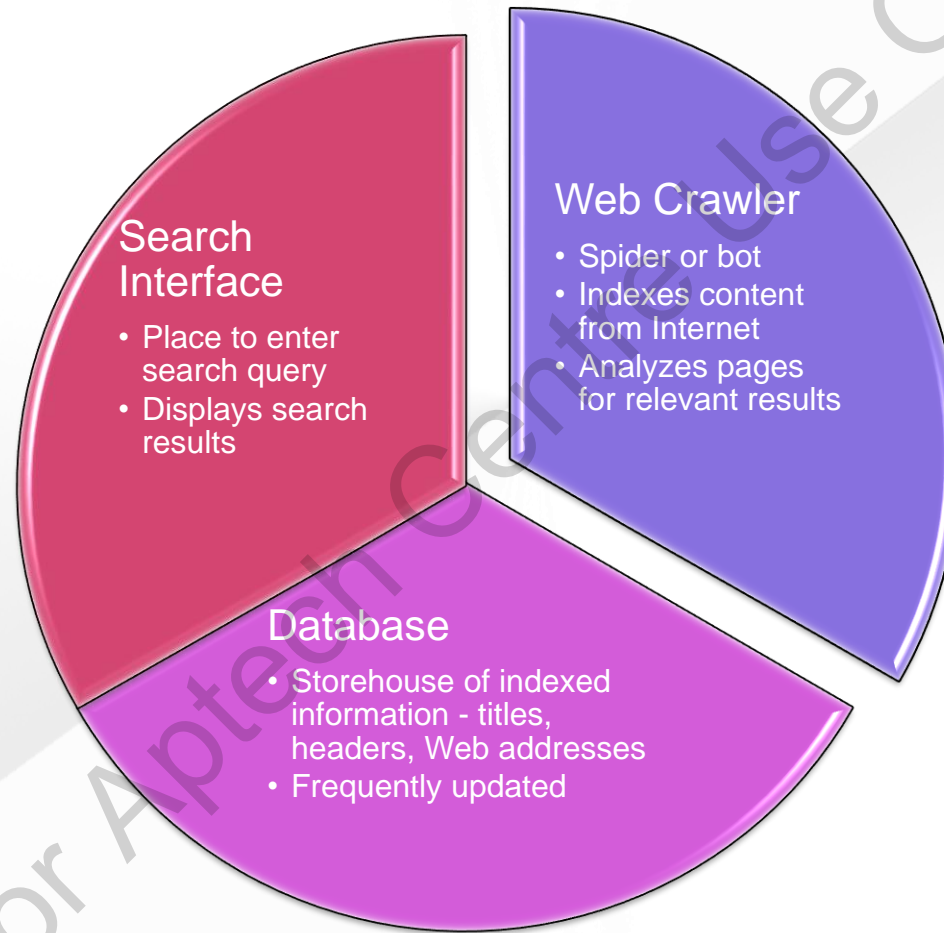
Search results appear in Search Engine Results Pages (SERPs)

Algorithms rank SERPs from most relevant to least relevant.

Most relevant pages are displayed on top.

"Ads" are paid search results.

Figure 1.2: Google Search Result Page

What is a Search Engine? (2-2)

Working of Search Engine

Automated Programs
- Search bots - spiders or crawlers search for information on Internet.
- Scan Websites for text, images, ads.
- Analyze elements of data – metadata, keywords.

Categorize
- Crawled content in database - search index.
- Display search results from search index.

Algorithms
- Rank information.
- Display search results based on most relevant content.
- Differ in other search engines.
- Ranking factors - mobile friendliness, content freshness, relevance.

Components of a Search Engine

Search Interface
- Place to enter search query
- Displays search results

Web Crawler
- Spider or bot
- Indexes content from Internet
- Analyzes pages for relevant results

Database
- Storehouse of indexed information - titles, headers, Web addresses
- Frequently updated

Web Pages and Websites

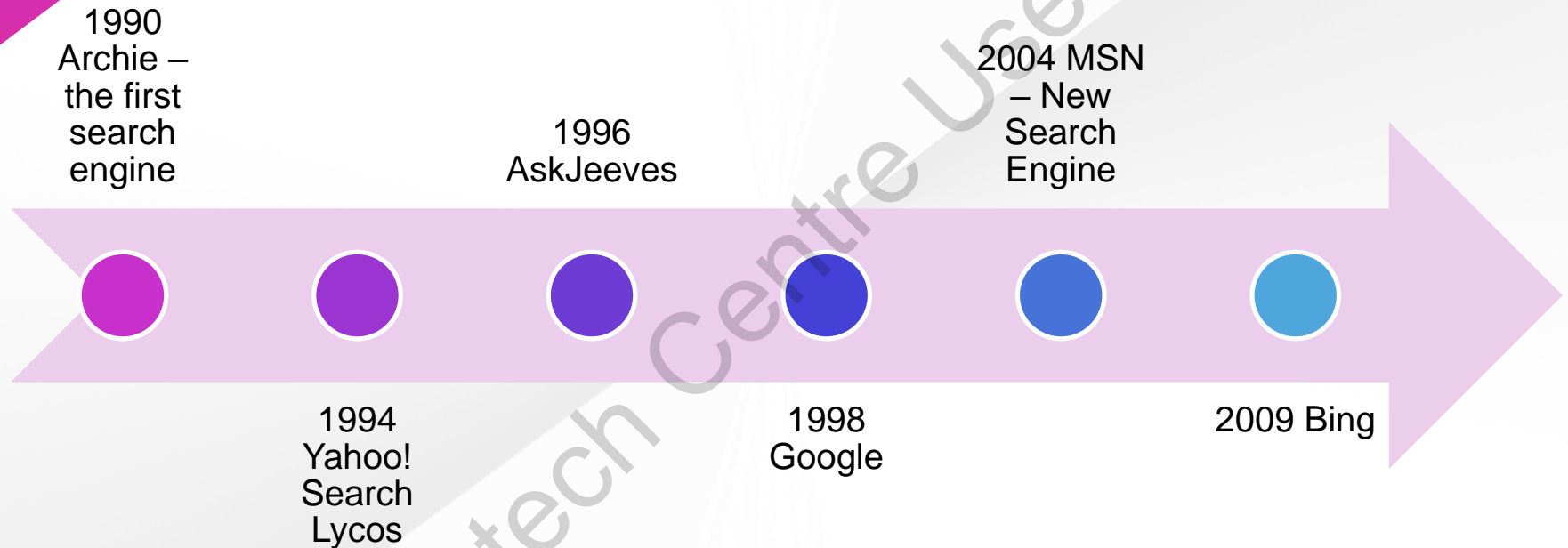| Web Address | • Displays location of Web page (URL). Example: https://www.aptechlearning.com/ |
| Web Page | • HTML format; displayed in Web browser |
| Website | • Collection of Web pages with single domain name. Example: search engine |

Search Engines and Their Origin

1990
Archie –
the first
search
engine

1996
AskJeeves

2004 MSN
– New
Search
Engine

1994
Yahoo!
Search
Lycos

1998
Google

2009 Bing

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The Perfect Google Search

New updates announced here: https://support.google.com/websearch/announcements/9587893

Ways to Search

- Voice - "Hey Google"
- Location - To view information specific to location
- Type in search bar

Figure 1.3: Microphone icon
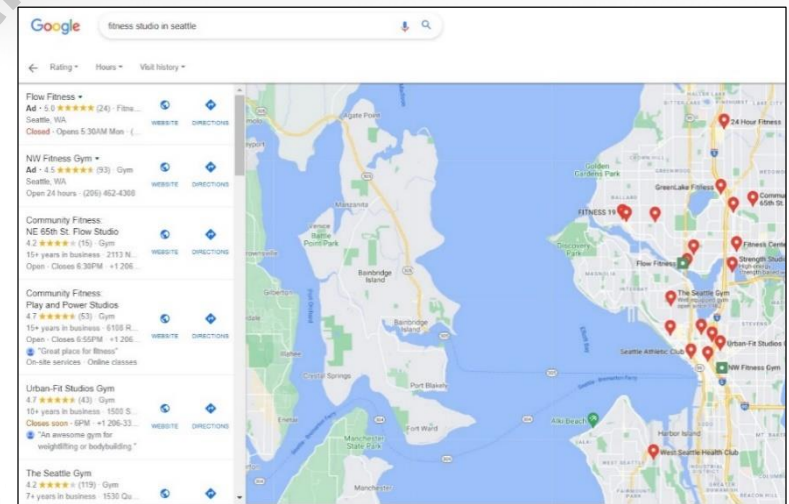
Figure 1.4: Location-Specific Information

Advanced Google Search Techniques and Strategies

Find Exact Match
- Place words in quotes

Search Social Media
- Use @ before word

Search within range of numbers
- Use .. between two numbers

Hashtags
- Use # before word

Price
- Use $ before number
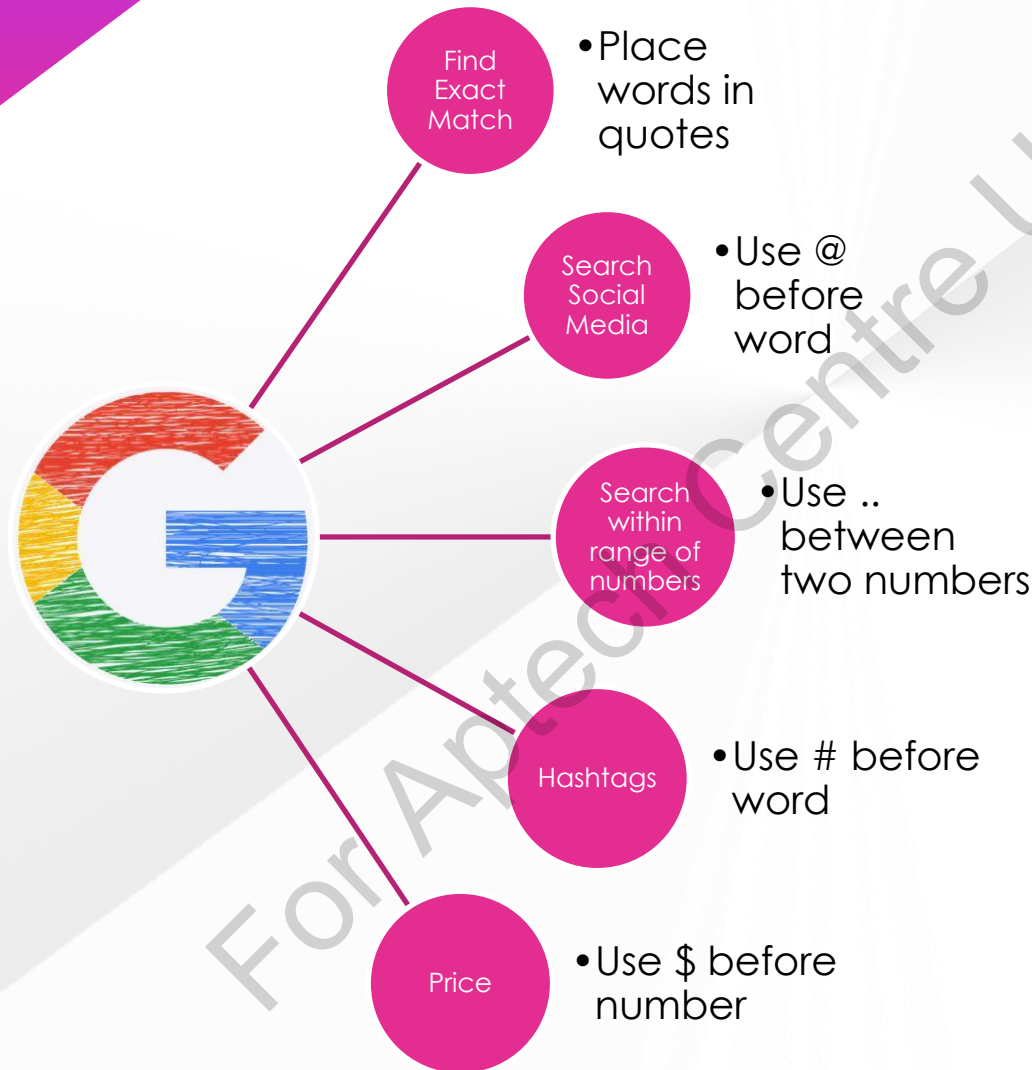
Advanced Search

↓

Settings >> Advanced Search

↓

Find pages with…

↓

Narrow your results by…

Google Search Settings

SafeSearch preferences

Auto-complete with trending searches

Speak answers for voice search

Open result in new window

Save search history

Figure: Search Settings Page

Working of Google Search

Crawling
- Finding new/updated pages from links, Web host; and maintains the list on Google.

Indexing
- Analyzing and storing pages, with images and videos.

Serving
- Serves search answers after considering several factors, such as language and location.

Factors affecting ranking	Useful content
	Mobile friendliness
	Faster page loading
	SEO guidelines

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Summary

- A search engine executes Web searches based on the query given by users.

- Search engines use algorithms to rank the results by most relevant to least relevant.

- Basic components of a search engine include Web Crawler, Database, and Search Interface.

- Search engine analyzes Web pages and Websites and ranks them for search terms.

- Google also provides advance search techniques and strategies for better search results.

- Google serves the search answers after considering several factors, such as language, location, and content usefulness