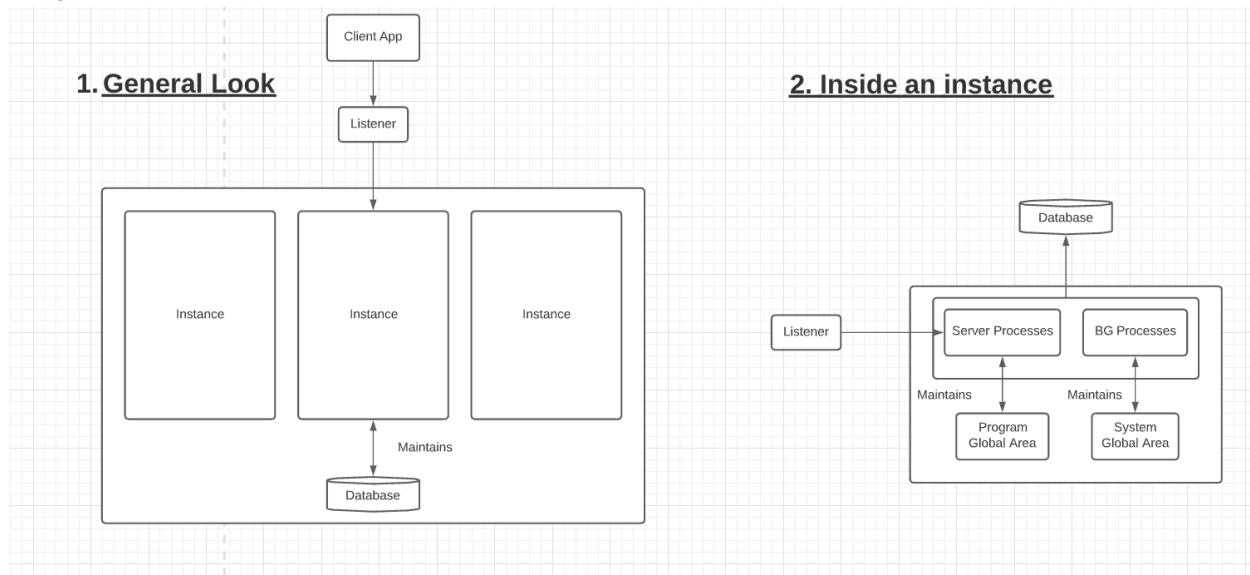# 13.)

14.)

1. **Catalog Plan:** For that one, weekly cold incremental backup can be made as only 2% of the data is being changed, and the downtime is acceptable. In every 10 weeks, a full backup should be made as the 20% of the data is changed.
2. **Customer Orders Plan:** Whenever the downtime is acceptable, a cold full backup should be made because it's indicated that the data is critique for the business. Also daily hot incremental backups can be made, as the data is important but a long downtime would not be good for a system that is being used by people constantly.

15.)

1 server:

1. MTTR is 2
2. MTTF is 1460
3. Availability is 99.8632% uptime

2 servers:

1. MTTR is 2
2. MTTF is 1067260 hours (122 years)
3. Availability is 99.9998% uptime

Diagrams and their answers are on the next page…

16.)

Internet ⟶ User

Weather app and app admin interfaces — **Web Server**

App admin

b. Backup strategy:
As some downtime is acceptable, weekly cold full backups, and daily hot incremental backups will be used

*Only 1 DB server is used as the funding is limited, and weekly downtime is acceptable

d. DB User accounts:
App users will have the user role, which only has the SELECT privilege to read data from the DB. And the DB admin will have another role with all the privileges.

c. Database Roles:
As it's a small database, only the database administrator, and an operator would be enough for the database side.

Database

200 users/20 hours per day

Internet ⟶ User

Weather app and app admin interfaces — **Web Server (x10)**

App admin

b. Backup strategy:
As downtime is not acceptable, weekly cold backup without downtime, and daily incremental backups will be used

*At least 2 DB server is used as downtime would not be acceptable for an app used by many users

d. DB User accounts:
App users will have the user role, which only has the SELECT privilege to read data from the DB. And the DB admin will have another role with all the privileges. DB Operator will not have privileges for making changes to the tables. app admin will have another role with SELECT and also INSERT privileges to save data to the app

c. Database Roles:
As it's a large database, DBA, WeatherAppAdmin, WeatherAppUser, DB Operator roles will be assigned.

Database

1 million users querying per hour