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GPT-4

AI powerhouse OpenAI has announced GPT-4 that powers ChatGPT and Microsoft Bing.

- GPT-4 is a large multimodal model created by OpenAI.
- GPT-4 succeeds the technology behind ChatGPT.
- GPT-4 powers Microsoft's Bing AI chatbot.
- GPT-4 is supposedly bigger, faster, and more accurate than ChatGPT in many areas.

GPT-4	Chat GPT
Multimodal	Single modal
Generate content from both image and text prompts	Only text prompts
GPT-4 can generate responses of more than 25,000 words.	GPT-3.5 is limited to about 3,000-word responses.
GPT-4 is more multilingual.	GPT-3.5 and other LLMs handle English as machine learning data is mostly in English.
GPT-4 could handle up to 32,768 tokens or around 64,000 words.	GPT-3.5 model could handle 4,096 tokens or around 8,000 words.

- **Limitations** - GPT-4 has similar limitations as its prior versions.
- It is less capable than humans in many real-world scenarios.
- It's still not fully reliable and makes reasoning errors.
- But it will be a lot harder to trick GPT-4 into producing undesirable outputs

References

1. IE - What is GPT-4 and how is it different from ChatGPT?
2. OpenAI - GPT-4

AUKUS Deal

AUKUS unveiled plans to provide Australia with nuclear-powered attack submarines in the early 2030s.

- AUKUS is a 2021 ***defence deal*** between Australia, the UK and the US.
- It was struck to help Australia deploy nuclear-powered submarines in the Pacific region.
- It bolsters Australia's naval heft and to counter China's ambitions in the Indo-Pacific region.

- **Deal** - The United States intends to sell Australia 3 US Virginia class nuclear-powered submarines in the early 2030s.
- Australia has an option to buy 2 more, if needed.
- The submarines are conventionally armed and nuclear powered.
- The multi-stage project will culminate with British and Australian production and operation of a *new* submarine class - SSN-AUKUS.
- **SSN-AUKUS** - It is a trilaterally developed vessel with the best technologies and capabilities of all 3 countries.
- SSN-AUKUS is a combination of the UK's submarine design and advanced United States technology.
- **Implications** - Both Virginia class submarines and SSN-AUKUS will give the Royal Australian Navy the capability to go into the South China Sea to protect its assets and conduct patrols.
- Australia becomes the second nation after U.K. that the U.S. has ever shared its nuclear submarine technology with.

References

1. IE - Australia to get nuclear-powered submarines under AUKUS
2. The Hindu - Implications of the AUKUS trilateral defence pact

Smart Cities Mission

Smart Cities Mission approaches the deadline for completing the mission June 2023.

- The Smart Cities Mission was launched by the Prime Minister on June 25, 2015.
- **Ministry** - The mission is an initiative of the Union Housing and Urban Affairs Ministry
- **Objective** - Promote cities that provide core infrastructure, clean and sustainable environment.
- Give a decent quality of life to their citizens through the application of 'smart solutions'.
- **Fund** - The Mission is operated as a Centrally Sponsored Scheme.
- **Cities Chosen** - Cities across the country were asked to submit proposals for projects.
- The Ministry selected 100 cities for the Mission over 5 rounds till 2018.
- **Deadline** - The projects were supposed to be completed within 5 years of the selection of the city.
- Shillong was the last city to be chosen and its deadline was June 2023.
- But in 2021 the Ministry changed the deadline for all cities to June 2023 which was earlier the deadline for Shillong alone.
- **Present Status** - Only around 20 cities are likely to meet the June deadline; the rest will need more time.
- Shillong has completed just one of its 18 proposed projects.
- All 100 cities have also constructed Integrated Command and Control Centres to monitor all security, emergency and civic services.

References

1. IE - The Smart Cities Mission: With deadline looming, a status check

2. Smart Cities Mission
3. Vikaspedia - Smart Cities Mission

Possession of Arms in India

Punjab government has cancelled 813 gun licenses in state to clamp down on the "gun culture".

- In 2022, the Punjab government ordered a complete ban on the public display of weapons and songs glorifying violence.
- The order also called for a review of all licenses issued within 3 months and barred the issuance of new licenses for the next 3 months, except extraordinary circumstances.
- **Act** - The ***Indian Arms Act of 1959*** was passed after India attained independence.
- It scrapped the erstwhile Act of 1878, passed by the British that restricted Indians from possessing firearms.
- The act was ***amended in 2019*** decreasing the number of licensed firearms allowed per person.
- **Conditions** - No one can acquire, possess or carry any firearms in India without a license.
- The Act bars one person from carrying more than one firearm.
- It prevents persons of unsound mind or those out on bond from getting such a license.
- **Validity** - The validity of a firearm license was increased from 3 years to 5 years (2019 amendment).
- **Types of License**
    1. Non- prohibited bore (NPB)
    2. Prohibited bore (PB)
- **Eligibility** - Indian citizens aged 21 years and above can get Non-Prohibited Bore (NPB) guns.
- Prohibited Bore guns can only be issued to defence personnel or persons facing imminent threats to life.
- **License Purpose** - Self-defence, crop protection, or sports.
- **Issuing Authority**
    1. Non-Prohibited Bore (NPB) guns - State Government.
    2. Prohibited Bore guns - Central Government or Ministry of Home Affairs.
- The Centre issued new ***Arms Rules in 2016*** one required to complete a safety training course for applying for an arms license, rifle club, association, or firing range.

References

1. IE - Who can possess firearms under the Indian Arms Act?
2. The Hindu - Punjab govt. cancels 813 gun licenses

Desalination Plant in Lakshadweep

National Institute of Ocean Technology to set up green, self-powered desalination plant in Lakshadweep.

- Currently the National Institute of Ocean Technology (NIOT) is providing potable

water in 6 islands of Lakshadweep.
- It uses Low Temperature Thermal Desalination (LTTD) technology powered by diesel generator sets.
- Each plant provides at least 100,000 litres of potable water every day.
- The plants are funded by the Lakshadweep administration.
- The Ministry of Earth Sciences (MoES) provides technical assistance.
- The proposed self-sustaining plant is the 10th plant in Lakshadweep and is expected to be ready later this year.
- The desalination plant will also supply power to the plant, thus fossil-fuel free and self-powered.

The NIOT is an institute under the aegis of the Ministry of Earth Sciences (MoES), which works on harnessing energy from the ocean including ocean thermal technology.

Low Temperature Thermal Desalination (LTTD)

- LTTD exploits the difference in temperature (nearly 15°C) in ocean water at the surface and at depths of about 600 feet.
- The warmer water's (at the surface) pressure has been lowered using vacuum pumps.
- The cold water at the depth condenses the warmer water at the surface.
- Such de-pressurised water can evaporate even at ambient temperatures.
- This resulting vapour when condensed is free of salts and contaminants and fit to consume.
- **Advantage** - This technology does not require any chemical pre and post-treatment of seawater.
- It does not require effluent treatment.
- It gives less operational maintenance problems compared to other desalination processes.

The Reverse Osmosis, a globally accepted technology suitable for desalination of saline water, is a membrane process which is quite different from LTTD technology.

References

1. The Hindu - NIOT to set up green, self-powered desalination plant
2. PIB - Low Temperature Thermal Desalination Technology

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