



Supreme Court Verdict on ECI Appointments

For Prelims: Election Commission of India, Supreme Court

For Mains: Election Commission of India and its functions, Independence, appointment procedure

Why in News?

A five-judge bench of the [Supreme Court \(SC\)](#) unanimously ruled that **the appointment of the [Chief Election Commissioner](#) and the [Election Commissioners](#) shall be made by the President on the advice of a Committee consisting of the Prime Minister, the [Leader of the Opposition](#) of the Lok Sabha and [Chief Justice of India \(CJI\)](#).**

- In case no leader of Opposition is available, **the leader of the largest opposition Party in the Lok Sabha** in terms of numerical strength will be a part of such committee.

What are the Other Important Points of the Verdict?

▪ SC Verdict:

- SC stated that a reading of the **debates of the Constituent Assembly (CA)** on the appointment of ECI makes clear that all the **members were of the clear view that elections must be conducted by an independent Commission.**
- The deliberate addition of the words “subject to the provisions of any law made in that behalf by Parliament” further indicates that **CA envisaged parliament making norms to govern appointment to ECI.**
- While ordinarily, the **court cannot encroach on a purely legislative power**, but in the context of the Constitution and **inertia of the Legislature** and the vacuum created by it **make it necessary for the court to intervene.**
- On the question whether **process of removal** should be same **for CEC and the ECs**, SC stated that it **cannot be same** as CEC has special position and **article 324 becomes inoperable without CEC.**
- SC left the question of **funding the EC, Permanent secretariat and need for expenditure to be charged on Consolidated Fund of India for the government to decide.**

▪ Government Argument:

- The government had argued that **in the absence of such a law by parliament, the President has the constitutional power** and asked the SC to exhibit judicial restraint.

What is the Challenge?

- As the constitution places the power to make any law on appointment of ECI in the hands of Parliament, SC ruling on this issue poses a **question of [Separation of Power](#).**
 - However, SC has stated that this ruling will be **subject to any law made by parliament**, which means parliament can bring a law to undo it.
- Another view is that since there is no law made by parliament on this issue, **the Court must step in to fill the “constitutional vacuum.”**

What are the Existing Provisions for Appointment to ECI?

- **Constitutional Provisions:**
 - **Part XV (Article 324-329)** of the Indian Constitution: It deals with elections and establishes a commission for these matters.
- **Structure of ECI:**
 - Originally the **commission had only one EC** but after the Election Commission Amendment Act 1989, it was made a **multi-member body (1 CEC & 2 other ECs.)**.
 - According to Article 324, the **Election Commission shall consist of the CEC** and such number of other election commissioners, if any, as the President may from time-to-time fix.
- **Appointment Procedure:**
 - **Article 324(2): The appointment** of the CEC and other Election Commissioners shall be **made by the President, subject to the provisions of any law made in that behalf by Parliament.**
 - The Law Minister suggests a pool of suitable candidates to the Prime Minister for consideration. The President makes the **appointment on the advice of the PM.**
 - The President determines the conditions of service and tenure of office of the Election.
 - They have a **tenure of six years, or up to the age of 65 years**, whichever is earlier.
- **Removal:**
 - They can **resign anytime or can also be removed** before the expiry of their term.
 - The CEC can be removed from office only through a **process of removal similar to that of a SC judge** by Parliament.
 - Any other EC cannot be removed except on the recommendation of CEC.

UPSC Civil Services Examination Previous Year Questions (PYQ)

Prelims

Q.1 Consider the following statements: (2017)

1. The Election Commission of India is a five-member body.
2. Union Ministry of Home Affairs decides the election schedule for the conduct of both general elections and bye-elections.
3. Election Commission resolves the disputes relating to splits/mergers of recognised political parties.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 3 only

Ans: (d)

- According to the Article 324 of the Indian Constitution, the Election Commission of India is an autonomous constitutional authority responsible for administering Union and State election processes in India.
- The body administers elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies in India, and the offices of the President and Vice President in the country.
- Originally the Commission had only one Chief Election Commissioner. It currently consists of a Chief Election Commissioner and two Election Commissioners. **Hence, statement 1 is not correct.**
- The Commission is vested with quasi-judicial power to settle disputes relating to splits/ mergers of recognised political parties. **Hence, statement 3 is correct.**
- It decides the election schedules for the conduct of elections, whether general elections or bye-elections. **Hence, statement 2 is not correct. Therefore, option (d) is the correct answer.**

Mains

Q.1 In the light of recent controversy regarding the use of Electronic Voting Machines(EVM), what are the challenges before the Election Commission of India to ensure the trustworthiness of elections in India? **(2018)**

Q.2 To enhance the quality of democracy in India the Election Commission of India has proposed electoral reforms in 2016. What are the suggested reforms and how far are they significant to make democracy successful? **(2017)**

[Source:IE](#)

Foreign Contribution Regulation Act

For Prelims: Centre for Policy Research (CPR), Indian Council for Social Science Research, Emergency in 1976, Sedition.

For Mains: Provisions of Foreign Contribution Regulation Act (FCRA).

Why in News?

Recently, the **Ministry of Home Affairs** suspended the [Foreign Contribution Regulation Act \(FCRA\)](#) licence of the **Centre for Policy Research (CPR)**.

- **CPR (not-for-profit society), along with Oxfam India and the Independent and Public-Spirited Media Foundation (IPSMF)**, was surveyed by the Income Tax department earlier.

What is the Foreign Contribution Regulation Act?

- **About:**
 - **FCRA was enacted during the [Emergency in 1976](#)** amid apprehensions that foreign powers were **interfering in India's affairs** by pumping money into the country through independent organisations.
 - The law sought to regulate foreign donations to individuals and associations so that they functioned in a manner consistent with the values of a **[sovereign democratic republic](#)**.
- **Amendments:**
 - An amended FCRA was enacted in 2010 to **“consolidate the law” on utilisation of foreign funds**, and “to prohibit” their use for “any activities detrimental to national interest”.
 - The law was amended again in **2020**, giving the government tighter control and scrutiny over the receipt and **utilisation of foreign funds by NGOs**.
- **Criteria:**
 - The FCRA requires every person or NGO seeking to receive foreign donations to be:
 - **registered under the Act**
 - to open a bank account for the receipt of the foreign funds in **State Bank of India, Delhi**
 - to utilize those funds only for the purpose for which they have been received and as

stipulated in the Act.

- FCRA registrations are granted to individuals or associations that **have definite cultural, economic, educational, religious, and social programmes.**

▪ **Exceptions:**

- Under the FCRA, the **applicant should not be fictitious and should not have been prosecuted or convicted for indulging in activities** aimed at conversion through **inducement or force**, either directly or indirectly, from one religious faith to another.
- The applicant should also not have been prosecuted for or convicted of creating communal tension or disharmony.
 - Also, should not be engaged or likely to be engaged in the propagation of **sedition.**
- The Act prohibits the **receipt of foreign funds by candidates for elections, journalists or newspaper and media broadcast companies, judges** and government servants, members of legislature and political parties or their office-bearers, and organisations of a political nature.

▪ **Validity:**

- FCRA registration is valid for **5 years**, and **NGOs are expected to apply for renewal within six months** of the date of expiry of registration.
- The government can also **cancel the FCRA registration of any NGO if it finds that the NGO is in violation of the Act**, if it has not been engaged in any reasonable activity in its chosen field for the benefit of society for **two consecutive years, or if it has become defunct.**
- Once the registration of an NGO is cancelled, it is **not eligible for re-registration for three years.**

▪ **FCRA 2022 Rules:**

- In July 2022, the **MHA effected changes to FCRA rules** which increased the number of **compoundable offences** under the Act from 7 to 12.
- The other key changes were exemption from intimation to the government for contributions less than **Rs 10 lakh - the earlier limit was Rs 1 lakh** — received from relatives abroad, and **increase in time limit for intimation of opening of bank accounts.**

[Source: IE](#)

Tapping into Helium Reserves

For Prelims: Helium, Carbon footprint, Radioactive elements, Nuclear magnetic resonance (NMR)

For Mains: Significance of Helium Gas, Uses of Helium, Shortage of Helium.

Why in News?

Researchers propose a **new model to tap into helium reserves to address shortage issues** and a recent new study suggests that reservoirs of this gas, with **no carbon footprint**, likely exist in geological formations beneath the Earth.

- The helium production process comes with a high carbon footprint as **its production is related to drilled natural gas or oil.**

What is the Proposed Model to Tap Helium Reserve?

- The **gas can be produced and stored in crystalline basement rocks**, dense rocks that extend from the mantle to the near-surface or surface.
 - These rocks naturally contain **uranium and thorium**, both of which decay to form helium naturally.
- These rocks are **30-40 kilometre thick**. They have also existed for millions or billions of years, allowing large amounts of helium to be produced and stored.
- Also, these rocks could also be a source of hydrogen. The model showed that **energy generated from the radioactive decay of uranium and thorium** could split water to form hydrogen.

What is the Significance of Helium Gas?

- **About:**
 - Helium is a **noble gas and has a closed-shell electronic configuration**, making it stable and unreactive.
 - It has the **lowest boiling and melting points of any element** and exists only as a gas, except under extreme conditions.
- **Discovery of Helium:**
 - Helium was **first discovered in 1868 by French astronomer Jules Janssen and English astronomer Joseph Norman Lockyer**, who observed a yellow spectral line in the light emitted by the sun during a solar eclipse.
 - Helium gets its name from the **Greek word "helios," which means [sun](#)**.
- **Sources and Extraction of Helium:**
 - Helium is the **second most abundant element in the universe**, after hydrogen. However, **it is relatively rare on Earth, with most of it being produced by the decay of [radioactive elements](#)** in the Earth's crust.
 - Natural gas is the primary source of helium on Earth.
 - Helium is extracted from natural gas using a process called **[cryogenic distillation](#)**.
- **Reserves and Production:**
 - As of 2022, the reserves of helium in the **United States has the largest reserves of helium** globally followed by Algeria and Russia.
 - **India's Rajmahal volcanic basin in Jharkhand** is the **storehouse of helium** trapped for billions of years.
- **Uses of Helium:**
 - **Balloons and airships** (because it is lighter than air and does not react chemically with other elements).
 - **Industrial applications**, including **welding, cooling, and as a protective gas** in the production of semiconductors and fiber optic cables.
 - In **medical applications**, such as **magnetic resonance imaging (MRI)**, as a cooling agent for superconducting magnets.
 - It is also used in **[nuclear magnetic resonance \(NMR\)](#) spectroscopy** and as a carrier gas in gas chromatography.
- **Shortage of Helium:**
 - There is currently a shortage of helium in the world, with **demand outstripping supply**.
 - The shortage is due to a variety of factors, including the **shutdown of some helium plants, the increasing demand for helium in emerging economies**, and the lack of new helium sources.
 - The shortage of helium has led to concerns about its use in balloons and airships, as well as its use in medical and industrial applications.

Conclusion

The proposed model for tapping into **carbon-free helium reserves** could provide a **sustainable and cost-effective solution** to the current helium shortage, with the added benefit of hydrogen production.

[Source: DTE](#)

India's First DNA Vaccine for Dengue

Why in News?

Researchers at [India's National Centre for Biological Sciences](#), in collaboration with nine other institutions in India, Africa, and the US, have developed **India's first and only DNA vaccine candidate for dengue fever.**

- In preliminary trials on mice, the **candidate generated a robust immune response** and improved survival rates after exposure to the disease.

What is DNA Vaccine?

- A **DNA vaccine is a type of vaccine that uses a small piece of DNA** that codes for a specific antigen (**a molecule that triggers an immune response**) from a pathogen, such as a virus or bacterium, to stimulate an immune response.
- The **DNA is injected directly into the body's cells**, where it instructs the cells to produce the antigen.
 - The **immune system then recognizes the antigen as foreign** and **mounts an immune response against it**, which helps to develop immunity to the pathogen.
- DNA vaccines are **third-generation vaccines.**
- The **ZyCoV-D** is the **world's first and India's indigenously developed DNA based vaccine for COVID-19.**

What is Dengue?

- **About:**
 - Dengue is a **mosquito-borne tropical disease** caused by the dengue virus (**Genus Flavivirus**), transmitted by several species of mosquito within the genus **Aedes**, **principally Aedes aegypti.**
 - This mosquito also transmits [chikungunya](#) and [Zika infection.](#)
- **Serotypes of Dengue:**
 - There are 4 distinct, but closely related, serotypes (separate groups within a species of microorganisms that all share a similar characteristic) of the virus that cause dengue (**DEN-1, DEN-2, DEN-3 and DEN-4**).
- **Symptoms:**
 - Sudden high fever, severe headaches, pain behind the eyes, severe bone, joint, and muscle pain, etc.
- **Dengue Vaccine:**
 - The **dengue vaccine CYD-TDV or Dengvaxia** was approved by the US Food & Drug Administration in 2019, the **first dengue vaccine to get the regulatory nod in the US.**
 - **Dengvaxia** is basically **a live, attenuated dengue virus** which has to be administered in people of ages **9 to 16** who have laboratory-confirmed previous dengue infection and who live in endemic areas.
- **Challenges in Vaccine Development:**
 - Developing an **effective vaccine against dengue is tricky** because it is caused by four closely related virus serotypes.
 - **Each one interacts differently with antibodies in human blood.** A person infected with DEN-1 is then protected against it for life, but not against the other three serotypes.
 - **An ideal vaccine must target all serotypes.**
 - Also, vaccines trigger **production of antibodies** that prevent the virus from binding to cells at later exposure. But with dengue, **antibodies help the virus replicate** and cause

severe disease.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. In the context of vaccines manufactured to prevent COVID-19 pandemic, consider the following statements: (2022)

1. The Serum Institute of India produced COVID-19 vaccine named Covishield using mRNA platform.
2. Sputnik V vaccine is manufactured using vector-based platform.
3. COVAXIN is an inactivated pathogen-based vaccine.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (b)

Mains

Q. What is the basic principle behind vaccine development? How do vaccines work? What approaches were adopted by the Indian vaccine manufacturers to produce COVID-19 vaccines? (2022)

[Source: DTE](#)

NASA's Imaging X-ray Polarimetry Explorer

Why in News?

Recently, researchers studied a [supernova explosion](#) that occurred over **450 years ago** using [NASA's Imaging X-ray Polarimetry Explorer \(IXPE\)](#).

- **The explosion, called Tycho**, was visible to people on **Earth in 1572**, and the shock wave from the blast is still propagating through the cosmos.

What is Tycho?

- Tycho is classified as a **Type Ia supernova**, which occurs **when a [white dwarf star](#) shreds its companion star**, triggering a violent explosion and sending debris hurtling into space at tremendous speeds.
 - **Tycho released as much energy as the Sun** would emit over **ten billion years** and blasted particles out into space near the speed of light.
- Researchers used IXPE to **reveal the [magnetic field geometry](#) close to Tycho's** shock wave to investigate further how particles are accelerated there and **to study polarised X-rays from the supernova remnant**.

What is Imaging X-ray Polarimetry Explorer?

▪ About:

- **IXPE Space Observatory is a joint effort of NASA and the Italian Space Agency.**
- It studies “the **most extreme and mysterious objects in the universe - supernova remnants, supermassive [black holes](#), and dozens of other high-energy objects.**”

▪ Significance:

- It will help **observe polarised X-rays from neutron stars and supermassive black holes.**
 - Measuring the polarization of X-rays traces the story of where the light came from, including the **geometry and inner workings of its source.**
- It will help scientists understand how black holes spin and their location in the past and also **unravel how pulsars shine so brightly in [X-rays](#).**

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. Which of the following pairs is/are correctly matched? (2014)

	Spacecraft	Purpose
1.	Cassini-Huygens	Orbiting the Venus and transmitting data to the Earth
2.	Messenger	Mapping and investigating the Mercury
3.	Voyager 1 and 2	Exploring the outer solar system

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (b)

[Source:DTE](#)

India's Third Moon Mission

Why in News?

Recently, the [Indian Space Research Organisation \(ISRO\)](#) has successfully conducted the flight acceptance hot test of the **CE-20 cryogenic engine** that will power the [cryogenic](#) upper stage of the launch vehicle for the [Chandrayaan-3 mission](#).

- The test was **successfully conducted at the ISRO Propulsion Complex, Mahendragiri in Tamil Nadu.**

What are the Highlights of the Test?

- The hot test was carried out **for a planned duration at the High Altitude Test Facility.**
- All the propulsion parameters during the test **were found satisfactory and closely matched**

with predictions.

- The cryogenic engine will be further integrated with the propellant tanks, stage structures and associated fluid lines **to realise the fully integrated flight cryogenic stage.**

What is the Chandrayaan-3 Mission?

- Chandrayaan-3 is **India's third moon mission and is a follow-up of [Chandrayaan-2](#)** of July 2019, which aimed to land a rover on the lunar South Pole.
 - The mission is **scheduled to be launched later in 2023 by Launch Vehicle Mark 3 (LVM3)** from the Satish Dhawan Space Centre at Sriharikota.
- The **subsequent failure of the Vikram lander led to the pursuit of another mission to demonstrate the landing capabilities needed for the [Lunar Polar Exploration Mission](#)** proposed in partnership with Japan for 2024.
- **The Mission will have three major modules-** the Propulsion module, Lander module and Rover.
 - The propulsion module **will carry the lander and rover configuration till 100 km lunar orbit.**
 - The Lander **will have the capability to soft land at a specified lunar site and deploy the Rover which will carry out in-situ chemical analysis** of the lunar surface during the course of its mobility.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q.1 Consider the following statements: (2016)

The Mangalyaan launched by ISRO

1. is also called the Mars Orbiter Mission
2. made India the second country to have a spacecraft orbit the Mars after USA
3. made India the only country to be successful in making its spacecraft orbit the Mars in its very first attempt

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (c)

Mains

Q.1 What is India's plan to have its own space station and how will it benefit our space programme? **(2019)**

Q.2 Discuss India's achievements in the field of Space Science and Technology. How the application of this technology has helped India in its socio-economic development? **(2016)**

[Source: TH](#)

Ornamental Fish Aquaculture

Why in News?

National Bureau of Fish Genetic Resources (NBFGR) under [Indian Council of Agricultural Research \(ICAR\)](#) is providing technical support to provide intensive training **to islanders of Lakshadweep for Ornamental Fish Aquaculture.**

What is Ornamental Fish Aquaculture?

- Ornamental fish culture is the **culture of attractive, colourful fishes** of various characteristics, which are **reared in a confined aquatic system.**
- Farmers and hobbyists mainly grow it and these fish are also known as **living jewels.**

What is this Initiative about?

- **About:**
 - A total of 82 islanders, including 77 women, underwent training for an **experimental initiative aimed at promoting self-reliance** through community aquaculture.
 - The NBFGR provided support and supplies for capacity building, including **culture devices** and **shrimp/clownfish seeds.**
 - **Four community aquaculture units** involving 46 women were created and have successfully **raised ornamental shrimps to marketable size.**
 - NBFGR also **maintains a germplasm resource center** on Agatti Island for marine ornamental organism conservation and as a livelihood source for islanders.
- **Significance:**
 - **Limited resources** on the island, mostly in the form of **coconut and tuna fish** make it important.
 - **During the monsoon season, fishing virtually comes to a halt,** shutting out a key economic activity.
 - However, ornamental fish aquaculture is expected to sustain the rhythm of economic life in the islands.

What is ICAR-NBFGR?

- ICAR-National Bureau of Fish Genetic Resources (ICAR-NBFGR) was established in December 1983 at Allahabad.
- It was established **under the aegis of Indian Council of Agricultural Research (ICAR).**
- It aims to **undertake research related to the conservation of fish germplasm resources** of the country.

[Source:TH](#)

Rapid Fire Current Affairs

MoMo Pregnancy: A Rare Occurrence

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IDENTICAL VS FRATERNAL TWINS

DI/DI TWINS

Two Sacs
Two Placentas

Could be Fraternal or
Identical



MO/DI TWINS

Two Sacs
One Placenta

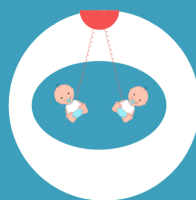
Only Identical Twins



MO/MO TWINS

One Sac
One Placenta

Only Identical Twins



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In what has been termed a rare occurrence, a **US woman gave birth to two pairs of identical twins within six months of each other.** Such twins, **known scientifically as 'MoMo', an abbreviation for monoamniotic-monochorionic,** are some of the rarest types of twins, **making up less than 1% of all births in the United States.**

In a MoMo pregnancy, **the twins are known to share the same placenta, amniotic sac and fluid.** But they have different umbilical cords. They share everything except umbilical cords, which can easily become entangled in a single sac. **Unfortunately, there is a high rate of stillbirths associated with MoMo twins.**

Fraternal twins **are the result of two eggs being fertilized, while identical twins are the result of one egg being fertilized and split.** This means identical twins must be the same gender due to them having the same DNA.

World Wildlife Day



World Wildlife Day has **been celebrated every year on the 3rd of March since 2013.**

The **theme of this year is 'Partnerships for Wildlife Conservation'** which expanded into the conservation of marine life and oceans, and on collaborating with businesses and funding conservation activities.

The **date chosen coincides with the day of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed in 1973.**

This day also **marks the 50th anniversary of CITES' establishment.** CITES is an **international agreement between governments.** Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. Currently, **there are 184 parties to the convention, including India.** The CITES Secretariat is administered by [UNEP \(The United Nations Environment Programme\)](#) and is located in Geneva, Switzerland. The Conference of the Parties to CITES is the **supreme consensus-based decision-making body of the Convention and comprises all its parties.**

In India, **apart from the Union Ministry of Environment, Forests and Climate Change, the Wildlife Crime Control Bureau is a statutory body** under the Ministry that is especially meant to combat organised wildlife crime in the country.

Read More: [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\), World Wildlife Day](#)

SMART-PDS

As per the Union Minister of Consumer Affairs, Food and Public Distribution, SMART-PDS is an **important technologically driven initiative**, therefore, all states and union territories should make earnest efforts to implement it at the earliest.

SMART-PDS **is a system where smart ration cards are issued to beneficiaries of the public distribution system, and ration is given through fair price shops** on the production of the smart ration card by any member of the beneficiary family.

Major initiatives **are undertaken by the Government of India to strengthen the Public Distribution System (PDS) in India which includes the [Pradhan Mantri Garib Kalyan Anna Yojana \(PMGKAY\)](#)** implemented from April 2020 to December 2022 during the COVID-19 pandemic in coordination with States & UTs and **[One Nation One Ration Card](#) plan implemented to support migrant population, promoting millets in the PDS is important for strengthening nutrition security in the country.**

Read More: [Public Distribution System \(PDS\) in India](#)

Porter Prize 2023

Union Health and Family Welfare Ministry **has received the Porter Prize 2023**. It recognized the **government's strategy in managing COVID-19**, also the approach, and involvement of various stakeholders **especially the involvement of [Accredited Social Health Activists \(ASHA\) workers](#)**. The country's contribution to developing and manufacturing vaccines was also lauded. **India delivered more than 2.5 billion doses**.

Porter Prize is **named after award-winning economist Michael E. Porter**. He has brought economic **theory and strategy concepts to bear on many of the most challenging problems faced by corporations, economies and societies**.

India launched the ASHA programme in 2005-06 as part of the [National Rural Health Mission](#). With the launch of the National Urban Health Mission in 2013, **the programme was extended to urban settings as well**. The core of the **ASHA programme has been an intention to build the capacity of community members in taking care of their own health and being partners in health services**.

Read More: [India's Covid Pandemic Management](#)

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