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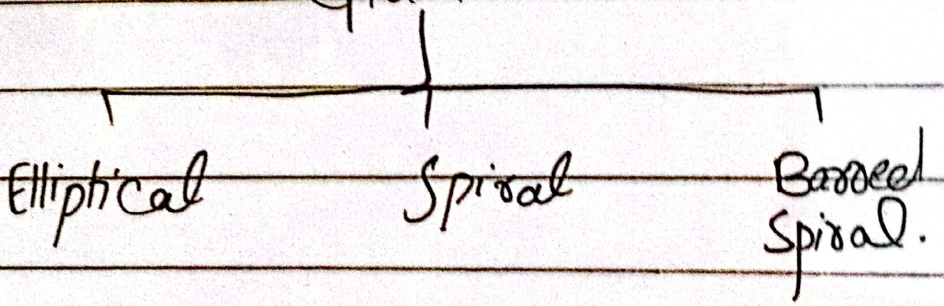
Glxy:

→ fundamental unit of the universe.
→ Composed of hundreds of thousands of stars with gas & dust.
→ with in a glaxy there are planets stars, blackholes moons comets & dark matter
→ Hubble classified the glaxy accordg to its shape & structure
→ Hubble Classification is known as "Hubble tunning fork Diagram".
His classification looks like a tunning fork. with one handle & two branches.

Types



1 Elliptical

Handle of the fork
Ranging round to oval

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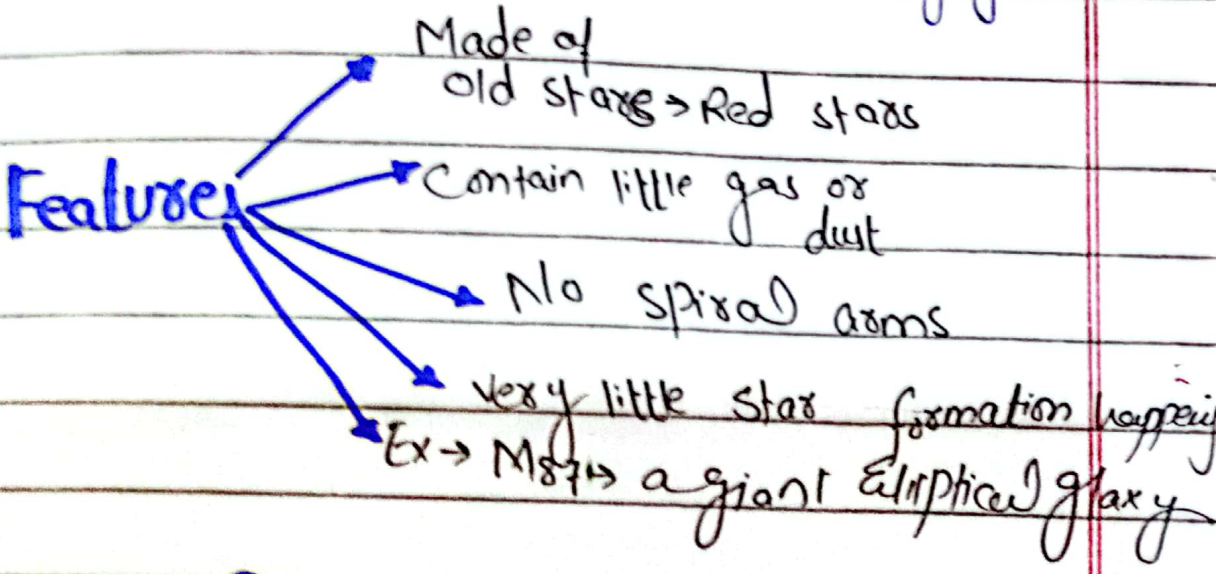
Labeled E0 to E7

E0 → Nearly round → almost circular

E7 → Very oval → very streached like a rugby ball.



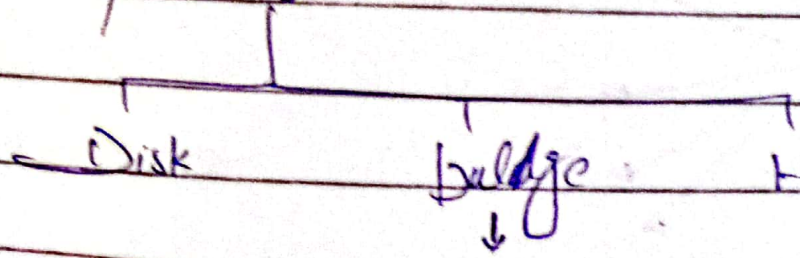
2 Spiral

→ flat disk like with spiral arm & Central Bulge

→ Most Common type of galaxy

→ of all the known ~~type~~ galaxies 77% of them are classified spiral galaxies

Spiral galaxy has 3 main components:



→ Bulge is located at the centre of the galaxy. Spherical in shape & only contain old star.

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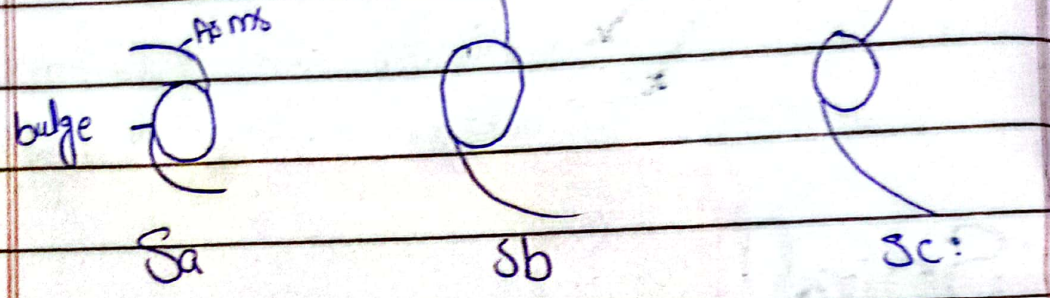
→ ~~Bulge~~ Disk → bow in shape of galaxy → where new stars form in in galaxy

Halo is just like Bulge → it is outer edge & form of old stars which are known as globular clus



Large bulge

Sa Those galaxies which arms tightly bound

Sb Medium bulge & moderate arm tight

Sc Small bulge loos & open arms.

Features → Form young / old stars
Rich in gas & Dust
New stars form in arms
Ex → Andromeda galaxy M31

3 Barred Spiral

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→ look like Spiral but have a bar of stars running through in center.

→ Spiral arms coming from in ends of bars. [Bar of matter]

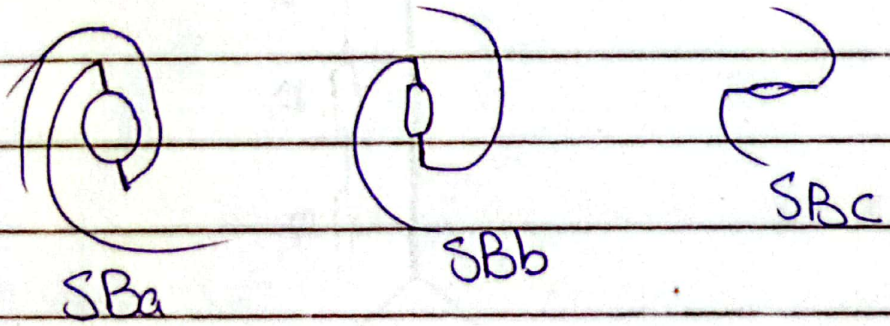
→ Structure same just like Spiral Bulge disk & Halo

Their ~~Classific~~ label start from SB

SBa Large Bar tight arms

SBb Medium bar & Moderate tightly arms

SBc Small bar & loose arms.



Features →
- Similar to Spiral but with a central bar
- Rich in gas Dust & New Star
- Ex → Milky way Galaxy

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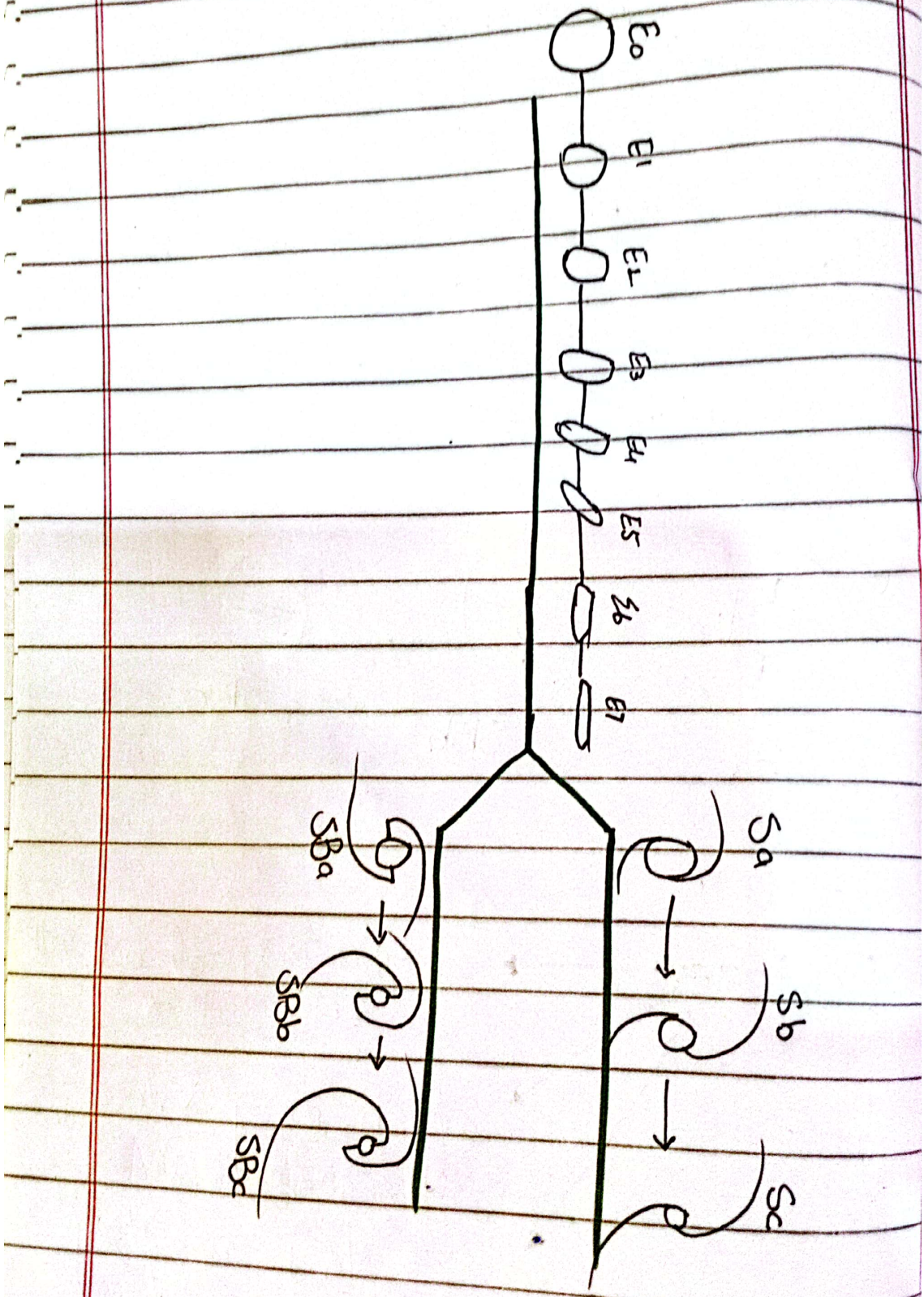
Diagram Turning Fork



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Irregular Glaxy

→ Not included in Tunning fork model
→ As in name implies → it is irregular in shape or size
→ These glaxies are quite unique
→ Accordig to Nasa, in uniqueness of irregular glaxies may be because of interactions they could have had in the past with ther neighbouring glaxies.
These glaxies look like chaotic, messy & have lots of gas & dust.

Features
- No spiral arms or symmtry
- Lots of new star formation
- May have been distorted by gravitional force
- Ex → Large Magellanic cloud (LMC)

MILKY Way Glaxy:

→ In Milkyway Glaxy we contain our solar system.
→ Barred Spiral Glaxy

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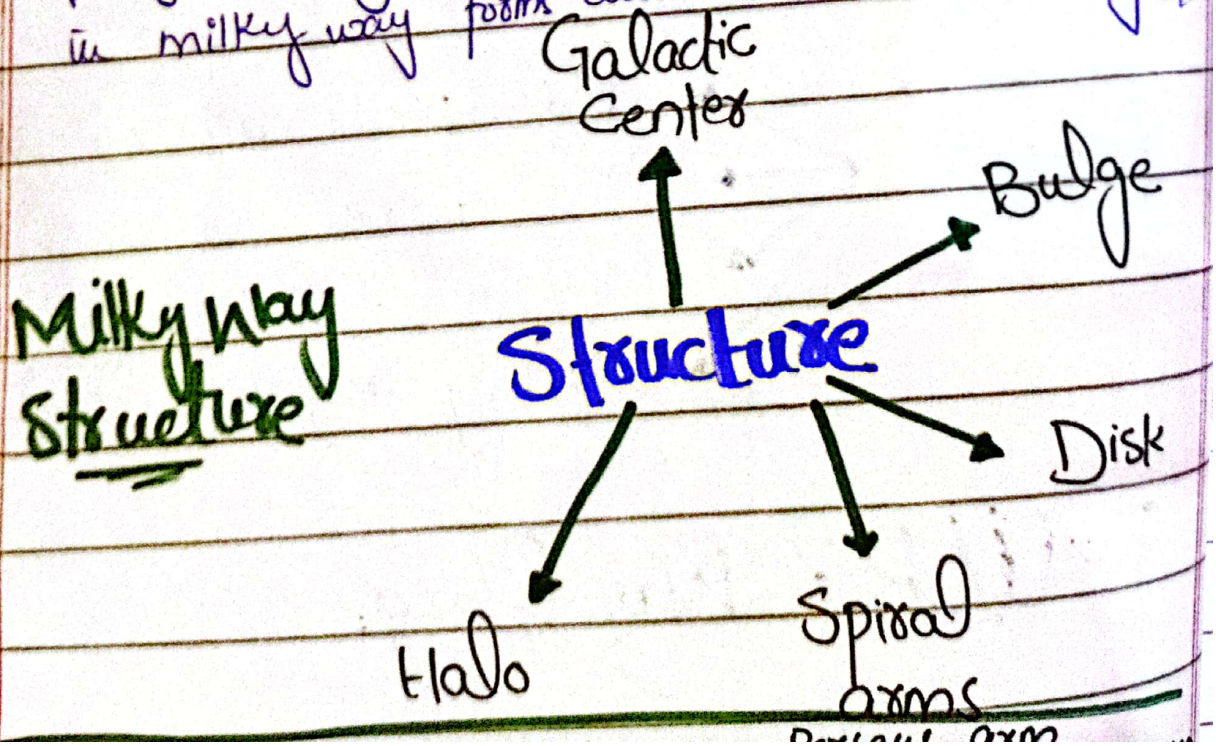
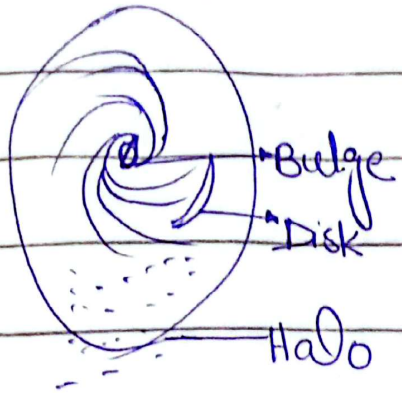
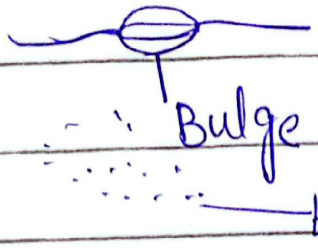
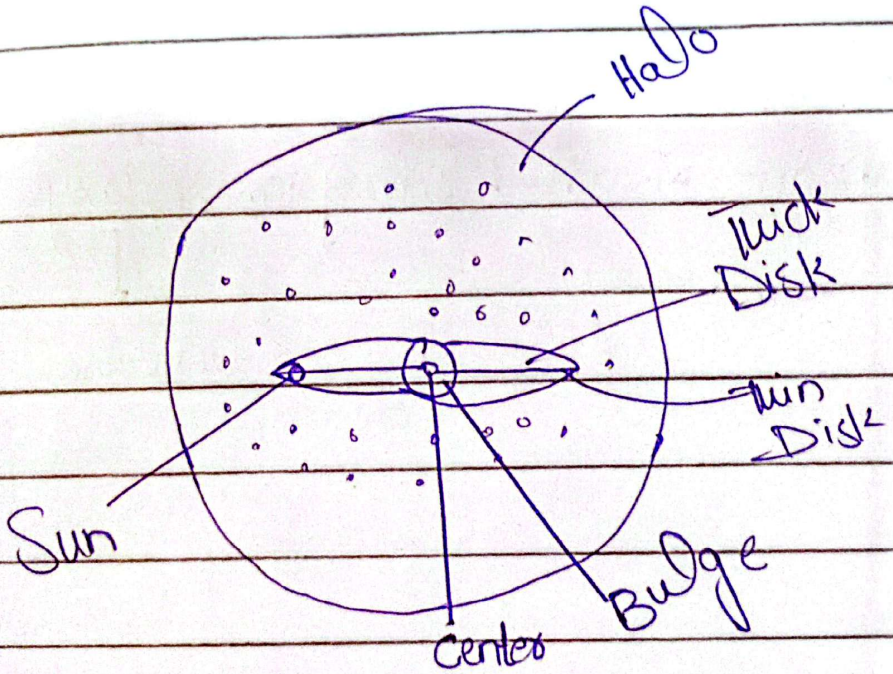
→ Diameter → 100,000 → 200,000 light years.
→ Thickness → 1000 light years
→ Num of Stars → over 100 billion to 400 billion
→ Solar system location → Roughly 27000 light years from the galactic center
→ Age → Around 13.6 billion years.
→ Sun takes 250 million years to orbit around the milky way → Sun revolve around the nucleus of milky
→ Nearest galaxy that is near to Milky way is Andromeda.
→ Our milky way galaxy is a part of galaxies group called Local group in milky way forms about 1 to 3 new stars per year.









Center → Contain blackhole called Sagittarius A*
very Dense & energetic region

Bulge → Spherical Structure around in center
Contain old stars & dense star cluster

Disk → Flat → Disk-shape region containing arms
contain gas Dust stars & solar system

young stars → Thin Thick → older stars

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The Sun revolves around the nucleus of the milky way once in 225 million years. This duration is called Cosmic year.

In addition to sun the milky way contains 400 billion other stars.