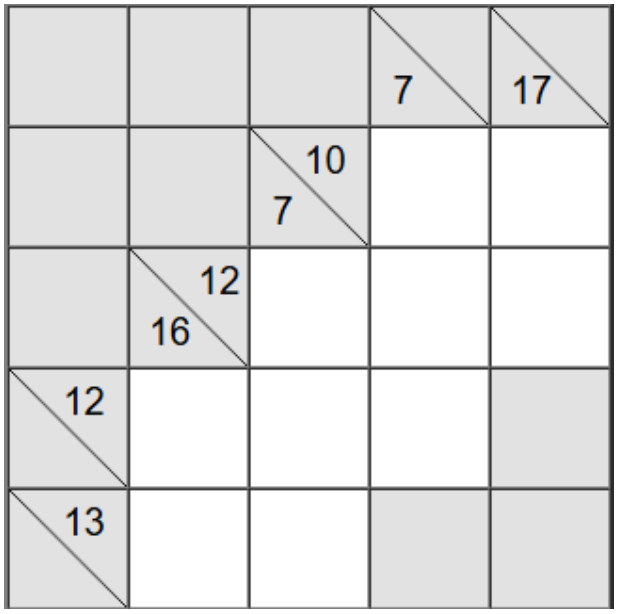
CATMOCK DAILY CAPSULE

April 16, 2026

KAKURO

Kakuro puzzles are similar with crosswords, but instead of letters board filled with digits (from 1 to 9).
The board's squares need to be filled in with these digits in order to sum up to the specified numbers.
You are not allowed to use the same digit more than once to obtain a given sum.
Each Kakuro puzzle has a unique solution. Good luck!



SUDOKU

Every sudoku grid always contains some partially completed grids with digits. The objective of the game is to the fill the missing digits into the grid. With 4×4 grids you need to use and fill digits from 1 to 4; with 6×6 -grids digits 1 to 6 and 9×9-grids contain digits from 1 to 9 respectively.
In each column, row and block you can use each digit only once.

				9			8	3
	3				1			
4		7		8	3	6	1	
					8	9	4	
	7							1
	8		4		9	5		6
					5	7	9	8
	5	9	8	3				4
		8		6			5	2

HAS INDIA CRACKED ITS NUCLEAR ENDGAME? ***- Finshots***

In the years after India gained independence, it was still finding its footing in the world, while one man was planning for decades ahead. Homi Jehangir Bhabha wasn't just building a nuclear program. He was designing a future where India wouldn't depend on the world for its energy needs.

But there was a problem. India didn't have much uranium, the fuel most nuclear reactors run on. Even today, the country depends heavily on imports to keep its reactors running, including multi-billion dollar agreements with countries like Canada.

What it did have, however, was something far less talked about: vast reserves of thorium or 25% of the global total, buried in its sands. There was just one catch.

Thorium, by itself, can't be directly used as fuel in most nuclear reactors. It needs to be converted into a usable form. And that process requires another material to kickstart it.

And at the time, countries like the US were racing ahead with uranium-based reactors, scaling nuclear power as quickly as possible. Japan, on the other hand, would go on to build its program by importing both technology and fuel.

India had neither luxury. With limited uranium reserves, it couldn't simply replicate these models. So instead of chasing speed, Bhabha chose something far more ambitious: a system that could turn this resource scarcity into self-reliance, even if it took decades to get there.

It was a three-stage nuclear programme that would begin with uranium, move to plutonium, and eventually unlock thorium as a long-term energy source.

For context, Stage 1 involves Pressurised Heavy Water Reactors (PHWRs), which use natural uranium to generate electricity and produce plutonium as a by-product. Then comes Stage 2, Fast Breeder Reactors (FBRs), which use that plutonium to generate more fuel than they consume. And finally, Stage 3, Thorium Based Reactors, which use the bred material to unlock India's vast thorium reserves for long-term energy.

For the longest time, it remained just that: a plan waiting to be completed because within this plan, that second stage remained the missing piece. That was, until last week.

On April 6th, India's Prototype Fast Breeder Reactor (PFBR) at Kalpakkam, Tamil Nadu achieved criticality for the first time. Criticality is the point where a nuclear reactor becomes self-sustaining. In other words, the chain reaction inside the reactor continues on its own without needing an external push.

On paper, this might sound like another technical milestone. But it isn't because fast breeder reactors aren't new. Russia has the only other commercial fast breeder nuclear reactor in history, but this uses uranium instead of thorium. But in most other countries, the efforts behind these reactors haven't exactly gone as planned. These reactors are designed to do something unusual. They don't just generate power, they produce more nuclear fuel than they consume. Countries like the US, Japan, and France have all tried building similar reactors using plutonium. But in practice, it was far more difficult.

Japan's Monju reactor, for instance, was shut down back in 1995 after a sodium leak triggered a fire and eventually decommissioned years later. In the US, projects like the Clinch River Breeder Reactor were abandoned after costs went out of control. Even France's Superphenix, which was once one of the world's most ambitious breeder reactors, struggled with low use and was eventually shut down.

Which is why, over time, much of the world moved on to simpler nuclear designs or away from nuclear altogether. Things like running conventional reactors using uranium, and securing long-term fuel supplies through domestic reserves or international partnerships.

And yet, India didn't back down from this pursuit. It stayed committed to breeder reactors because they were essential.

This stage was never just about generating electricity. It was about creating the materials for the third and final stage.

And that's what makes the PFBR milestone so significant.

By achieving criticality, India has shown that it can run a reactor using plutonium-based fuel. This is the step that makes moving beyond uranium possible. But more importantly, it brings the country closer to something far bigger: the ability to expand its nuclear fuel base.

If fast breeder reactors work as intended, they can produce more usable (fissible) material than they consume, effectively turning a scarce resource into more usable fuel.

In the process, they don't just create more fuel. They also make better use of what would otherwise be treated as nuclear waste.

And that's what unlocks the final stage of the plan: Thorium. Not as fuel on its own, but as a material that can be turned into Uranium-233, the fuel that powers stage three.

Here's the tricky part though, because getting it right wasn't just about switching a reactor on.

To begin with, the reactor uses what's called mixed oxide fuel (MOX) which is a combination of plutonium and uranium. This fuel had to be fabricated precisely, loaded into the reactor core, and arranged in a way that would allow a controlled chain reaction to begin.

Unlike conventional reactors that use water as a coolant, the PFBR uses liquid sodium. This allows the reactor to operate at much higher temperatures and with fast-moving neutrons, both essential for breeding more fuel.

But sodium comes with its own risks. It reacts violently with water and even air. So the entire cooling system has to be sealed, monitored, and engineered with extreme precision. Even a minor leak could be dangerous.

And then there's the moment of criticality itself. Achieving criticality is a gradual process. Control rods which are used to absorb neutrons are slowly withdrawn. Think of control rods like brakes. They absorb neutrons and keep the reaction in check. As operators slowly pull them out, it's like easing off the brakes, and the reaction starts picking up pace. Step by step, it builds until it reaches a point where it sustains itself.

If it's too fast, you risk instability and if it's too slow, the reaction won't sustain. Everything has to be balanced perfectly.

It took decades, but despite all these risks, they were able to achieve criticality and open the next stage for India's nuclear programme.

Reaching criticality is just the beginning. Over the next few months, the plant will go through a series of controlled tests before it can begin fully commercial operations. Because achieving criticality proves the science but it doesn't prove the economics.

With an installed capacity of about 8.7 gigawatts, nuclear power accounts for just over 3% of India's total electricity generation. And that's quite small, especially when demand is only set to rise. If India wants to reduce its reliance on fossil fuel imports, mainly coal, and move towards energy independence, it needs more reliable sources of power.

That's where nuclear comes in. It can complement intermittent renewables like solar and wind, while providing steady, 24/7 baseload power. For now, though, nuclear energy occupies only a small slice of India's energy mix and there's still a long way to go.

If this works, India can move beyond a single prototype to a fleet of breeder reactors and gradually reduce its dependence on imported uranium.

And if that happens, India won't just be generating power. It'll be doing what Homi Bhabha envisioned decades ago: running on fuel it already has instead of relying on the world for it.

STATES' SEATS WILL RISE 50% AFTER DELIMITATION: OFFICIAL - Hindu

Table 1: If the number of seats is retained at 543 and reapportioned among States based on the projected population in 2026

State	Number of seats at present	Number of seats projected	Net gain/ loss
U.P.	80	91	11
Bihar	40	50	10
Rajasthan	25	31	6
M.P.	29	33	4
Tamil Nadu	39	31	-8
Andhra + Telangana	42	34	-8
Kerala	20	12	-8
Karnataka	28	26	-2
Punjab	13	12	-1
Himachal	4	3	-1
Uttarakhand	5	4	-1

Table 2: If the number of seats is increased to 848 based on the projected population in 2026

State	Number of seats at present	Number of seats projected	Net gain
U.P.	80	143	63
Bihar	40	79	39
Rajasthan	25	50	25
M.P.	29	52	23
Tamil Nadu	39	49	10
Andhra + Telangana	42	54	12
Kerala	20	20	-
Karnataka	28	41	13
Punjab	13	18	5
Himachal	4	4	-
Uttarakhand	5	7	2

All States will have their number of Lok Sabha seats increase by 50% after delimitation, and no State will lose its current proportional strength in Parliament, a senior government functionary told The Hindu on Wednesday (April 15, 2026). He said Home Minister Amit Shah would clarify

this when the debate on the Constitution (131st Amendment) Bill and the Delimitation Bill opens on Thursday (April 16, 2026).

The drafts of the Bills have raised concerns that States which have stabilised their population are set to lose their relative strength when the composition of the Lok Sabha is reapportioned between States according to the Census figures. The senior functionary dismissed this as a misreading. “Those who are reading bits and pieces and interpreting them as reducing the strength of the South are missing the big picture,” he said.

The Opposition, however, remained unconvinced. After the INDIA bloc concluded deliberations at a meeting at AICC President Mallikarjun Kharge’s residence on Wednesday (April 15, 2026), the bloc announced it had “unitedly” decided to oppose the Bill. The meeting was attended by leaders of the Congress, DMK, Trinamool Congress, Samajwadi Party, RJD, CPI and CPI(M).

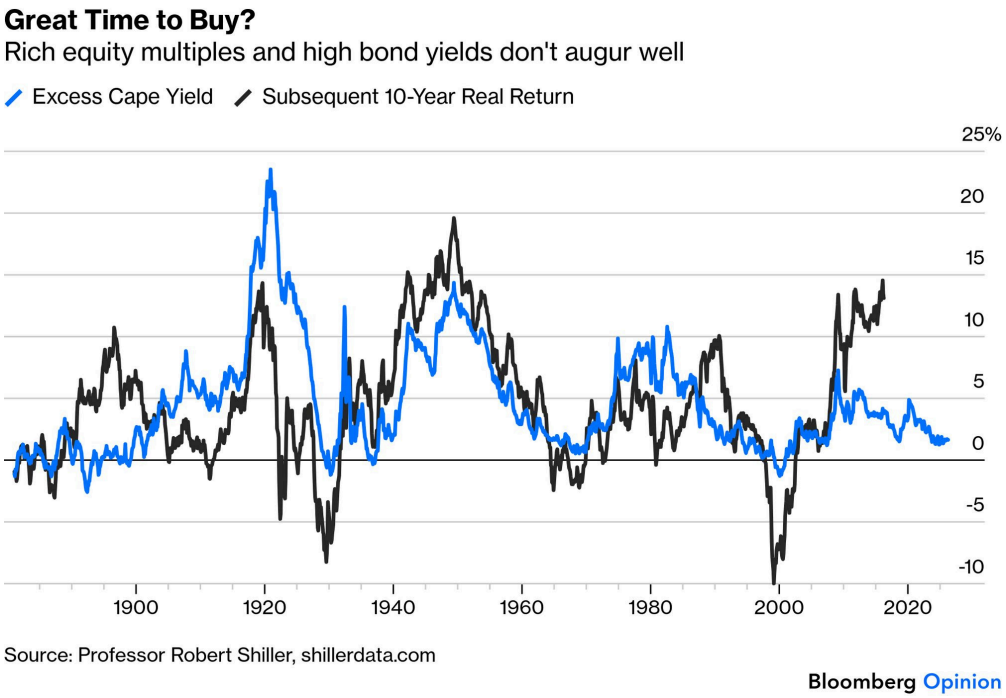
DMK president and Chief Minister M.K. Stalin said on Wednesday (April 15, 2026) the Bill “would turn [people in South India] into second-class citizens in our own country,” warning that “there can never be a Prime Minister from the South if this Delimitation Bill goes through.” He urged people to hoist black flags at their homes on Thursday (April 16, 2026) in protest of the Bill.

Mr. Kharge reiterated that the Opposition is not against the Women’s Reservation Bill, which he said was backed by Congress in 2010 and 2023 and passed unanimously by Parliament. Several Opposition parties have accused the NDA of indulging in politics by linking the women’s reservation law to the delimitation exercise.

IRAN'S SO FAR AWAY, STOCKS CAN HIT A RECORD **- Bloomberg**

The S&P 500 and Nasdaq 100 are back at all-time highs — in the latter’s case, the first in six months. Even with the flow of oil through the world’s most important artery at a standstill, it’s been an astonishing bounce. Since the close on March 30, the S&P and Nasdaq are up 10.7% and 14.2% respectively. Since 1950, this is only the 21st time that the S&P has managed a 10% rally this fast.

Stocks look expensive by any sensible measure, while the 10-year Treasury yield sits at 4.3% — higher than at any point during the 13-year rally that followed the Global Financial Crisis. Subtract the bond yield from the earnings yield (the inverse of the price/earnings ratio) of the S&P and you get what Yale University’s Robert Shiller calls the excess CAPE yield. For over a century, this offered a great guide to how equities would fare over the ensuing decade — and it currently suggests that this is an unappealing time to buy into the market:



Earnings season is getting underway amid great optimism. That limits potential damage from the war, but can't explain this two-week rally. Bloomberg's Earnings Estimates Graphs service shows that forecasts for S&P 500 first-quarter earnings have dropped over that time:

Rallies this violent usually happen only when markets are seriously beaten down and far from record highs. This time, the S&P never fell 10% from its peak. It's quite unlike any preceding swift rally, with the exception of the chaotic fortnight in March 2000 when the dot-com bubble

was about to burst. That was also the only previous 10-day, 10% rally when stocks were more expensive in terms of earnings multiples than they are now.

The other rallies are listed in this chart from Warren Pies of 3F Research. Typically, they come at the end of drawn-out bear markets (in 1974 and 1975 or 1982), or after major crises like the GFC in 2009, Long-Term Capital Management in 1998 or Covid in 2020:

The conclusion that this rally is most like March 2000 — when the biggest speculative bubble in US history was about to burst — is terrifying. How can we explain it?

This rally probably wouldn't have unfolded as it did without the experience of Liberation Day last year, when stocks sold much harder than they did last month and then started a big rally as soon as the president announced his first "TACO" (Trump Always Chickens Out) by postponing his tariffs. Many missed out. That made traders more reluctant this time to sell, even though the Iran crisis was arguably more threatening than a trade war. They were primed to buy at the first hint of a TACO.

"This is a reaction to last April," says Jim Masturzo of Research Affiliates:

The momentum traders got crushed last April. This time throughout the entire war, on bad news you'd sell a little and on good news you'd buy a lot. There was this fear of being caught too short when the reversal happened.

The March 31 pivot occurred on the slim evidence that Iran's president said he was "ready to end the war" but needed concessions first. Fear of missing out drove a rally at this first hint of an end to hostilities.

Market structure has changed since earlier rebounds. Victor Haghani of Elm Wealth suggests analyzing today's market using multi-agent models; investors come in different types that respond in varying ways to a crisis. Traditional models are based on "archetypal rational investors who look at discounted cash flows and earnings" and "extrapolators or momentum traders who expect the market to keep doing what it's already doing." Now, it's necessary to add "static investors" — like the holders of many standard 401(k) funds — and the growing army of "buy the dip" active retail investors.

Those programmed to buy the dip drag static and momentum investors with them, leaving traditional rational investors to watch in wonder. The fundamentals-driven investors, or at least those who were still in business, were about to enjoy a big triumph in March 2000. This story is still being written.

SOLUTIONS:

KAKURO

			7	17
		10 / 7	2	8
	12 / 16	2	1	9
12	7	1	4	
13	9	4		

SUDOKU

5	1	6	7	9	4	2	8	3
8	3	2	6	5	1	4	7	9
4	9	7	2	8	3	6	1	5
6	2	5	3	1	8	9	4	7
9	7	4	5	2	6	8	3	1
3	8	1	4	7	9	5	2	6
2	6	3	1	4	5	7	9	8
7	5	9	8	3	2	1	6	4
1	4	8	9	6	7	3	5	2