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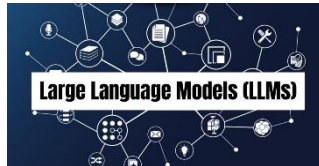
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Current Affairs - 10 December 2025

WHAT ARE LARGE LANGUAGE MODELS (LLMs)?



- An LLM is a **type of artificial intelligence (AI) program** that can **recognize and generate text**, among other tasks.
- LLMs are **trained on huge sets of data**, hence the name “large.”
- LLMs are **built on machine learning**: specifically, a **type of neural network** called a **transformer model**, which excels at **handling sequences of words** and **capturing patterns in text**.
- In simpler terms, an **LLM is a computer program** that has been **fed enough examples** to be able to **recognize and interpret human language** or other types of **complex data**.
- LLMs use a **type of machine learning called deep learning** in order to **understand how characters, words, and sentences function together**.
 - **Deep learning** involves the **probabilistic analysis of unstructured data**, which eventually enables the deep learning model to **recognize distinctions between pieces of content without human intervention**.
- LLMs are then **further trained via tuning**: they are **fine-tuned** or **prompt-tuned** to the particular task that the programmer wants them to do.
- **What are LLMs Used For?**
 - LLMs can perform various language tasks, such as **answering questions, summarizing text, translating between languages, and writing content**.
 - **Businesses use LLM-based applications** to help **improve employee productivity and efficiency, provide personalized recommendations to customers, and accelerate ideation, innovation, and product development**.
 - LLMs serve as the **foundational powerhouses behind** some of today’s most used **text-focused generative AI (GenAI) tools**, such as **ChatGPT, Claude, Microsoft Copilot, Gemini, and Meta AI**.



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- Since LLMs are now becoming multimodal (working with media types beyond text), they are now also called “foundation models”.

Quick Definitions:

- **Machine learning:** A subset of AI where data is fed into a program so it can identify features in that data.
 - **Deep learning:** Trains itself to recognize patterns without human intervention.
 - **Neural networks:** Constructed of connected network nodes composed of several layers that pass information between each other.
 - **Transformer models:** Learn context using a technique called self-attention to detect how elements in a sequence are related.
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WHAT IS A SOLAR STORM?



- A solar storm is a sudden explosion of particles, energy, magnetic fields, and material blasted into the solar system by the Sun.

What Causes a Solar Storm?

- The Sun creates a tangled mess of magnetic fields.
- These magnetic fields get twisted up as the Sun rotates — with its equator rotating faster than its poles.
- Solar storms typically begin when these twisted magnetic fields on the Sun get contorted and stretched so much that they snap and reconnect (in a process called magnetic reconnection), releasing large amounts of energy.

These powerful eruptions can generate any or all of the following:

- a bright flash of light called a **solar flare**.
- a **radiation storm**, or flurry of solar particles propelled into space at high speeds.
- an enormous cloud of solar material, called a **coronal mass ejection**, that billows away from the Sun.



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How Does a Solar Storm Affect?

- When directed toward Earth, a solar storm can create a **major disturbance in Earth's magnetic field**, called a **geomagnetic storm**, that can produce effects such as **radio blackouts, power outages**, and beautiful **auroras**.
- They do **not cause direct harm to anyone** on Earth, however, as our planet's magnetic field and atmosphere protect us from the worst of these storms.

What are Solar Flares?

- A solar flare is an **intense burst of radiation, or light, on the Sun**.
- These flashes **span the electromagnetic spectrum** — including X-rays, gamma rays, radio waves, and ultraviolet and visible light.
- Solar flares are the **most powerful explosions in the solar system** — the biggest ones can have as much energy as a billion hydrogen bombs.

What are Radiation Storms?

- **Solar eruptions can accelerate charged particles** — electrons and protons — **into space** at incredibly **high speeds**, initiating a **radiation storm**.

What are Coronal Mass Ejections (CMEs)?

- A CME is an **enormous cloud of electrically charged gas, called plasma**, that erupts from the Sun.
- A **single CME can blast billions of tons of material into the solar system** all at once.
- CMEs **occur in the outer atmosphere of the Sun**, called the **corona**, and often look like giant bubbles bursting from the Sun.

Key Facts about Aditya-L1:

- It is the **first space-based observatory-class Indian solar mission to study the Sun**.
 - It was by the Indian Space Research Organisation (ISRO).
 - The spacecraft is **placed in a halo orbit around the Lagrangian point 1 (L1)** of the Sun-Earth system.
 - A satellite placed in the halo orbit around the L1 point has the major **advantage of continuously viewing the Sun without any occultation/eclipse**.
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WHAT IS AVISPRAY-10C?



- It is a **compact spraying drone** smaller than the current generation.
- It was developed by the AvironiX Drones, a Chennai-based deep-tech drone company focused on precision farming and defence technologies.
- It is designed to significantly **reduce the cost, operational complexity**, and manpower requirements of **drone-based crop spraying in India**.
- Unlike many agricultural drones developed primarily under laboratory conditions, the AviSpray-10c has been **validated through extensive real-world deployment**.
- **Advantages:**
 - **Small-sized form factor for transport on scooters and bicycles**
 - No requirement for bulky transport vehicles
 - Elimination of permanent drone mounting boxes
 - **Single-operator deployment** with no assistant required
 - **Reduced battery count, lower upfront capital costs, and lower fuel consumption**
 - Higher improvement in spraying accuracy
 - **Terrain-following radar and collision-avoidance systems**
 - Multiple nozzle configurations
 - Swappable chemical tanks.

BLUE CORNER NOTICE



- The Blue Corner Notice is an **international alert** issued under **Interpol's colour-coded system**, which allows member countries to share information and requests for information across borders.



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- It is also known as an “enquiry notice” allows police forces in member states to share critical crime-related information such as **obtaining a person’s criminal record**, and location and, having his or her identity verified among others.
- Blue corner notices are issued **prior to the filing of criminal charges**.

Other types of notices of INTERPOL include:

- **Red Notice:** To **locate and arrest individuals** wanted for prosecution or to serve a sentence
- **Yellow Notice:** It is issued to **trace missing persons**—especially children—or identify individuals unable to confirm their identity.
- **Black Notice:** To gather information about **unidentified bodies**.
- **Green Notice:** Alerts member countries about someone with a **history of criminal behaviour who may pose a threat**.
- **Orange Notice:** Warns about a person, object, or event that **could pose an immediate risk** to public safety.
- **Purple Notice:** Shares details on **criminal methods**, tools, or concealment techniques.
- **Silver Notice (pilot):** Helps identify and **trace assets linked to criminal activities**.

What is INTERPOL?

- The **International Criminal Police Organization (INTERPOL)**, is commonly known as Interpol, is an international organization **facilitating international police cooperation** against cross-border terrorism, trafficking, and other crime
- **Members: 196 member** India joined Interpol in 1949.
- It has enjoyed a special role, that of **Permanent Observer at the United Nations** – since 1996.
- **Headquarter:** Lyon, France.



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ONE NATION, ONE LICENCE - INDIA'S PROPOSED FRAMEWORK TO BALANCE AI INNOVATION AND COPYRIGHT

- With the rapid rise of Artificial Intelligence (AI) and Large Language Models (LLMs) like ChatGPT, concerns have intensified over the use of **copyrighted content for AI training** without consent or remuneration.
- Globally, this has triggered litigation, policy debates, and regulatory uncertainty due to intersection of technology, IPR, innovation, and regulation; the role of the State in rate regulation and compulsory licensing.
- In this backdrop, a Department for Promotion of Industry and Internal Trade (DPIIT)-led committee has released a working paper proposing a **statutory licensing framework** to balance AI innovation with copyright protection in India.

Key Proposal - 'One Nation, One Licence, One Payment':

- **Mandatory blanket licence for AI training:**
 - All AI developers must pay royalties for using copyrighted works in AI training.
 - No opt-out mechanism for freely available online content.
 - Model inspired by compulsory licensing in radio broadcasting under Indian copyright law.
- **Rejection of voluntary licensing:**
 - The committee rejects bilateral licensing deals (e.g., OpenAI–Associated Press).
 - **Reasons** are high transaction costs, unequal bargaining power, and marginalisation of small creators and startups.
 - Voluntary licensing is seen as favouring big tech and big publishers only.

Institutional Mechanism - CRCAT:

- A new umbrella **non-profit body** (Copyright Royalties Collective for AI Training [CRCAT]) to be established under the **Copyright Act, 1957**.
- **Functions** of the body include collecting royalties from AI companies, distributing proceeds among copyright holders, etc.



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- **Membership:** Only organisations (not individuals), one member per class of work.
- Coverage can expand gradually to unorganised sectors.

Transparency and Burden of Proof:

- **Data disclosure by AI developers:**
 - Mandatory submission of a ‘Sufficiently Detailed Summary’ of datasets used.
 - Includes:
 - Type of data (text, image, music, audiovisual)
 - Source (social media, publications, libraries, public datasets, proprietary data)
 - Nature of data usage
- **Distribution of royalties:** CRCAT to distribute funds proportionally based on extent of usage, heavily used categories (news, music, audiovisual) receive higher shares.
- **Legal presumption:** In litigation, content owners claim it is presumed valid. Burden shifts to AI developers to disprove misuse or non-payment.

Challenges in the Proposed Framework and Way Forward:

- **Risk of over-regulation stifling AI innovation:** Ensure robust stakeholder consultation.
- **Administrative complexity in royalty distribution:** Fine-tune royalty rates to avoid discouraging AI startups.
- **Resistance:** From both AI firms (cost burden) and content creators (flat-rate concerns). Strong judicial oversight to prevent arbitrariness.
- **India becoming a global outlier in AI copyright regulation:** Harmonisation with global AI governance norms.

Conclusion:

- India’s proposed mandatory blanket licensing regime for AI training represents a **bold and interventionist approach** to reconciling innovation with copyright protection.
 - The success of this model will ultimately depend on rate rationality, transparency, and adaptive governance, making it a critical test case for AI regulation in the Global South.
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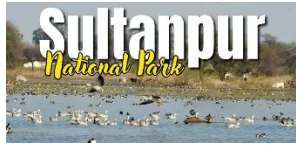
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SULTANPUR NATIONAL PARK



- Sultanpur National Park, formerly known as Sultanpur Bird Sanctuary, is located in Haryana.
- It consists primarily of **marshy lakes and floodplains**.
- It includes a **core area** has the main **Sultanpur Lake/Jheel**.
 - The Sultanpur Jheel is a **seasonal freshwater wetland** with fluctuating water levels throughout the year.
 - This shallow lake is mostly **fed by waters from River Yamuna's Gurgaon canal** and the overflowing waters of the neighboring agricultural lands.
 - It **gained national attention** in the late **1960s** due to the **conservation efforts of ornithologists Peter Michel Jackson and Dr. Salim Ali**, who frequently visited the site for birding.
- It was recognised as a **Ramsar site** in 2021.
- It has been identified as an **Important Bird Area** by **BirdLife International**.
- **Flora:** The vegetation of this park is **tropical and dry deciduous**, and the flora includes **grasses, dhok, khair, tendu**, ber, jamun, banyan tree, neem, berberis, Acacia nilotica, and Acacia tortilis.
- **Fauna:**
 - It forms a part of the '**Central Asian Migratory Flyway**' and thousands of **migratory birds** from the countries of **Russia, Turkey, Afghanistan**, and **Europe** visit the park during the winter months.
 - **Winter Migrants:** **Greater Flamingos, Northern Pintails, Eurasian Wigeons, Common Teals, and Bar-headed Geese.**
 - **Resident Birds:** **Indian Peafowl, Red-wattled Lapwings, Cattle Egrets, and White-throated Kingfishers.**



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- **Rare/Threatened Species:** Sarus Crane, Black-necked Stork, and Indian Courser have been recorded here.
 - Other faunal species, such as Nilgai, Sambar, Golden jackals, wild dog, striped hyenas, Indian porcupine, mongoose, etc., are also found here.
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BUXA TIGER RESERVE



- **Location:** It is located in West Bengal.
- Its northern boundary runs along the international border with Bhutan.
- The fragile “Terai Eco-System” constitutes a part of this reserve.
- It serves as an international corridor for elephant migration between India and Bhutan.
- The reserve has corridor connectivity across the border with the forests of Bhutan, Kochugaon forests, Manas Tiger Reserve and Jaldapara National Park.

Rivers: Two rivers, namely the River Raidak and the River Jayanti, flow through the forest of Buxa.

Vegetation: The forests of the reserve can be broadly classified as the ‘Moist Tropical Forest’.

Flora: Some of the important species are Sal, Champa, Gamar, Simul, and Chikrasi.

Fauna: The main species include the Tiger, elephant, leopard cat, gaur, wild boar, sambar, hog deer, Chinese pangolin, etc.
