



23 February, 2024

Gemma: Responsible AI

Context: Following the recent buzz surrounding OpenAI's text-to-video model Sora, Google has unveiled Gemma, its newest open artificial intelligence (AI) solution.

➤ Introduction to Gemma:

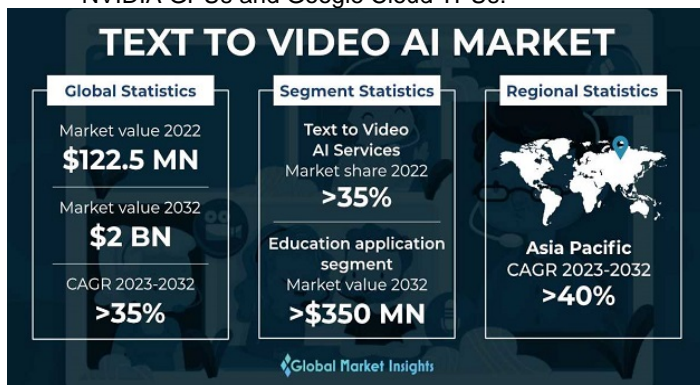
- Google recently introduced Gemma, its latest open artificial intelligence (AI) offering.
- Gemma is a family of lightweight state-of-the-art open models developed using the research and technology from Google DeepMind's Gemini models.
- Named after the Latin word 'gemma,' meaning precious stone.
- **Available in two model sizes:** Gemma 2B and Gemma 7B, with pre-trained and instruction-tuned variants.

➤ Features of Gemma:

- Offered with a new Responsible Generative AI toolkit for creating safer AI applications.
- Toolchains provided for inference and supervised fine-tuning (SFT) across major frameworks such as JAX, PyTorch, and TensorFlow through native Keras 3.0.
- Ready-to-use Colab and Kaggle notebooks, and integration with popular tools such as Hugging Face, NVIDIA, NeMo, MaxText, and TensorRT-LLM.

➤ What does it do?

- Google aims to democratize AI models with Gemma's accessibility.
- Models can run on laptops, workstations, or Google Cloud, with easy deployment on Vertex AI and Google Kubernetes Engine (GKE).
- Optimized for multiple AI hardware platforms, including NVIDIA GPUs and Google Cloud TPUs.



➤ Performance of Gemma:

- Shares key technical and infrastructure components with Gemini models, ensuring best-in-class performance.
- Outperforms significantly larger models on key benchmarks while maintaining safety and responsible outputs.
- Gemma 7B scores higher than Meta's Llama 2 7B in reasoning, maths, and code benchmarks.

➤ Responsible Design of Gemma:

- Designed in compliance with Google's AI principles, ensuring safety and reliability.
- Automated techniques used to filter sensitive data from training sets.
- Models fine-tuned with human feedback and subjected to thorough evaluations to minimize risk.

➤ Google's AI Principles:

- Google's AI principles prioritize socially beneficial applications, avoidance of unfair bias, safety, accountability, privacy, scientific excellence, and adherence to these principles.
- Lists areas where AI will not be designed or deployed, including technologies causing overall harm, weapons or tools primarily designed to harm individuals, surveillance technology breaching global norms, and AI conflicting with international law and human rights.

➤ Adaptability of Principles:

Google indicates that its AI principles will adapt as it gains more insights into AI applications.

No-confidence motion

Context: On February 22, the Haryana Assembly discussed a motion of no confidence against the BJP-JJP Government, brought by the Congress. Speaker Gian Chand Gupta allotted two hours for the discussion.

➤ Historical Background:

- The first Lok Sabha convened on April 17th, 1952, witnessing the inaugural "No Confidence Motion" against Prime Minister Jawaharlal Nehru's government in August 1963.
- Acharya JB Kripalani brought the motion in August 1963, but it only garnered 62 votes in favor while 347 were against it.

➤ Importance of "No Confidence Motion":

- It serves as a crucial mechanism to challenge the Council of Ministers (COM) in the Lok Sabha.
- If over 51% of the house members vote in favour, signifying a loss of majority for the government, it must resign.
- The motion compels the government to prove its majority or face resignation.

➤ Procedure to move a "No Confidence Motion":

- Rule 198 of the Lok Sabha outlines the procedure for introducing a "No Confidence Motion."
- It can only be initiated in the Lok Sabha by the opposition with the support of at least 50 members.
- The member proposing the motion must seek leave from the Speaker and provide a written notice by 10 AM on the day of the motion.
- If leave is granted, the motion is discussed within 10 days, with the Speaker allocating time for its debate and subsequent voting.
- The Speaker presides over the proceedings and decides the motion's fate based on the majority vote.

➤ Various Parliamentary Motions:

- **Adjournment Motion:**
 - Introduced under Rule 56 of the Lok Sabha to address urgent public matters.
 - Requires support from at least 50 members.
 - Discussion usually begins at 4 PM, criticizing government policies without destabilizing it.
- **Calling Attention Notice:**
 - Permitted in both Lok Sabha (Rule 197) and Rajya Sabha (Rule 180) to address urgent issues.
 - Notice must be given before 10 AM on the sitting day.
 - No discussion or voting occurs.

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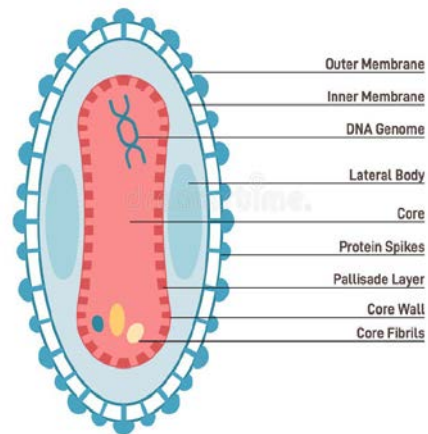
- **Short Duration Discussion:**
 - Under Rule 193 (Lok Sabha) and Rule 176 (Rajya Sabha), any MP can initiate a debate on pressing matters.
 - Notice with reasons and support signatures are required.
 - The minister-in-charge responds, but there's no voting.
 - **Questions of Privilege:**
 - Raised by MPs under Rule 222 (Lok Sabha) and Rule 187 (Rajya Sabha) for breaching privileges.
 - Requires Speaker's/Chairman's consent.
 - **Cut Motion:**
 - Used to reduce the amount of a ministry's demand during Grants discussion.
 - Admissibility is determined by the Lok Sabha Speaker.
 - **Censure Motion:** Criticizes or rejects a government policy.
 - **Motion of Thanks:** Allows discussion on the President's address after a general election.
- **Historical Note:**
- Originated in the UK, where the first No Confidence Motion was passed against Sir Robert Walpole's government in 1742.
 - The tradition evolved, allowing for the dissolution of Parliament if confidence isn't regained

Alaskapox

Context: The European Southern Observatory revealed the discovery of an incredibly bright quasar, the brightest and most luminous object ever observed in space.

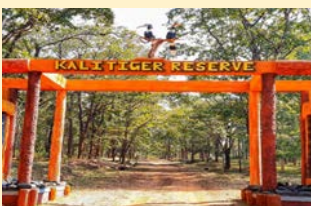
- **Origin of Alaskapox:**
- Alaskapox, an orthopox virus, was first identified in 2015 in the Fairbanks area of Alaska.
 - Prior to the recent fatality, only six cases of human infections had been recorded, all resulting in mild illnesses characterized by localized rash and swollen lymph nodes.
- **Emergence of Viruses like Alaskapox:**
- Over 10,000 virus species have been identified, with approximately 270 known to infect humans.
 - While some viruses, like smallpox, have been recognized for centuries, others, such as Alaskapox, have emerged more recently.
 - Most human pathogens originate from animals, with viruses from mammals, birds, and arthropods posing significant risks.
 - Alaskapox likely originates from small mammals like shrews and red-backed voles, highlighting the potential for zoonotic transmission.

- **Other Orthopoxviruses and Risks:**
- Alongside Alaskapox, viruses like Akhmeta virus and Abatino virus have been identified, indicating the presence of additional zoonotic orthopoxviruses.
 - Outbreaks of orthopoxviruses like mpox virus and cowpox virus have been reported, with vaccination discontinuation contributing to increased vulnerability.
 - Various orthopoxviruses infect mammals, birds, reptiles, and insects, emphasizing the importance of monitoring and preventive measures.
- **Orthopox Viruses**
- Orthopoxvirus, part of the Poxviridae family, includes 12 species affecting vertebrates like mammals and humans.
 - Diseases linked to Orthopoxvirus include smallpox, cowpox, and monkeypox.
 - Variola virus, responsible for smallpox, was eradicated globally in 1977 using Vaccinia virus as a vaccine.
 - Alaskapox virus, discovered in 2015, is the newest species.
 - Orthopoxviruses have brick-shaped structures, with genomes ranging from 170 to 250 kb.
 - Their replication cycle involves attachment to host cells, genomic replication, and assembly of new virions.
 - Transmission occurs via respiratory droplets, contact, and zoonosis.
 - Some orthopoxviruses have broad host ranges, while others are highly specific.
 - Vaccinia virus is widely used in vaccines and research.
 - Camelpox has become economically significant post the eradication of smallpox.



NEWS IN BETWEEN THE LINES

Kali Tiger Reserve



Recently, the Sri Chamarajendra Zoo of Mysuru has successfully translocated 40 spotted deer (*Axis axis*) from its facility in Kali Tiger Reserve in Karnataka.

About the Kali Tiger Reserve:

- Kali Tiger Reserve, formerly known as Dandeli-Anshi Tiger Reserve, is a protected area and tiger reserve located in the Uttara Kannada district of Karnataka.
- This region is part of the Western Ghats, a biologically diverse hotspot.
- The Tiger Reserve comprises two significant protected areas: Dandeli Wildlife Sanctuary and Anshi National Park.

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	<ul style="list-style-type: none"> ▪ The Kali River, a major water source for Uttara Kannada, flows through the tiger reserve, lending its name to the reserve. ▪ Flora: Flora in the reserve comprise bintangur, Calophyllum wightianum, Malabar tamarind, Garcinia morella, Knema attenuata, Hopea wightiana, Tetrameles nudiflora, etc. ▪ Fauna: The reserve boasts a diverse array of wildlife including tigers, black panthers, elephants, Indian bison, sloth bears, wild boars, macaques, langurs, slender lorises and various deer species.
<p>Sammakka-Sarakka Jatara Festival</p> 	<p><i>Recently, it has been seen that hundreds of thousands of Adivasis from across the country began thronging Medaram, Telangana's Mulugu district, for tribal fair "Sammakka Saralamma Jatara".</i></p> <p>About Samakka Saralamma Jatara Festival:</p> <ul style="list-style-type: none"> ▪ The Sammakka-Sarakka Jatara Festival, also known as Medaram Jatara, is a three days biennial tribal festival celebrated in Telangana. ▪ This festival is primarily celebrated by the Koya tribe, which is the second-largest tribal community in Telangana. ▪ It is recognized as the largest tribal fair in Asia and the second-largest fair in India, following the Kumbh Mela. ▪ The festival commemorates the legendary fight of the mother-daughter duo, Sammakka and Saralamma, against reigning rulers and an unjust law. ▪ Tribal participants take a holy dip in the red waters of Jampanna Vagu, a tributary to the Godavari river.
<p>Kiru Hydel Project</p> 	<p><i>Recently, the Central Bureau of Investigation (CBI) conducted raids in connection with alleged corruption in awarding contracts for the Kiru Hydel Project.</i></p> <p>About the Kiru Hydel Project:</p> <ul style="list-style-type: none"> ▪ The Kiru Hydel Project is located in Jammu and Kashmir's Kishtwar district. ▪ It is situated between the existing Kirthai II (upstre am) and Kwar (downstream) hydel power projects. ▪ The project aims to address energy demand across northern India and rural areas of Jammu and Kashmir. ▪ The project includes a 123-meter tall dam constructed from the Chenab River's bed level. ▪ The reservoir will have a storage capacity of 41.5 million m³ of water. ▪ It features a 700-meter long, horse-shoe-shaped diversion tunnel for excess water release. ▪ An underground powerhouse with four turbines, each with a capacity of 156 MW. ▪ This Project is being developed by the Chenab Valley Power Projects Private Limited (CVPPPL).
<p>Valinath Mahadev Temple</p> 	<p><i>Recently, the Prime Minister of India performed pooja and darshan at Valinath Mahadev Temple in Gujarat.</i></p> <p>About Valinath Mahadev Temple:</p> <ul style="list-style-type: none"> ▪ The temple has been constructed in the Mehsana district of North Gujarat. ▪ This temple is 900 years old and is the center of faith for many communities including the Rabari community. ▪ It is believed that Shivalinga was established in this temple by Lord Krishna. ▪ The temple has been constructed in ancient Nagar style. ▪ This temple is made of stones of Bansipaharpur and its height is about 101 feet, length is 265 feet, and width is 165 feet having 68 pillars in this temple. <p>Rabari Community:</p> <ul style="list-style-type: none"> ▪ The Rabari, also known as the Rewari are an indigenous tribal caste of nomadic cattle and camel herders and shepherds. ▪ They live in northwest India, mainly in the states of Gujarat, Punjab and Rajasthan. ▪ They speak "Bhopa", which is a mix of Gujarati, Kachchi, Marwari words, and Pharasi (Persian).
<p>Wildlife Protection Act 1972</p> 	<p><i>Recently, the Union Minister for Environment, Forest, and Climate Change said that there is no need for any amendment in the Wildlife Protection Act, 1972 to address human-wildlife conflict.</i></p> <p>About the Wildlife Protection Act 1972:</p> <ul style="list-style-type: none"> ▪ The Wildlife (Protection) Act, 1972, provides a legal framework for the protection of wild animals and plants, habitat management and control of trade in wildlife products. ▪ The Act facilitated India's entry into CITES, aiding international cooperation in protecting endangered species. ▪ The 42nd Amendment Act, 1976, transferred Forests and Protection of Wild Animals and Birds to the Concurrent List. ▪ Article 51 A (g) emphasizes citizens' duty to protect the environment, including wildlife.

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	<ul style="list-style-type: none"> ▪ Article 48 A in the Directive Principles of State Policy mandates state efforts to protect and improve the environment, forests, and wildlife. ▪ The Wildlife Act's schedules categorize species by conservation status and measures: Schedule I for endangered species, Schedule II for high protection, Schedules III & IV for non-endangered with varying protection, Schedule V for vermin allowing hunting and Schedule VI for regulated plant cultivation.
<p>Place in News</p> <p>Denmark</p>	<p><i>Recently, India and Denmark have agreed to work towards expanding their partnership into new areas, including defence, security and new technology.</i></p> <p>Denmark (Capital: Copenhagen)</p>  <p>Location: Denmark is a Nordic country in the south-central portion of Northern Europe.</p> <p>Boundaries: Denmark shares its land border with Germany (South) and maritime border with Sweden (Northwest) and Norway (North).</p> <p>Physical Features:</p> <ul style="list-style-type: none"> ▪ Møllehøj is the highest natural point in Denmark. ▪ Gudena is the longest river in Denmark. ▪ Denmark's mineral resources primarily consist of chalk, limestone, clay, sand, gravel, and small reserves of oil and natural gas in the North Sea

POINTS TO PONDER

- Who has been recently confirmed as the new BBC chairman, marking the first time an India-born individual has been appointed to this position? - **Dr Samir Shah**
- Which two new Pressurised Heavy Water Reactors have been recently dedicated to the nation by Prime Minister Narendra Modi? - **KAPS-3 and KAPS-4**
- What is the name of the longest transportation tunnel in India recently opened on the Udhampur-Srinagar-Baramulla Rail Link (USBRL)? - **T-50**
- Where is the festival known as the 'mock hunting festival' celebrated recently? - **Sri Narasimha Swamy temple in Ahobilam, Andhra Pradesh**
- Who has recently introduced the 5-year multiple-entry visa for Indian tourists? - **Dubai**

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