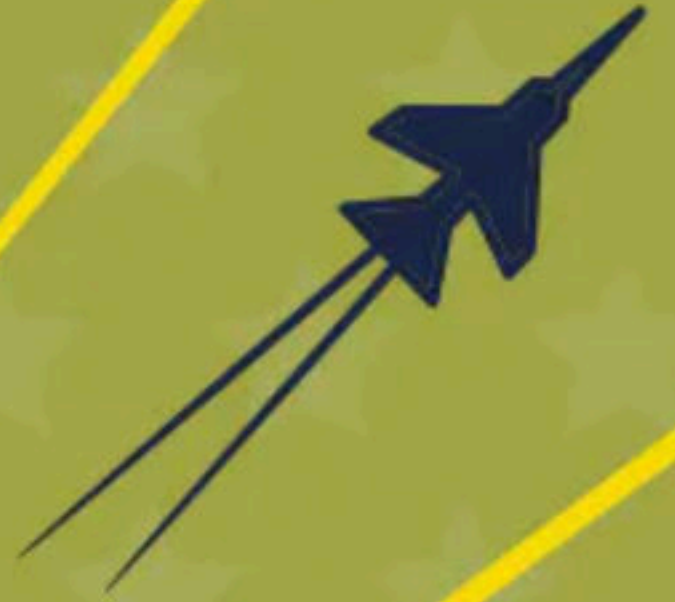
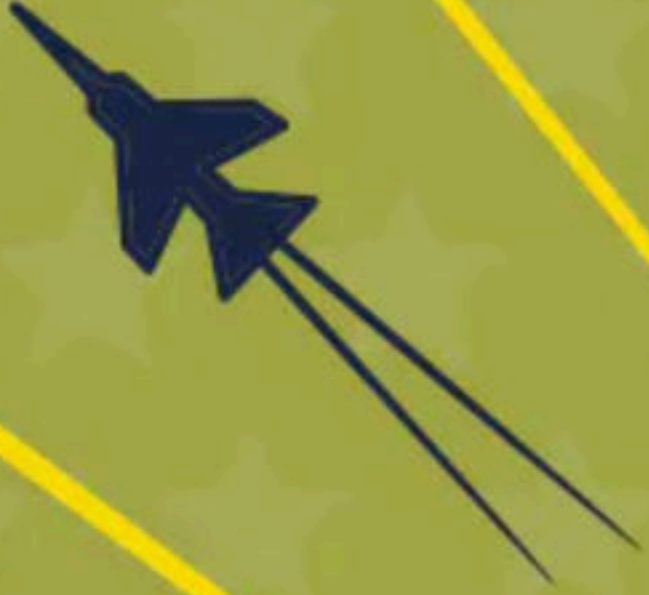


# Surface Fleets and Recent Defence Developments Part II

Special class



# Defense Technology



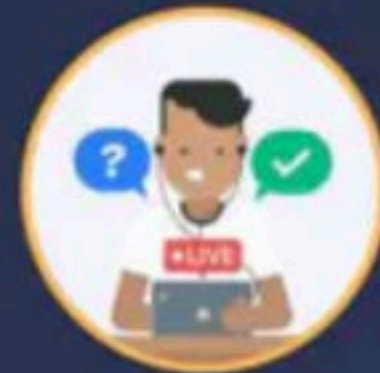
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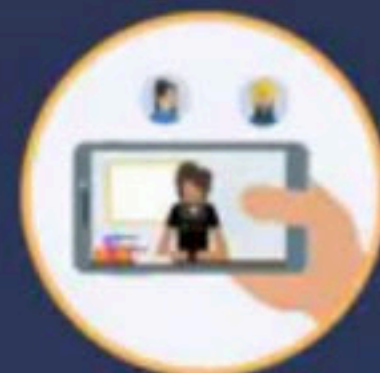
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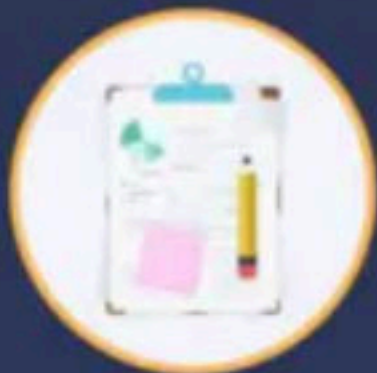
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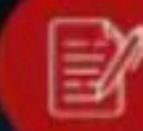
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# Indian Navy

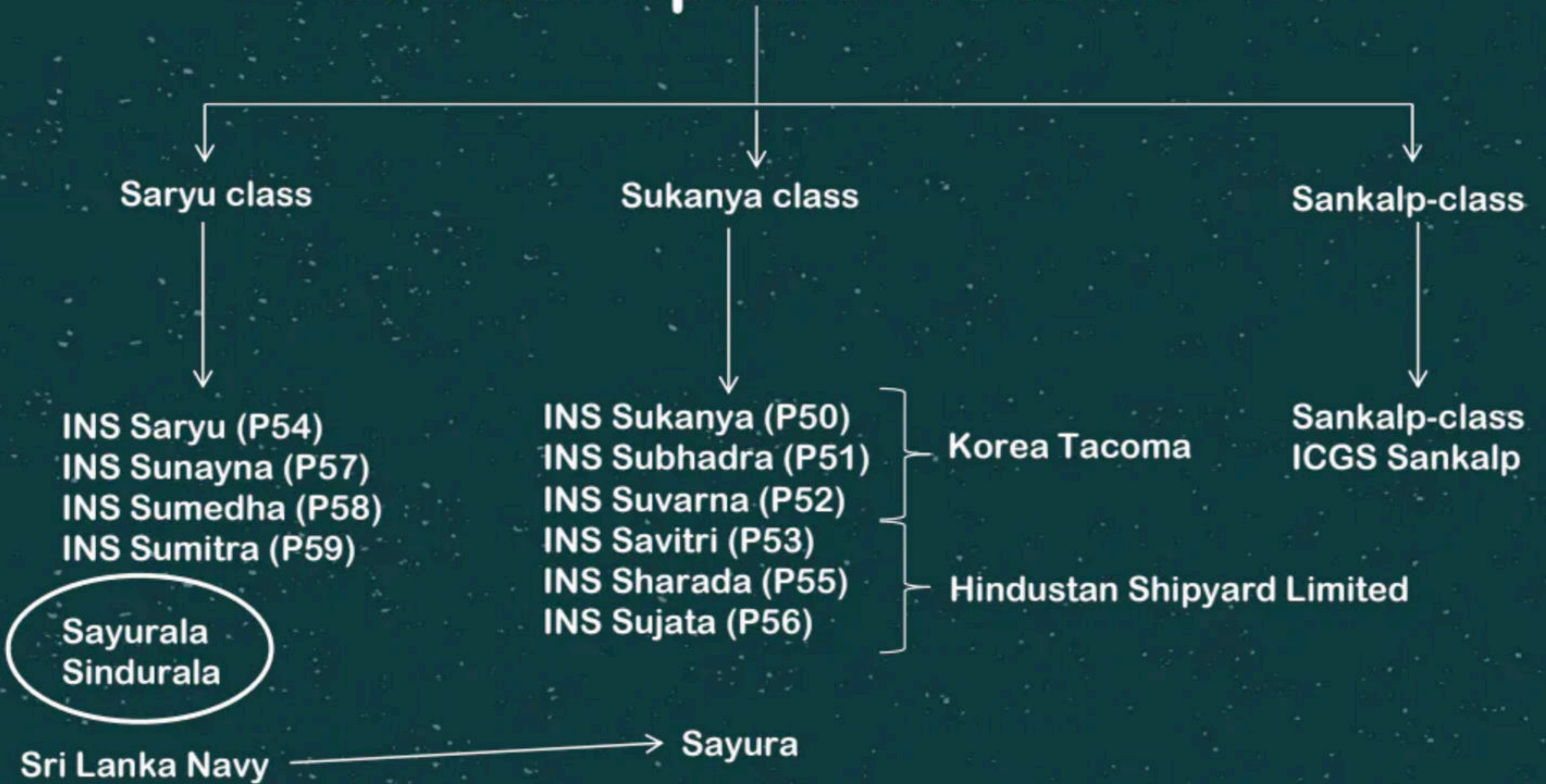
- Introduction
- Submarine fleet
  - Nuclear-powered ballistic missile submarines (SSBN)
  - Conventionally-powered submarines (SSK)
- Surface fleet
  - Aircraft carriers
  - Amphibious warfare ships
  - Destroyers
  - Frigates
  - Corvettes
  - Offshore patrol vessels
  - Patrol vessels
  - Patrol boats
- Auxiliary fleet

# Offshore patrol vessels

# Offshore patrol vessels

- The Offshore Patrol Vessel is a **highly versatile ship, designed to perform Economic Exclusion Zone management roles**, including the provision of **maritime security to coastal areas** and effective disaster relief.
- NVL Offshore Patrol Vessels (OPVs) **are built to meet the challenge of maintaining security in a fast-changing maritime environment.**
- **Flexible, robust and optimised to achieve high levels of performance**, our OPVs can deploy rapidly to protect economic resources, combat criminal activity or safeguard life at sea.

# Offshore patrol vessels



# Saryu class

# Saryu class

- The Saryu class of offshore patrol vessels (OPV) are advanced patrol ships of the Indian Navy built at the **Goa Shipyard Limited**.
- These vessels are **capable of ocean surveillance and monitoring** and can maintain control of shipping lanes.
- They can also be **deployed to provide security to offshore oil installations, and other naval assets**.



# Sukanya-class

- The **Sukanya-class** patrol vessels are large, offshore patrol craft in active service with the Indian Navy.
- Three lead ships were **built by Korea Tacoma, now part of Hanjin Group.**
- Vessels of the Sukanya class are named after notable women from Indian epics.



# Sankalp-class

- Sankalp-class offshore patrol vessels are a series of **two offshore patrol vessels designed and built by Goa Shipyard Limited** for the Indian Coast Guard.
- The vessels, also classified as **Advanced Offshore Patrol Vessels**, are the largest vessels constructed by Goa Shipyard Limited.



# Patrol vessels

# Patrol vessels

- Car Nicobar class
- Bangaram class
- Trinkat class

# Recent Defence Development

# Recent Defence Development

- **India's first Indigenous Aircraft Carrier INS Vikrant**
- **Operation Skylight**
- **Bahrain-based multilateral partnership**
- **Submersible Platform for Acoustic Characterization & Evaluation (SPACE)**
- **Indian Ocean Maritime Security**
- **Man Portable Anti-Tank Guided Missile (MPATGM)**

# INS Vikrant

# INS Vikrant

- Commissioned as India's first Indigenous **Aircraft Carrier INS (Indian Naval Ship) Vikrant in Kochi.**
- INS Vikrant was India's **first aircraft carrier, bought from UK.**
- **Largest warship of India.**
- Designed by Indian Navy's in-house **Warship Design Bureau (WDB) and built by Cochin Shipyard Limited**
- **Uses Short Take Off But Assisted Recovery (STOBAR) aircraft-operation mode** that uses a ski-jump for launching aircrafts.
- **It can accommodate 30 aircraft on board.**

# INS Vikrant

## Importance of INS Vikrant

- **Self-Reliance**
- **Enhance capability**
- **Increased strength**
- **Deterrence**

# INS Vikrant



HEIGHT  
**59 METRES**

## CARRIER STATS

Crew	<b>1,700</b>
Compartments	<b>2,300</b>
<b>PERFORMANCE</b>	
Top Speed	<b>28 knots</b>
Cruising Speed	<b>18 knots</b>
Endurance	<b>7,500 nautical miles</b>

## WEAPONRY\*

- 34 fixed wing and rotary aircraft
- MiG-29K fighter aircraft
- Kamov-31 Air Early Warning Helicopters
- American-built MH-60R multirole helicopters
- Indigenously built Advanced Light Helicopters

*\*The Navy has not specifically revealed yet what weapons and equipment INS Vikrant will have. Expected list based on earlier statements and weaponry on board the comparably-sized INS Vikramaditya.*



DECKS  
**14**

WIDTH  
**62 METRES**

WEIGHT  
**40,000 TONNES**

LENGTH  
**262 METRES**

# Operation Skylight

# Operation Skylight

- The Indian Army has conducted a **pan-India satellite communication exercise named 'Ex Skylight'**.
- The main objective of this exercise was **to test the operational readiness and robustness of its hi-tech satellite communication systems**, in the event of an attack by an adversary.
- The dedicated **GSAT-7B satellite of the Army** is a first-of-its-kind **indigenous multi-band satellite**, designed with advanced security features.
- It will **support tactical communication requirements for troops deployed on the ground, remotely piloted aircraft, air defence weapons and other mission-critical and fire support platforms**.

# Bahrain-based multilateral partnership

# Bahrain-based multilateral partnership

- India began cooperation with Bahrain-based Combined Maritime Forces.
- CMF is a multi-national naval partnership to promote security, stability and prosperity across international waters, which encompass some of the world's most important shipping lanes.
- 34 nations grouping (India still not a member) is commanded by a U.S. Navy Vice Admiral.
- CMF's main focus areas include counter-narcotics, counter-smuggling, suppressing piracy, encouraging regional cooperation etc.
- It is comprised of following task forces: CTF 150 (maritime security and counter-terrorism), CTF 151 (counter piracy), CTF 152 (Arabian Gulf security and cooperation), CTF 153 (Red Sea Maritime Security).

# Submersible Platform for Acoustic Characterization & Evaluation (SPACE)

# Submersible Platform for Acoustic Characterization & Evaluation (SPACE)

- DRDO launched the **Hull Module of the Submersible Platform for Acoustic Characterization & Evaluation (SPACE)** facility at **Naval Physical & Oceanographic Laboratory (NPOL) Kochi**.
- It is a **testing and evaluation facility for sonar systems developed for use by the Indian navy onboard various platforms which include ships, submarines, and helicopters**.
- **The SPACE is a one-of-a-kind facility in the world**.
- The uniqueness of this facility lies in the **specially designed submersible platform, which can be lowered up to depths of 100 meters using a series of synchronously operated winches**.

# Indian Ocean Maritime Security

# Indian Ocean Maritime Security

- **Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR)** signed a Memorandum of Understanding (MoU) with the **Regional Coordination Operations Centre (RCOC) of Seychelles**.
- **The two centres towards enhancing maritime domain awareness, information sharing and expertise development.**
- **The Regional Operations Coordination Centre (RCOC) also coordinates with the Indian Ocean Commission (IOC).**
- **MoU will strengthen the India's vision of Security and Growth for All in the Region (SAGAR).**

# Man Portable Anti-Tank Guided Missile (MPATGM)

# Man Portable Anti-Tank Guided Missile (MPATGM)

- **DRDO successfully flight tested the final deliverable configuration of MPATGM.**
- **The indigenously developed anti-tank missile is a low weight, fire & forget missile and is launched from a man portable launcher, integrated with thermal sight.**
- **Missile has miniaturized infrared imaging seeker and advanced avionics for on-board control and guidance**