

3. Ultramassive Black Hole

Why in News?

- Astronomers have recently discovered an ultramassive black hole using gravitational lensing, a phenomenon where a foreground object bends light from a distant object behind it.

Highlights

- Researchers used supercomputer simulations to simulate light from a distant galaxy travelling through the Universe, each simulation had a black hole of a different mass.
- The path taken by the light in one simulation matched the path seen in actual images captured by the Hubble Space Telescope, leading to the discovery of an ultramassive black hole in the foreground galaxy.
- The ultramassive black hole is over 30 billion times the mass of our Sun.
- This new approach using gravitational lensing could make it possible to study inactive black holes in distant galaxies.
- However, most black holes that are currently known are in an active state, pulling in matter from their surroundings and releasing energy as light, X-rays and other radiation.
- Black holes are regions of space-time where gravity is so strong that nothing, not even light, can escape from them.
- They are formed when a massive star collapses in on itself at the end of its life, creating an incredibly dense object with a gravitational pull that is so strong that it warps space-time around it.
- Black holes are important for understanding the universe and its evolution.
- They play a role in the formation and evolution of galaxies and the distribution of matter throughout the universe.
- Studying black holes can also help us understand the fundamental properties of space, time, and gravity