Assignment - 3

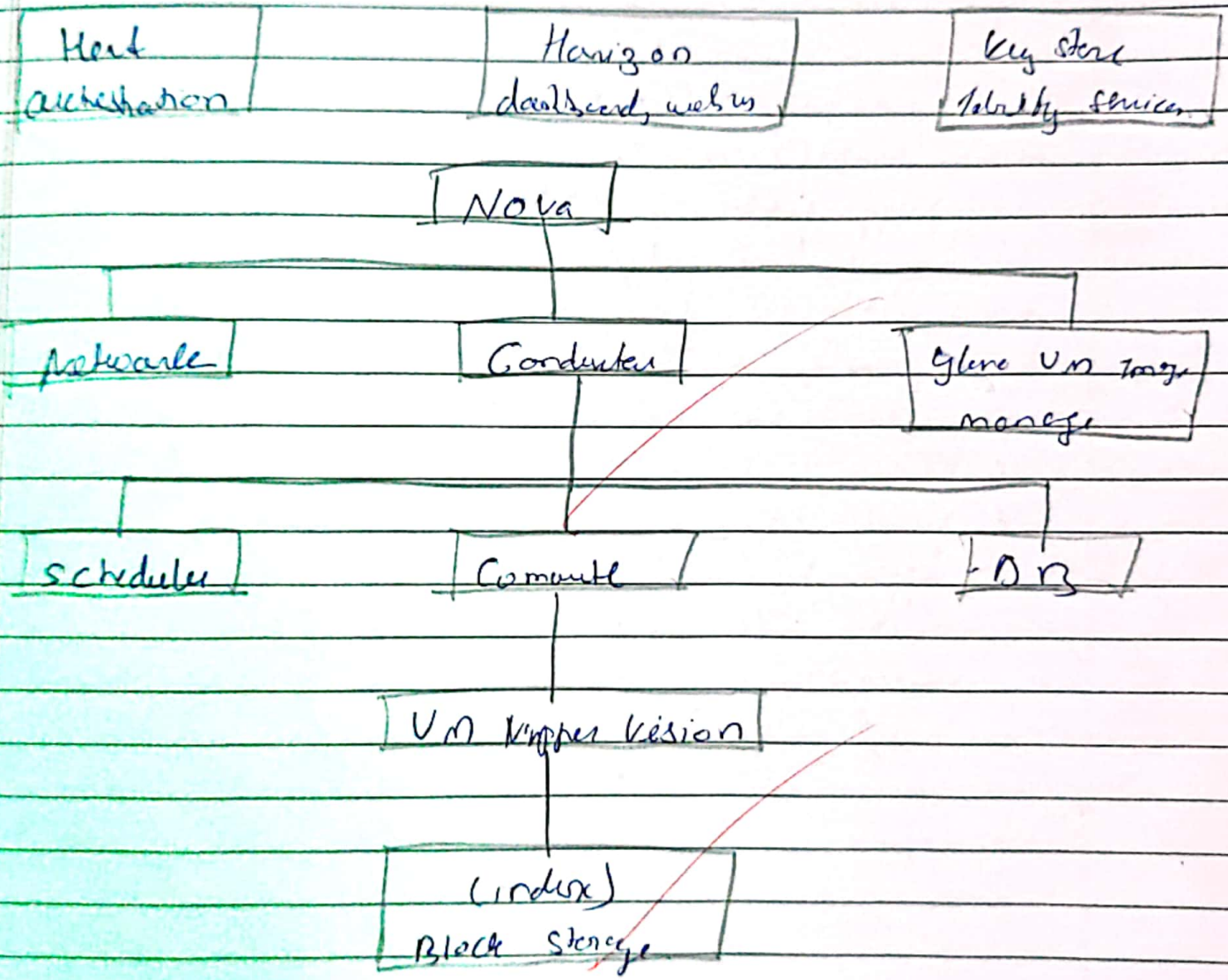
Q1] Open Source IAAS software

=> Infrastructure as a Service is a service model where an organization out sources the equipment used to support storage, Hardware, Servers and networking components.

- Open Stack is an open source cloud computing project to provide an Infrastructure as a Service (IAAS). This integration is facilitated through public API's that each source offers.
- Open Stack controls large pool of compute, storage and networking resources throughout a data center all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface & delivers a massively scable Cloud operating system.
- The technology consists of a series of connected projects that controls pool of processing, storage and networking resources throughout a data center all managed through a dashboard that gives admins control while empowering its users to provision resources through a web interface

Open Stack

main Service & Components

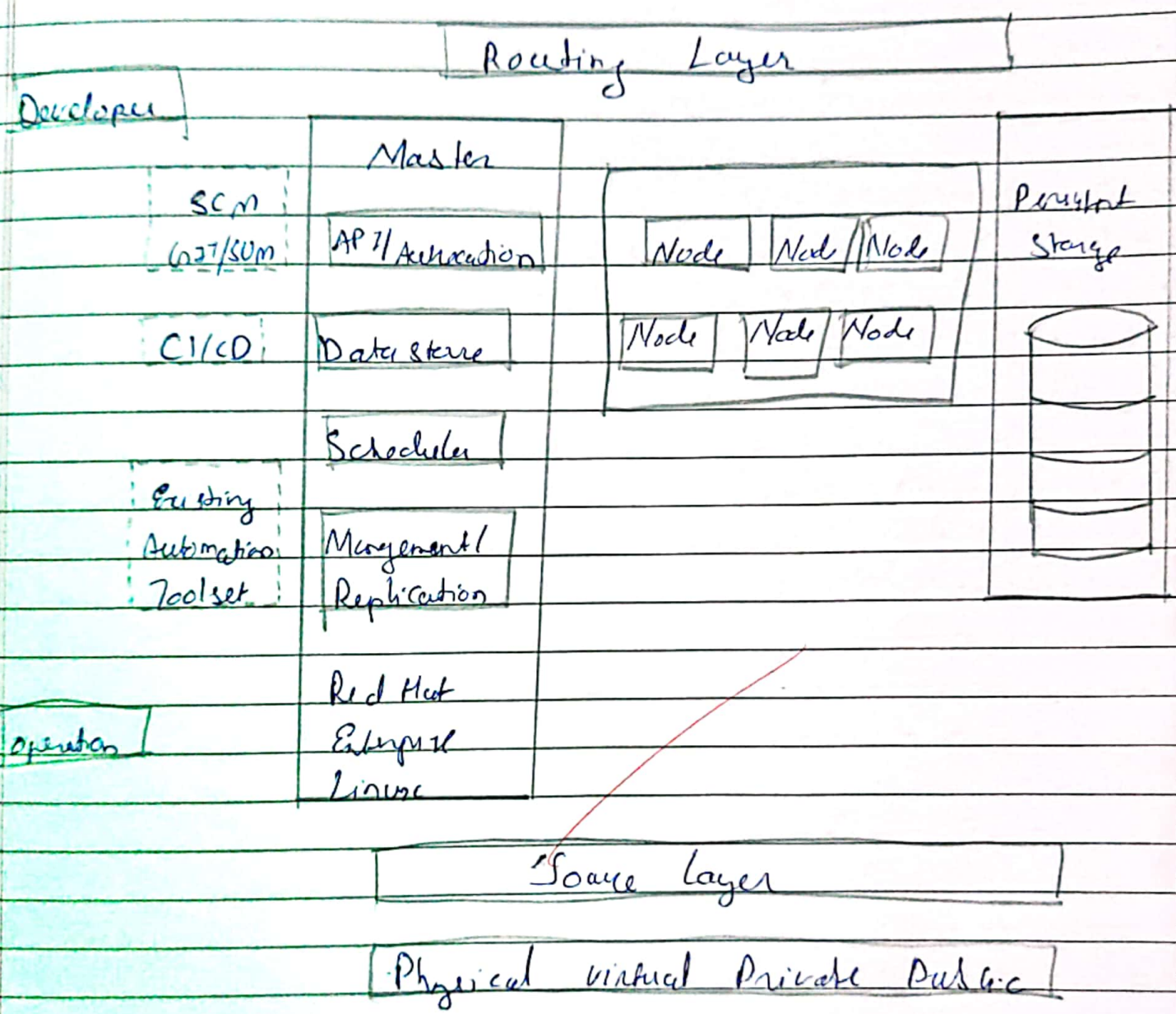


Q2] Open Source PaaS software

=> Platform as a service is a category of cloud computing services which offers a way to support the complete lifecycle of delivering web application & services via the cloud.

- OKD (Previously known as openshift origin) is a Paas computing platform as a service Product from Red Hat. It is an application platform where application developers and teams can build, test, deploy and run their application OKD takes care of Infrastructure, middle ware & management so that developers can focus on their app.
- OKD enables you to create deploy and manage application within the cloud. It provides disk space, CPU resources, memory network connectivity and an Apache as Tomcat server. Depending on the type of application being deployed a template file system layout is provided. OKD also generates a limited DNS so your application is accessible online.
- It provides support for a wide variety of language runtime, and dat layers including Java EE6, Ruby, PHP, Python, Perl, mongodb, mysql & Postgresql.

OKD Architecture



03] Open Source Saas Software

=) Saas is a distribution model where in third party is hosted with the responsibility on hosting application and make them available for customers with the available for customer with the help of internet.

- Cloudify is an open source cloud orchestration framework. It help in the customize of the entire lifecycle of an application cloudify enable users to deploy the application in two ways.
  1) By opting for CLI only
  2) By opting for the cloudify manager.
- Application configuration are defined through blue print that are developed on JAML DSL configuration files. Now blue print have complete information regarding the application lifecycle starting from installation to its monitoring.

* Features
  → Local Blueprints
  - IT Governance & security
  - Blue printing modeling
  - TOSCA orchestration
  - Building node types

Q4] Open Source Cloud Simulator Software

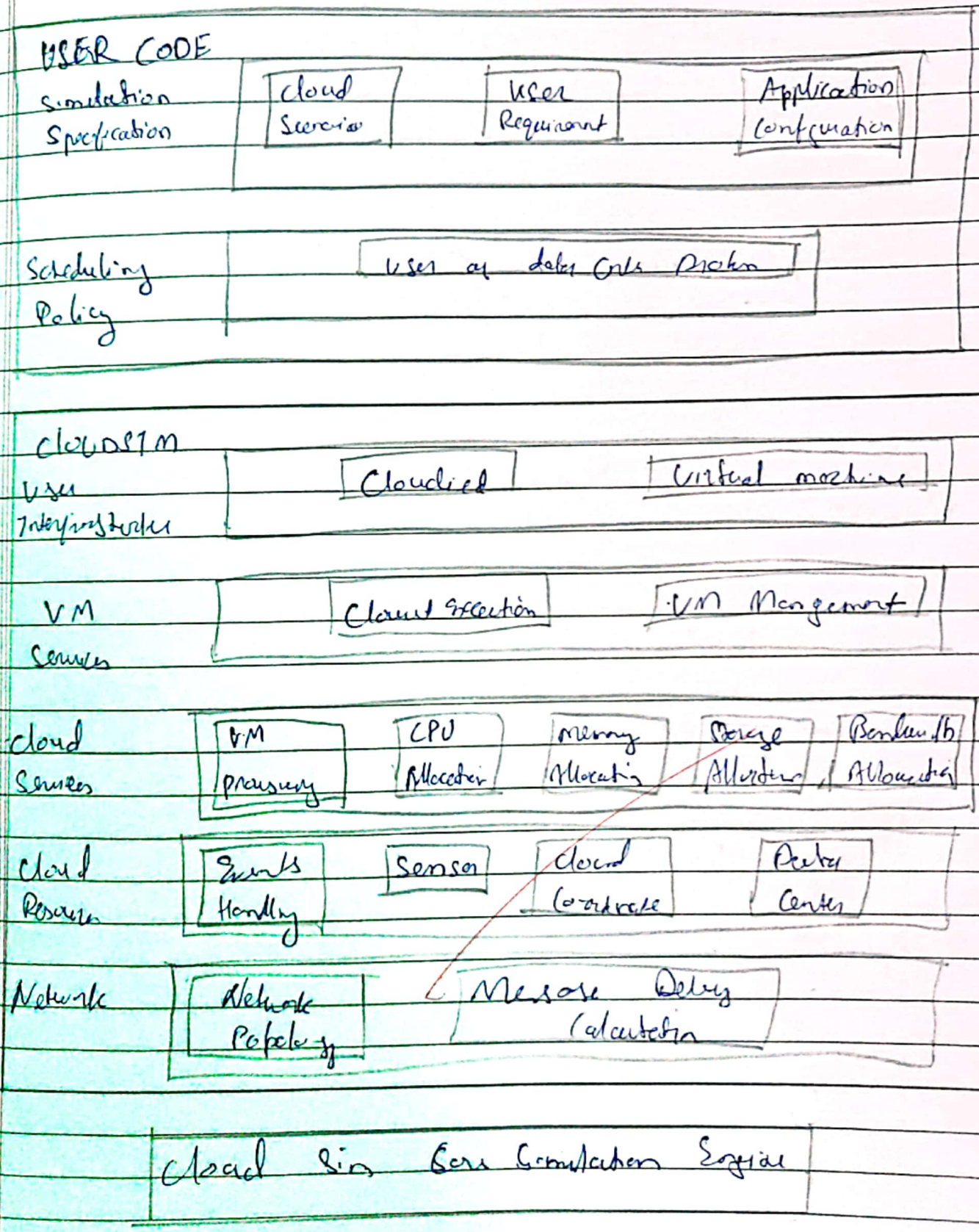
1) CloudSim :-

CloudSim is a new, highly generalized and extensible Java based Simulation Toolkit and is critically regard as software framework.

- It supports several core functionalities like Query & processing of event, the creation of cloudsim entities, communication among components and the management of the simulation clock.
- CloudSim has been developed by the Cloud Laboratory of the Computer Science & software engineering department of the university of Melbourne.
- This tool kit enables servers modeling simulation & experimentation in Cloud Computing and application services.

* Features :-

- Supports modeling & simulation of large scale cloud computing data centers.
- Supports modeling & simulation of virtualized server hosts along with customizable Policies for provisioning host resources to virtual machines.
- Supports dynamic inclusion of simulation events discontinuities.
- Support the creation of various data center network topologies message passing application.



Q.5] Open Source Distributed Systems Software

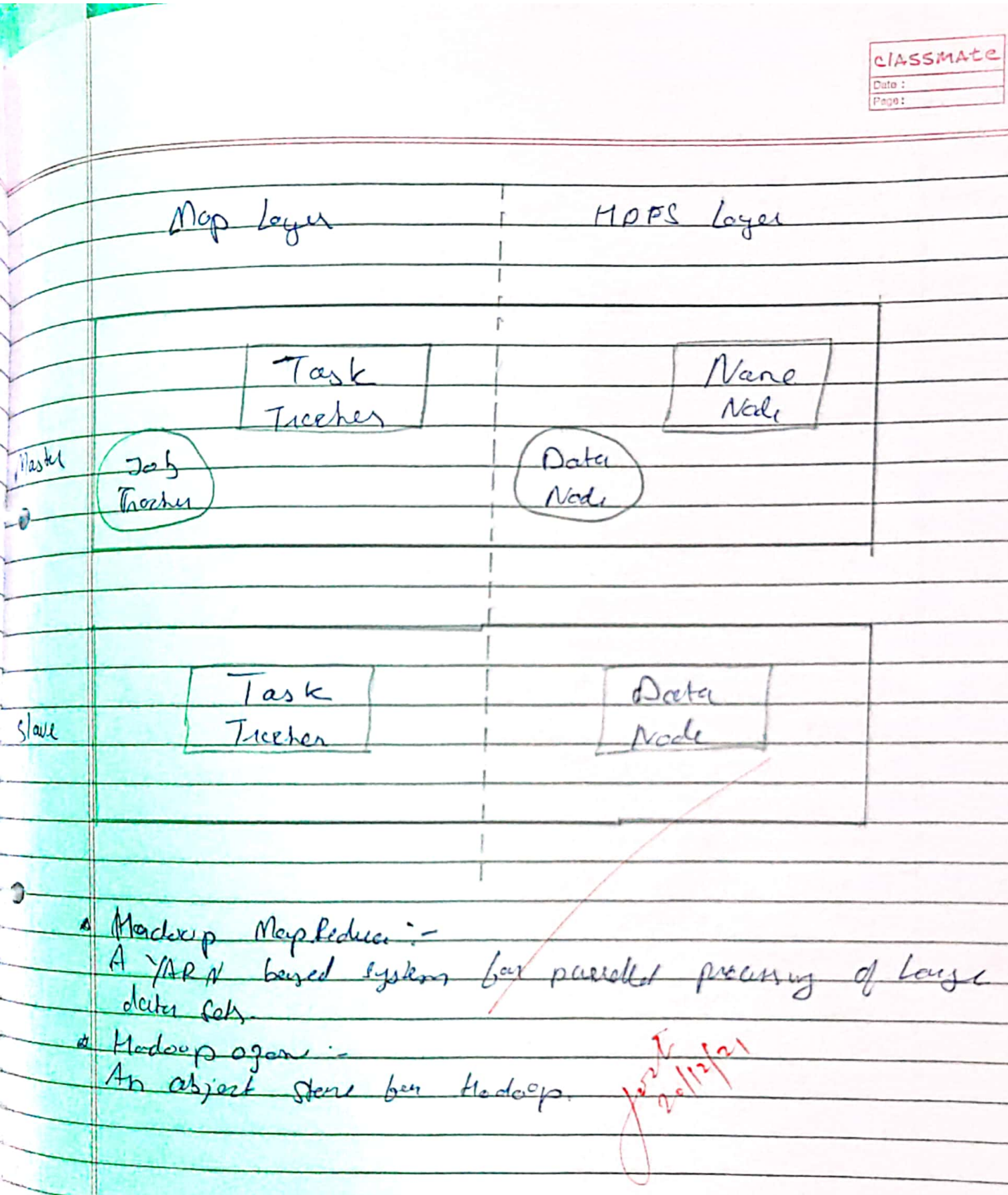
⇒ The Apache Hadoop Project develop open source software for reliable, scalable, distributed computing.

- The Apache Hadoop software library is a framework that allows for distributed processing of large data sets across clusters of computers using simple programming model.
- It is designed to scale up from single servers to thousands of machine each offering local computation & storage. Rather than rely on hardware to deliver high availability, the library itself is designed to detect and handle failure at the application layer, so delivering highly available service on top of a cluster of computer each of which may be prone to failure.

* Hadoop Common :-
The common utilities that support the other hadoop modules.

* Hadoop Distributed file System :-
HDFS is a distributed file system that provides high throughput access to application data.

* Hadoop YARN :-
A framework for job scheduling & cluster resources management



- Hadoop MapReduce :-
  A YARN based system for parallel processing of large data sets.
- Hadoop ogon :-
  An object store for Hadoop.