Per Min From Clean Code Illustration

Large language model

allow for example to fetch real-time information from an API or to execute code. A program separate from the LLM watches the output stream of the LLM for

A large language model (LLM) is a language model trained with self-supervised machine learning on a vast amount of text, designed for natural language processing tasks, especially language generation.

The largest and most capable LLMs are generative pretrained transformers (GPTs), based on a transformer architecture, which are largely used in generative chatbots such as ChatGPT, Gemini and Claude. LLMs can be fine-tuned for specific tasks or guided by prompt engineering. These models acquire predictive power regarding syntax, semantics, and ontologies inherent in human language corpora, but they also inherit inaccuracies and biases present in the data they are trained on.

Wikipedia

edits per month (about 5 edits per second on average) as of April 2024[update]. As of May 2025[update], over 25% of Wikipedia's traffic comes from the United

Wikipedia is a free online encyclopedia written and maintained by a community of volunteers, known as Wikipedians, through open collaboration and the wiki software MediaWiki. Founded by Jimmy Wales and Larry Sanger in 2001, Wikipedia has been hosted since 2003 by the Wikimedia Foundation, an American nonprofit organization funded mainly by donations from readers. Wikipedia is the largest and most-read reference work in history.

Initially available only in English, Wikipedia exists in over 340 languages and is the world's ninth most visited website. The English Wikipedia, with over 7 million articles, remains the largest of the editions, which together comprise more than 65 million articles and attract more than 1.5 billion unique device visits and 13 million edits per month (about 5 edits per second on average) as of April 2024. As of May 2025, over 25% of Wikipedia's traffic comes from the United States, while Japan, the United Kingdom, Germany and Russia each account for around 5%.

Wikipedia has been praised for enabling the democratization of knowledge, its extensive coverage, unique structure, and culture. Wikipedia has been censored by some national governments, ranging from specific pages to the entire site. Although Wikipedia's volunteer editors have written extensively on a wide variety of topics, the encyclopedia has been criticized for systemic bias, such as a gender bias against women and a geographical bias against the Global South. While the reliability of Wikipedia was frequently criticized in the 2000s, it has improved over time, receiving greater praise from the late 2010s onward. Articles on breaking news are often accessed as sources for up-to-date information about those events.

Dining philosophers problem

or clean. Initially, all forks are dirty. When a philosopher wants to use a set of resources (i.e., eat), said philosopher must obtain the forks from his

In computer science, the dining philosophers problem is an example problem often used in concurrent algorithm design to illustrate synchronization issues and techniques for resolving them.

It was originally formulated in 1965 by Edsger Dijkstra as a student exam exercise, presented in terms of computers competing for access to tape drive peripherals.

Soon after, Tony Hoare gave the problem its present form.

Glossary of video game terms

fire from the target's teammates, as any misses are likely to hit and harm their teammate. clapped Slang term for murdered, particularly in a 'clean' or

Since the origin of video games in the early 1970s, the video game industry, the players, and surrounding culture have spawned a wide range of technical and slang terms.

Chloroform

solvent for lipids, rubber, alkaloids, waxes, gutta-percha, and resins, as a cleaning agent, as a grain fumigant, in fire extinguishers, and in the rubber industry

Chloroform, or trichloromethane (often abbreviated as TCM), is an organochloride with the formula $CHCl_3$ and a common solvent. It is a volatile, colorless, sweet-smelling, dense liquid produced on a large scale as a precursor to refrigerants and polytetrafluoroethylene (PTFE). Chloroform was once used as an inhalational anesthetic between the 19th century and the first half of the 20th century. It is miscible with many solvents but it is only very slightly soluble in water (only 8 g/L at 20°C).

Protist

under either or both of the botanical (ICNafp) and the zoological (ICZN) codes of nomenclature. Protists display a wide range of distinct morphological

A protist (PROH-tist) or protoctist is any eukaryotic organism that is not an animal, land plant, or fungus. Protists do not form a natural group, or clade, but are a paraphyletic grouping of all descendants of the last eukaryotic common ancestor excluding land plants, animals, and fungi.

Protists were historically regarded as a separate taxonomic kingdom known as Protista or Protoctista. With the advent of phylogenetic analysis and electron microscopy studies, the use of Protista as a formal taxon was gradually abandoned. In modern classifications, protists are spread across several eukaryotic clades called supergroups, such as Archaeplastida (photoautotrophs that includes land plants), SAR, Obazoa (which includes fungi and animals), Amoebozoa and "Excavata".

Protists represent an extremely large genetic and ecological diversity in all environments, including extreme habitats. Their diversity, larger than for all other eukaryotes, has only been discovered in recent decades through the study of environmental DNA and is still in the process of being fully described. They are present in all ecosystems as important components of the biogeochemical cycles and trophic webs. They exist abundantly and ubiquitously in a variety of mostly unicellular forms that evolved multiple times independently, such as free-living algae, amoebae and slime moulds, or as important parasites. Together, they compose an amount of biomass that doubles that of animals. They exhibit varied types of nutrition (such as phototrophy, phagotrophy or osmotrophy), sometimes combining them (in mixotrophy). They present unique adaptations not present in multicellular animals, fungi or land plants. The study of protists is termed protistology.

Dijkstra's algorithm

from source to the given vertex (equivalently, it is the next-hop on the path from the given vertex to the source). The code u ? vertex in Q with min

Dijkstra's algorithm (DYKE-str?z) is an algorithm for finding the shortest paths between nodes in a weighted graph, which may represent, for example, a road network. It was conceived by computer scientist Edsger W.

Dijkstra in 1956 and published three years later.

Dijkstra's algorithm finds the shortest path from a given source node to every other node. It can be used to find the shortest path to a specific destination node, by terminating the algorithm after determining the shortest path to the destination node. For example, if the nodes of the graph represent cities, and the costs of edges represent the distances between pairs of cities connected by a direct road, then Dijkstra's algorithm can be used to find the shortest route between one city and all other cities. A common application of shortest path algorithms is network routing protocols, most notably IS-IS (Intermediate System to Intermediate System) and OSPF (Open Shortest Path First). It is also employed as a subroutine in algorithms such as Johnson's algorithm.

The algorithm uses a min-priority queue data structure for selecting the shortest paths known so far. Before more advanced priority queue structures were discovered, Dijkstra's original algorithm ran in

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time, where

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is the number of nodes. Fredman & Tarjan 1984 proposed a Fibonacci heap priority queue to optimize the running time complexity to

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. This is asymptotically the fastest known single-source shortest-path algorithm for arbitrary directed graphs with unbounded non-negative weights. However, specialized cases (such as bounded/integer weights, directed acyclic graphs etc.) can be improved further. If preprocessing is allowed, algorithms such as contraction hierarchies can be up to seven orders of magnitude faster.

Dijkstra's algorithm is commonly used on graphs where the edge weights are positive integers or real numbers. It can be generalized to any graph where the edge weights are partially ordered, provided the subsequent labels (a subsequent label is produced when traversing an edge) are monotonically non-decreasing.

In many fields, particularly artificial intelligence, Dijkstra's algorithm or a variant offers a uniform cost search and is formulated as an instance of the more general idea of best-first search.

Singapore

2012. "Resource-starved Singapore turns sewage into ultra-clean water". phys.org. Archived from the original on 13 August 2021. Retrieved 13 August 2021

Singapore, officially the Republic of Singapore, is an island country and city-state in Southeast Asia. The country's territory comprises one main island, 63 satellite islands and islets, and one outlying islet. It is about one degree of latitude (137 kilometres or 85 miles) north of the equator, off the southern tip of the Malay Peninsula, bordering the Strait of Malacca to the west, the Singapore Strait to the south along with the Riau Islands in Indonesia, the South China Sea to the east, and the Straits of Johor along with the State of Johor in Malaysia to the north.

In its early history, Singapore was a maritime emporium known as Temasek; subsequently, it was part of a major constituent part of several successive thalassocratic empires. Its contemporary era began in 1819, when Stamford Raffles established Singapore as an entrepôt trading post of the British Empire. In 1867, Singapore came under the direct control of Britain as part of the Straits Settlements. During World War II, Singapore was occupied by Japan in 1942 and returned to British control as a Crown colony following Japan's surrender in 1945. Singapore gained self-governance in 1959 and, in 1963, became part of the new federation of Malaysia, alongside Malaya, North Borneo, and Sarawak. Ideological differences led to Singapore's expulsion from the federation two years later; Singapore became an independent sovereign country in 1965. After early years of turbulence and despite lacking natural resources and a hinterland, the nation rapidly developed to become one of the Four Asian Tigers.

As a highly developed country, it has the highest PPP-adjusted GDP per capita in the world. It is also identified as a tax haven. Singapore is the only country in Asia with a AAA sovereign credit rating from all major rating agencies. It is a major aviation, financial, and maritime shipping hub and has consistently been ranked as one of the most expensive cities to live in for expatriates and foreign workers. Singapore ranks highly in key social indicators: education, healthcare, quality of life, personal safety, infrastructure, and housing, with a home-ownership rate of 88 percent. Singaporeans enjoy one of the longest life expectancies, fastest Internet connection speeds, lowest infant mortality rates, and lowest levels of corruption in the world. It has the third highest population density of any country, although there are numerous green and recreational spaces as a result of urban planning. With a multicultural population and in recognition of the cultural identities of the major ethnic groups within the nation, Singapore has four official languages: English, Malay, Mandarin, and Tamil. English is the common language, with exclusive use in numerous public services. Multi-racialism is enshrined in the constitution and continues to shape national policies.

Singapore is a parliamentary republic and its legal system is based on common law. While it is constitutionally a multi-party democracy where free elections are regularly held, it functions as a de facto one-party state, with the People's Action Party (PAP) maintaining continuous political dominance since 1959. The PAP's longstanding control has resulted in limited political pluralism and a highly centralised governance structure over national institutions. One of the five founding members of ASEAN, Singapore is also the headquarters of the Asia-Pacific Economic Cooperation Secretariat, the Pacific Economic Cooperation Council Secretariat, and is the host city of many international conferences and events. Singapore is also a member of the United Nations, the World Trade Organization, the East Asia Summit, the Non-Aligned Movement, and the Commonwealth of Nations.

Post-it note

with dry erase and permanent markers without leaving stains behind when cleaned with water and soap. The company also released Post-it Foil Tabs, which

A Post-it note (or sticky note) is a small piece of paper with a re-adherable strip of glue on its back, made for temporarily attaching notes to documents and other surfaces. A low-tack pressure-sensitive adhesive allows the notes to be easily attached, removed and even re-posted elsewhere without leaving residue. The Post-it's signature adhesive was discovered accidentally by a scientist at 3M. Originally small yellow squares, Post-it Notes and related products are available in various colors, shapes, sizes and adhesive strengths. As of 2024, there are at least 28 documented colors of Post-it notes. 3M's Post-it has won several awards for its design and innovation.

Post-its are versatile and can be used in various settings for various purposes. They are commonly used in classrooms and workplaces but can also be found in art, media, and social media. Post-its have also been used as tools for public engagement and persuasion.

Although 3M's patent expired in 1997, the "Post-it" brand name and the original notes' distinctive yellow color remain registered company trademarks, with terms such as "repositionable notes" used for similar offerings manufactured by competitors. While use of the trademark 'Post-it' in a representative sense refers to any sticky note, no legal authority has ever considered it a generic trademark.

Austin, Texas

July 24, 2017. Retrieved May 25, 2017. "Zip code report" (PDF). austintexas.gov. 2016. Archived (PDF) from the original on October 9, 2022. Retrieved June

Austin (AW-stin) is the capital city of the U.S. state of Texas. With a population of 961,855 at the 2020 census, it is the 13th-most populous city in the U.S., fifth-most populous city in Texas, and second-most populous U.S. state capital (after Phoenix, Arizona), while the Austin metro area with an estimated 2.55 million residents is the 25th-largest metropolitan area in the nation. Austin is the county seat and most

populous city of Travis County, with portions extending into Hays and Williamson counties. Incorporated on December 27, 1839, it has been one of the fastest-growing large cities in the United States since 2010.

Located in Central Texas within the greater Texas Hill Country, it is home to numerous lakes, rivers, and waterways, including Lady Bird Lake and Lake Travis on the Colorado River, Barton Springs, McKinney Falls, and Lake Walter E. Long. Austin's history dates back to at least 9200 BC, with early habitation by Clovis peoples and later by Indigenous groups such as the Tonkawa. Austin and San Antonio are approximately 80 miles (129 km) apart, and both fall along the I-35 corridor. This combined metropolitan region of San Antonio–Austin has approximately 5 million people. Austin is the southernmost state capital in the contiguous United States and is considered a Gamma + level global city as categorized by the Globalization and World Cities Research Network.

Residents of Austin are known as Austinites. They include a diverse mix of government employees, college students, musicians, high-tech workers, and blue-collar workers. The city's official slogan promotes Austin as "The Live Music Capital of the World", a reference to the city's many musicians and live music venues, as well as the long-running PBS TV concert series Austin City Limits. Austin is the site of South by Southwest (SXSW), an annual conglomeration of parallel film, interactive media, and music festivals. The city also adopted "Silicon Hills" as a nickname in the 1990s due to a rapid influx of technology and development companies. In recent years, some Austinites have adopted the unofficial slogan "Keep Austin Weird", which refers to the desire to protect small, unique, and local businesses from being overrun by large corporations. Ongoing rapid development and gentrification challenge its bohemian roots and fuel nostalgia for “Old Austin.” Austin has a history of activism and progressive politics focused on environmental and civic reform, and is ranked among the safest large cities in the United States. Since the late 19th century, Austin has also been known as the "City of the Violet Crown", because of the colorful glow of light across the hills just after sunset.

Emerging from a strong economic focus on government and education, since the 1990s, Austin has become a center for technology and business. The technology roots in Austin can be traced back to the 1960s, when defense electronics contractor Tracor (now BAE Systems) began operations in the city in 1962. IBM followed in 1967, opening a facility to produce its Selectric typewriters. Texas Instruments was set up in Austin two years later, and Motorola (now NXP Semiconductors) started semiconductor chip manufacturing in 1974. A number of Fortune 500 companies have headquarters or regional offices in Austin, including 3M, Advanced Micro Devices (AMD), Agilent Technologies, Amazon, Apple, Dell, Expedia, Facebook (Meta), General Motors, Google, IBM, Intel, NXP Semiconductors, Oracle, Tesla, and Texas Instruments. With regard to education, Austin is the home of the University of Texas at Austin, one of the largest universities in the U.S., with over 50,000 students. In 2021, Austin became home to Austin FC, the first (and currently only) major professional sports team in the city.

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