Annexure-IX (a)

Software Development Intern

Nyalazone Solutions Private Limited

A training report

Submitted in partial fulfillment of the requirements for the award of a degree of

Bachelor of Technology
Computer Sciences and Engineering

Data Science

Submitted to

LOVELY PROFESSIONAL UNIVERSITY

PHAGWARA, PUNJAB

From 09/06/2022 to 12/12/2022

SUBMITTED BY

Name of the Student:
Kanigolla Naga Venkata Bala Likhith

Registration Number: 11903700

Student Signature:

K.N.V. Bala Likhith

SUBMITTED TO

Name of the Supervisor:
Ramanpreet Kaur

UID: 28846

Signature of the Supervisor:

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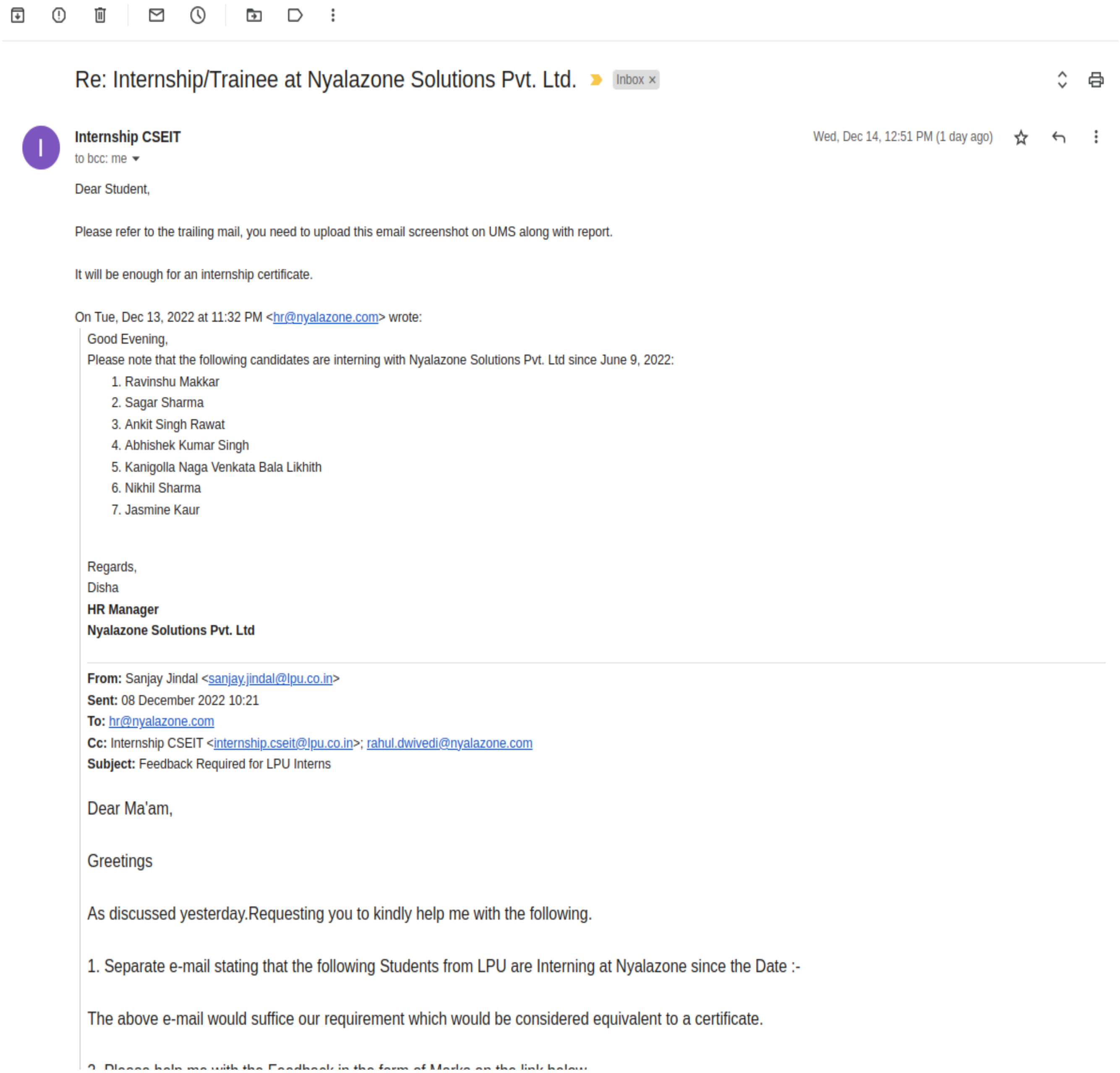
Internship Certificate



Re: Internship/Trainee at Nyalazone Solutions Pvt. Ltd.

Internship CSEIT
to bcc: me

Wed, Dec 14, 12:51 PM (1 day ago)

Dear Student,

Please refer to the trailing mail, you need to upload this email screenshot on UMS along with report.

It will be enough for an internship certificate.

On Tue, Dec 13, 2022 at 11:32 PM <hr@nyalazone.com> wrote:

> Good Evening,
> Please note that the following candidates are interning with Nyalazone Solutions Pvt. Ltd since June 9, 2022:
>
> 1. Ravinshu Makkar
> 2. Sagar Sharma
> 3. Ankit Singh Rawat
> 4. Abhishek Kumar Singh
> 5. Kanigolla Naga Venkata Bala Likhith
> 6. Nikhil Sharma
> 7. Jasmine Kaur
>
> Regards,
> Disha
> **HR Manager**
> **Nyalazone Solutions Pvt. Ltd**
>
> **From:** Sanjay Jindal <sanjay.jindal@lpu.co.in>
> **Sent:** 08 December 2022 10:21
> **To:** hr@nyalazone.com
> **Cc:** Internship CSEIT <internship.cseit@lpu.co.in>; rahul.dwivedi@nyalazone.com
> **Subject:** Feedback Required for LPU Interns
>
> Dear Ma'am,
>
> Greetings
>
> As discussed yesterday.Requesting you to kindly help me with the following.
>
> 1. Separate e-mail stating that the following Students from LPU are Interning at Nyalazone since the Date :-
>
> The above e-mail would suffice our requirement which would be considered equivalent to a certificate.
>
> 2. Please help me with the Feedback in the form of Marks on the link below

Annexure-IX (b): Student Declaration

To whom so ever it may concern

I, **Kanigolla Naga Venkata Bala Likhith, 11903700,** hereby declare that the work done by me as **"Software Development Intern"** from **June 2022** to **December 2022**, under the supervision of **Name of external supervisor**, **Designation, Nyalazone Solutions Private Limited,** and **Name of Internal supervisor**, **Designation, Lovely Professional University, Phagwara, Punjab**, is a record of_original work for the partial fulfillment of the requirements for the award of the degree, **Bachelor of Technology in the field of Computer Science and Engineering with Data Science specialization.**

K.N.V. Bala Likhith

Kanigolla Naga Venkata Bala Likhith (11903700)

Dated: 12th December 2022

Annexure-IX (c): Declaration by the supervisors

To whomsoever, it may concern

This is to certify that **Kanigolla Naga Venkata Bala Likhith, 11903700** from Lovely Professional University, Phagwara, Punjab, has worked as an Intern in **Nyalazone Solutions** on **"Software Development"** under my supervision from **June 2022** to **December 2022.** It is further stated that the work carried out by the student is a record of original work to the best of my knowledge for the partial fulfillment of the requirements for the award of the degree, **Bachelor of Technology in Computer Science and Engineering.**

Name of the External Supervisor	**Name of the Internal Supervisor**
Designation of the External Supervisor	**Designation of the Internal Supervisor**
Signature of the External Supervisor	**Signature of the Internal Supervisor**
Dated:	**Dated:**

Annexure-IX (c): Acknowledgement

I would like to acknowledge and thank Nyalazone Solutions and Lovely Professional University for this internship opportunity. Working at Nyalazone Solutions is a great chance for learning and professional development. I am also grateful for having a chance to meet so many wonderful people and professionals who helped me through this internship period.

I express my deepest thanks to **Milan Garg and Arnab Sharma** for taking part in useful decisions & giving necessary advice and guidance, and arranging all facilities to make life easier. I choose this moment to acknowledge his contribution gratefully.

I have the deepest sense of gratitude to **Deepika Bansal** for her precious guidance which was extremely valuable for my study, both theoretically and practically.

I would like to acknowledge the sense of respect I have for my mentor and teammate **Devendra Singh Negi** for being the best mentor one could ask for and patiently explaining everything whenever I'm stuck.

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives.

Lastly, I give my sincere thanks to all those who have helped me during this internship period. I extend my deep sense of gratitude to all my family, faculty, colleagues, and friends who have directly or indirectly encouraged and helped me to complete my project successfully.

K.N.V. Bala Likhith

Kanigolla Naga Venkata Bala Likhith (11903700)

Dated: 12th December 2022

Analytics: Analytics shows you how your content is performing. It also gives you additional insights on the status of your content including troubleshooting information for failure rates on any specific flow.

API: Application Programming Interface is an access point and a set of routines, protocols, and tools to specify how various software components interact.

Cloud Deployment: Cloud deployment is one of the ways to deploy content and make it available to your users. In this scenario, content is published to Servers.

Deployments: Deployments are various ways to host and deliver content to your end-users.

Flow: Flows are a sequence of step-by-step instructions that users are led through in your application to complete a task.

Task List: The Task List is a widget that gives you the ability to assign a list of topics users must complete as part of a training program.

Versioning: Versioning is the ability to save and view an older version.

Job: Jenkins Freestyle Project is a repeatable build job, script, or pipeline that contains steps and post-build actions. It is an improved job or task that can span multiple operations. It allows you to configure build triggers and offers project-based security for your Jenkins project. It also offers plugins to help you build steps and post-build actions.

Pipeline: Jenkins Pipeline (or simply "Pipeline" with a capital "P") is a suite of plugins which supports implementing and integrating continuous delivery pipelines into Jenkins.

DBM: A database model is a type of data model that determines the logical structure of a database. It fundamentally determines in which manner data can be stored, organized and manipulated. The most popular example of a database model is the relational model, which uses a table-based format.

CLI: A command-line interface (CLI) is a text-based user interface (UI) used to run programs, manage computer files and interact with the computer. Command-line interfaces are also called command-line user interfaces, console user interfaces and character user interfaces. CLIs accept as input commands that are entered by keyboard; the commands invoked at the command prompt are then run by the computer.

GIT: Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Agile Server: The Agile Application Server is the center of the Agile system, the base for the PLM platform, where all common services and business logic reside for the entire solution. The Agile Application Server runs on industry-leading J2EE application servers. As the System Configuration Overview figure illustrates, all client servers and users connect to the Application Server either directly or indirectly. The application server connects to the components in a persistence layer where product content is stored.

GCP: Google Cloud Platform, offered by Google, is a suite of cloud computing services that runs on the same infrastructure that Google uses internally for its end-user products, such as Google Search, Gmail, Google Drive, and YouTube.

AWS: Amazon Web Services, Inc. is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis. These cloud computing web services provide distributed computing processing capacity and software tools via AWS server farms.

SSH: The Secure Shell Protocol is a cryptographic network protocol for operating network services securely over an unsecured network. Its most notable applications are remote login and command-line execution. SSH applications are based on a client–server architecture, connecting an SSH client instance with an SSH server.

SCP: SCP (secure copy) is a command-line utility that allows you to securely copy files and directories between two locations.
With scp, you can copy a file or directory:

- From your local system to a remote system.
- From a remote system to your local system.
- Between two remote systems from your local system.

Dashboard: In business computer information systems, a dashboard is a type of graphical user interface which often provides at-a-glance views of key performance indicators relevant to a particular objective or business process.

Zabbix: Zabbix is an open-source software tool to monitor IT infrastructure such as networks, servers, virtual machines, and cloud services. Zabbix collects and displays basic metrics
Slack Bot: A bot is a type of Slack App designed to interact with users via conversation.A bot is the same as a regular app: it can access the same range of APIs and do all of the magical things that a Slack App can do.

Chapter - II Introduction of the Company

Introduction about the company:

nyalazone
Data Knows

Nyalazone Solutions is a company focused on AI, Analytics, and Data Management Solutions for enabling a robust New Age Enterprise Data Architecture. Our offerings address the need of today's elastic Enterprise boundary that is continuously readjusted to include nontraditional data generation sources like Social Media, Contents, Weblogs, sensors, machine-generated and Geospatial data, and the dynamic changes of OLTP systems like CRM and ERP, etc.

We leverage Machine Learning, Neural Networks, and Natural Language Processing to build solutions that are based on Artificial Intelligence Models. The solutions based on our platform are successfully used by various private-sector and public-sector organizations to fulfill their analytical needs in critical areas of business operations. We understand the need for **data-driven decision-making for distinct operational and competitive market advantage.**

Businesses today grapple with the "Datafication" of the world that is extensive and unstructured. We provide solutions that will help you to establish correlations in this world of **Big Data** so that you can derive value and formalize a sustained cycle of value generation using your enterprise data.

We provide our customers with comprehensive solutions for Data-driven Decision making, based on a platform-centric approach with horizontal and vertical industry solutions. Our offerings span the spectrum of the 'Data Milieu', all the way from **Data Engineering to Applied Data Science**. Our Robotic Process Automation (RPA) solutions help customers in increasing operational efficiency, reduce costs, and respond to the dynamic business environment with minimal risks of human errors.

The mission of the Company:

Our mission is to establish a low-cost data management platform for an enterprise that is agile and responsive to business needs. While this is achievable by using a combination of technology, our philosophy 'Elegant is Simple' ensures that our offerings are easy to maintain and have a low cost of ownership.

Quick Facts about the Company:

Website: http://www.nyalazone.com

Type: Private Company

Phone No: +91 (0) 120 7195316

Email: info@nyalazone.com

Industry: IT Services and IT Consulting

Key People: Saurabh Kumar(Co-Founder and Cheif Executive Officer)

Company size: 50-100 employees

Address: 507, Tower 1, Assotech Business Cresterra, Sector 135, 201301 Noida, India

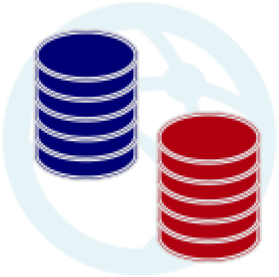
Founded: 2014

Specialties: Big Data, Hadoop, Data Analytics, and Data Warehouse

Company Services:

- ### Data Migration

Our service offering leverages the DDS module of our platform and runs pre-migration data cleansing and transformation needs in real-time. The module runs its proprietary in-memory database for storing commonly used data structures required for transformation and cleansing routines. The in-memory processing capability of the module ensures real-time responses to transformation needs. Leggero Dynamic Data-source is also used in data migration and Integration exercises.



Why choose Nyalazone for your complex data migration handling?

Our data migration services leverage the capabilities of the platform to handle complex migrations, the platform's ability to handle unstructured data opens up avenues for source data extraction that other tools conveniently ignore.

The ability to configure migration logic, persist it and subsequently use it for iterative migration exercises helps drastically reduce time and human errors.

Our ML based data cleansing algorithms help in creating a virtual migration source that is contextual to the target migration system without the need for cumbersome human interventions.

How about using printable text reports of a legacy ERP system as a data source and converting it to strictly normalized SAP ISU input? Leggero DDS has achieved the task and de-risked an SAP implementation

Agile BI

Our Business Intelligence consulting and implementation services challenge the traditional approach to data discovery, insights, and analysis. We leverage our Platforms that have been architected, keeping in mind the ease of use and flexibility while ensuring non-functional requirements like scalability and response time. It provides multidimensional data analysis capability in real-time for large to very large datasets. The Business Intelligence module has a proven track record of ingesting data from multiple sources and formats, transforming and presenting insights in a fraction of the time and costs usually required.

Our expertise in architecting Data Lakes and Business Intelligence solutions is proven and unmatched in the realization of short implementation time and measurable ROI. Our experts help you in data discovery and work with your business teams to define high-impact business measures that enable efficient business operations. Our teams have implemented BI solutions tracking hundreds of KPIs that rely on multiple transactional systems. Our agile implementation approach ensures short sprints for quick wins in an ever-changing business environment.

Digital Enterprise Consulting

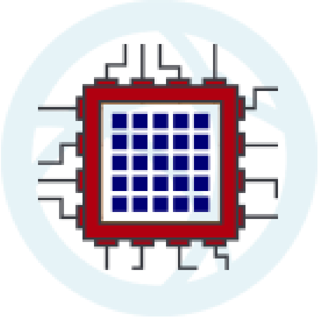
The core foundation of Digital Transformation is in having the ability to make relevant and contextual data available for real-time decision-making. The ground reality is that the data is not available in the form or at the time you want it.

We leverage our expertise to consult customers in identifying the least effort and most effective digital transformation initiative to create a successful transformation journey. Our expertise in various Predictive and Prescriptive Models coupled with RPA has helped us create high-impact transformation initiatives.

Why should I request a consultation with Nyalazone today?

- We will help you identify your quick wins
- We will help you in identifying point solutions that work with your existing technology stack.
- Our expertise in Bots and RPA will help you implement high-impact automation solutions.
- Are you embarking on a Digital Transformation Path in your enterprise? Talk to us we will be happy to have a no-cost session with your team for a roadmap workshop.

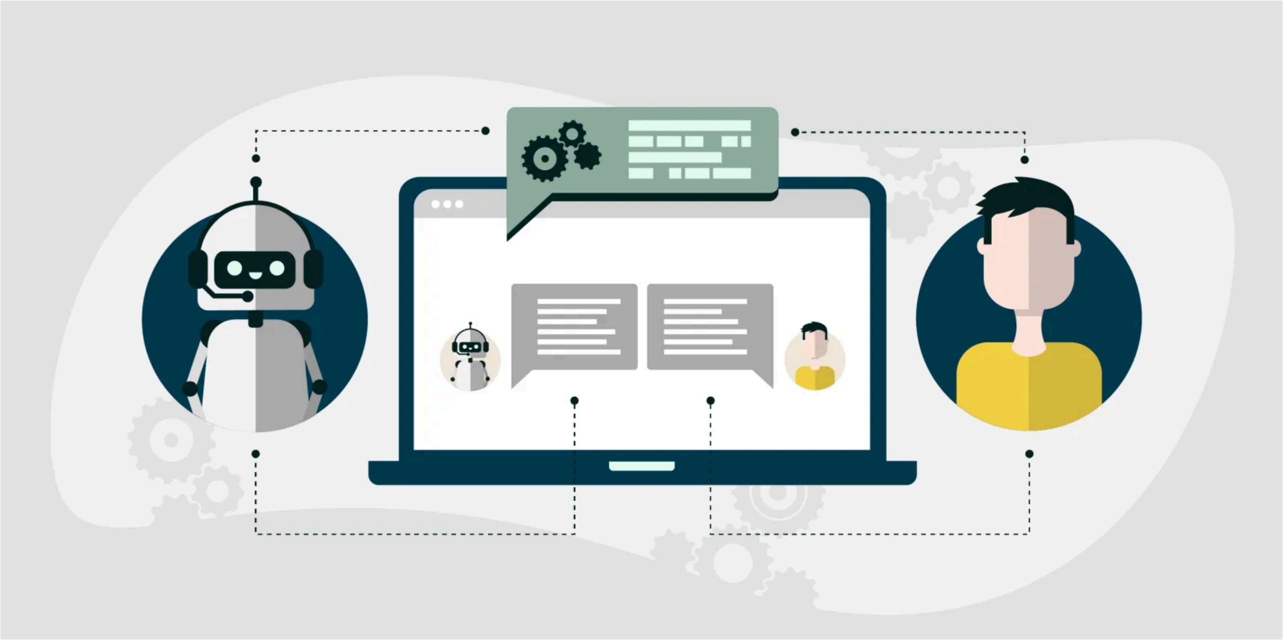
Machine Learning-based Robotic Process Automation (RPA)



Smart machine learning algorithms coupled with Natural Language Processing and workflow enable us to build highly efficient and accurate ‘bots’ that automate critical business processes, which otherwise are reliant on human intervention. Time-consuming repetitive tasks that are prone to human errors are best left to the ‘bot army’.
Whether it is an assistant for your sales team, a bot that presents the most suitable products/services for your customer, a bot assisting your customer retention team to help them identify potential churn or a bot that effectively

predicts a ‘time-bomb’ of an issue that can lead to a large scale social unrest because of service delivery issues, our bots are available 24/7 to help you succeed.

Natural Language Processing



Our smart machine learning algorithms coupled with Natural Language Processing capabilities allow us to extract information about people, places, events, and much more. Mentioned in text documents, articles, or emails which in turn tackle various problems such as providing sentiment analysis for customers to identify opinions and to help them understand what customers think about their products and services or parse intent from customer conversations happening in a call center to flag various issues beforehand. Beyond determining simple polarity our models help you better understand what is behind an expressed opinion, and predict a favorable or unfavorable outcome, which can be extremely relevant in understanding and driving behavioral decisions.

Why choose complex AI/ML-based RPA or Model needs?

- Relevant to your business
- Services leveraging a comprehensive platform that supports concept to deploy lifecycle, supported by strong workflow and integration capability.
- Proven and referenceable expertise
- Flexible commercial engagement models
- World-class performance

Platforms

- **Leggero**

The Leggero Data Management & Analytics Platform allows you to store, access, homogenize and analyze data from various sources and in different formats. The platform is built to scale for multiple terabytes of data and handle a continuous in-flow of data. The system provides features to collate and correlate data from various sources and analyze it for various facts based on multiple dimensions. The platform has abilities to handle unstructured data like Text Files and XML Files and convert them to datasets. These datasets can further be used for simple reporting or be used to run various models for complex analysis. The platform can be deployed on a dedicated hardware environments or on the cloud depending on the implementation needs and preferences. The analysed information can be presented in form of reports, charts and graphs that can be configured for various roles and privileges to access reports and charts/graphs.

The platform is a comprehensive data lifecycle management solution, it provides the necessary tools and frameworks that enables complex data engineering, data storage, metadata management, meta-semantics, advanced analytics and visualisation.

The platform supports Big Data over a distributed computing environment for largescale data processing and analysis. The platform has to be deployed in a clustered environment if large volumes of data is processed, it can be installed and run on a non distributed environment in case of lesser volume of data processing and management.

System Architecture and Functionality

The Platform has been architected keeping in mind the ease of use and flexibility while ensuring nonfunctional requirements like scalability and response time. The information analyzed can be presented in the form of Reports and Dashboards that comprise of charts and graphs. The data can be simply published as a text dataset in case a different system requires to consume the data. The data can be presented in single-series or multi-series charts for example: Pie Charts, Area Charts, or Bar and Column charts. The system has the ability to analyse and publish data for times, series or trends and other data series analysis.

Why choose Nyalazone's Leggero Data Management & Analytics Platform?

- Highly scalable
- Advanced visualisation
- You are not restricted to a design time schema of the warehouse
- Co-existent with traditional warehouse and marts
- Significantly Low TCO

- **DDS**

Dynamic
Data
Source

Nyalazone’s Dynamic Data Source platform allows the configuration of various transformation rules that are persisted and subsequently used for iterative data cleansing and transformational needs. The module runs its own proprietary, in- Memory Database (Data Objects) for storing commonly used data structures that are required for transformation and cleansing routines. The in-memory processing capability of the module ensure near real-time responses on transformation needs. DDS facilitates data transformation exercises with various features that allow for very complex rules to be applied to an attribute or an instance level of a source entity. The unique concept of ‘Computed Columns’ allows for multiple source columns to be used as inputs for transformation exercises to derive an output column.

Data cleansing and consolidation are facilitated with Fuzzy Logic Matches and Pattern Matches. The platform has the ability to convert unstructured data to structured data for migration needs. Multiple sources can be joined, correlated or used for mappings to perform an attribute or instance-level transformation.

Why choose Nyalazone's Leggero Data Management & Analytics Platform?

Real-Time Lightning Fast Data Transformation Handle Multiple Data Sources:

- JSON, XML
- Complex Multiline Text
- Excel, word & PDF
- RDBMS
- Web Scraping
- In Memory Data Objects, Fuzzy Logic & Pattern Match, Join Across Different Source, High Volume Data Handling, Handle Data Transformation

Tasks can be done like:

- Mapped Transformation
- Dynamic &Amp; Function Based Lookups
- Self-Computed Columns
- Grouped Functions
- Filter Functions
- Vertical Aggregation, Horizontal Extraction, Persistent Transformation Rules

- **Intelli ML**

The IntelliML module allows for building and deploying Bots. It provides support for strong workflow and integration capabilities which allow the deployment of production ready bots. Deploying bots that help in automating tasks that are mission-critical and cannot be left to human errors, or tasks that rely on individual judgement that induces errors because of the emotional state of an individual or tasks that are repetitive and time consuming that takes thousands of man-hours and yet do not yield results. These are just some of the cases fit for RPA using Bots deployed on our platform.

Some of our 'Busy Bots':

Churn Management Predictor
Churn Management Predictor helps to predict if a customer is potentially going to drop out. The model will predict the likelihood of customers dropping out. The model can be run periodically on the entire customer dataset to produce a list of potential dropouts. This list can be used for various remedial actions to assist with customer retention. The Conversion Model (described above) can be used to retain a customer by predicting suitable product alternatives.

Conversion Predictor
Conversion Predictor helps by suggesting the best product or service alternative to a customer based on Demographic Segmentation, behavourial profile, usage profile, other financial data available and financial needs analysis.

Effective Call Time

This Bot identifies the best time to call a potential customer based on identified parameters, it works with the campaign manager to create an outbound call list that enhances the chance of having effective communication with the potential customer that will lead to a sale or efficient service call.

New Sales Predictor

New Sale Prediction Model allows for the prediction of "best fit" products or services for a particular customer based on their fitment in a specific demographic segmentation. The customer segmentation is based on an unsupervised learning model. It leverages various behavioral attribute-relevant predictions that then drive the sales process.

Application to Customer Support

This Bot helps in tracking and predicting a successful lead-to-cash-cycle. Based on various customer interactions, requests and response time/frequencies or artifact exchanges, the bot will help in the continuous monitoring of leads to an effective sale.

Email to Service Request / Tickets Generator

This model uses Natural Language Processing (NLP) and Machine Learning Algorithms to categorize emails that can be used to create leads, service requests or tickets etc. The model relies on historical data and emails to identify key issues raised in an email and further classify the email to a particular service request category and sub-category. This model helps in improving operational efficiency by reducing human interventions.

Critical Issue Identifier

This model is based on NLP and ML algorithms and helps in identifying critical issues highlighted in emails. This helps in identifying potential "time bombs" and addresses such issues without letting them blow up, thus avoiding the significant cost and reputational damages.

Why choose Nyalazone for your machine learning algorithms and AI?

Nyalazone is an end-to-end provider for ML-enabled Models and Bots, we take complete ownership right from the data source to the bot-driven action. Our matured platform tools and methodology reduces the time spent on data engineering tasks, which allows us to focus better on Business Process adaption for the model development and iteratively improving the models as well. Our typical bot deployment cycle is 90 days which helps our customers realize quick wins and thus get better support for the transformation initiatives.

1. Python:

Python is an interpreted, object-oriented, high-level, dynamically semantic programming language. It is particularly desirable for Rapid Application Development as well as for usage as a scripting or glue language to tie existing components together due to its high-level built-in data structures, dynamic typing, and dynamic binding. Python's straightforward syntax prioritises readability and makes it simple to learn, which lowers the cost of programme maintenance. Python's support for modules and packages promotes the modularity and reuse of code in programmes. For all popular platforms, the Python interpreter and the comprehensive standard library are freely distributable and available in source or binary form.

Python frequently causes programmers to fall in love due to the enhanced productivity it offers. The edit-test-debug cycle is extraordinarily quick because there is no compilation step. Python programmes are simple to debug since a segmentation failure is never caused by a bug or incorrect input. Instead, the interpreter raises an exception when it finds a mistake. The interpreter prints a stack trace if the application doesn't catch the exception. Setting breakpoints, evaluating arbitrary expressions, inspecting local and global variables, stepping through the code one line at a time, and other features are all possible with a source level debugger. Python's ability to perform introspection is demonstrated by the debugger, which is developed in Python.

Python's ability to perform introspection is demonstrated by the debugger, which is developed in Python.

History:

In February 1991, Van Rossum published the code (labeled version 0.9.0) to alt.sources. Already present at this stage in development were classes with inheritance, exception handling, functions, and the core datatypes of list, dict, str and so on. Also in this initial release was a module system borrowed from Modula-3; Van Rossum describes the module as "one of Python's major programming units" Python's exception model also resembles Modula-3's, with the addition of an else clause. In 1994 comp.lang.python, the primary discussion forum for Python, was formed, marking a milestone in the growth of Python's userbase

2. Jenkins:

Jenkins is an open source automation server. It helps automate the parts of software development related to building, testing, and deploying, facilitating continuous integration and continuous delivery. It is a server-based system that runs in servlet containers such as Apache Tomcat. It supports version control tools, including AccuRev, CVS, Subversion, Git, Mercurial, Perforce, ClearCase and RTC, and can execute Apache Ant, Apache Maven and sbt based projects as well as arbitrary shell scripts and Windows batch commands.

The Jenkins project was originally named Hudson, and was renamed in 2011 after a dispute with Oracle, which had forked the project and claimed rights to the project name. The Oracle fork, Hudson, continued to be developed for a time before being donated to the Eclipse Foundation. Oracle's Hudson is no longer maintained and was announced as obsolete in February 2017.

Around 2007 Hudson became known as a better alternative to Cruise Control and other open-source build-servers. At the JavaOne conference in May 2008 the software won the Duke's Choice Award in the Developer Solutions category.

During November 2010, after the acquisition of Sun Microsystems by Oracle, an issue arose in the Hudson community with respect to the infrastructure used, which grew to encompass questions over the stewardship and control by Oracle.Negotiations between the principal project contributors and Oracle took place, and although there were many areas of agreement a key sticking point was the trademarked name "Hudson," after Oracle claimed the right to the name and applied for a trademark in December 2010. As a result, on January 11, 2011, a call for votes was made to change the project name from "Hudson" to "Jenkins." The proposal was overwhelmingly approved by community vote on January 29, 2011, creating the Jenkins project.

On February 1, 2011, Oracle said that they intended to continue development of Hudson, and considered Jenkins a fork rather than a rename. Jenkins and Hudson therefore continued as two independent projects,each claiming the other was the fork. As of June 2019, the Jenkins organization on GitHub had 667 project members and around 2,200 public repositories,compared with Hudson's 28 project members and 20 public repositories with the last update in 2016.

In 2011, creator Kohsuke Kawaguchi received an O'Reilly Open Source Award for his work on the Hudson/Jenkins project. On April 20, 2016 version 2 was released with the Pipeline plugin enabled by default.The plugin allows for writing build instructions using a domain specific language based on Apache Groovy. Jenkins replaced Hudson since February 8, 2017 in Eclipse. In March 2018 Jenkins X software project for Kubernetes was publicly presented, with support for different cloud providers including AWS EKS among others.

Builds:
Builds can be triggered by various means, for example: a webhook that gets triggered upon pushed commits in a version control system scheduling via a cron-like mechanism requesting a specific build URL. After the other builds in the queue have completed
invoked by other builds

Plugins:
Plugins have been released for Jenkins that extend its use to projects written in languages other than Java. Plugins are available for integrating Jenkins with most version control systems and bug databases. Many build tools are supported via their respective plugins. Plugins can also change the way Jenkins looks or add new functionality. There are a set of plugins dedicated for the purpose of unit testing that generate test reports in various formats (for example, JUnit bundled with Jenkins, MSTest, NUnit, etc) and automated testing that supports automated tests. Builds can generate test reports in various formats supported by plugins (JUnit support is currently bundled) and Jenkins can display the reports and generate trends and render them in the GUI.

3. Supervisord

Supervisor is a client/server system that allows its users to control a number of processes on UNIX-like operating systems. It was inspired by the following:

- **Convenience:**

It is often inconvenient to need to write rc.d scripts for every single process instance. rc.d scripts are a great lowest-common-denominator form of process initialization/autostart/management, but they can be painful to write and maintain. Additionally, rc.d scripts cannot automatically restart a crashed process and many programs do not restart themselves properly on a crash. Supervisord starts processes as its subprocesses, and can be configured to automatically restart them on a crash. It can also automatically be configured to start processes on its own invocation.

- **Accuracy:**

It’s often difficult to get accurate up/down status on processes on UNIX. Pidfiles often lie. Supervisord starts processes as subprocesses, so it always knows the true up/down status of its children and can be queried conveniently for this data.

- **Delegation:**

Users who need to control process state often need only to do that. They don’t want or need full-blown shell access to the machine on which the processes are running. Processes which listen on “low” TCP ports often need to be started and restarted as the root user (a UNIX misfeature). It’s usually the case that it’s perfectly fine to allow “normal” people to stop or restart such a process, but providing them with shell access is often impractical, and providing them with root access or sudo access is often impossible. It’s also (rightly) difficult to explain to them why this problem exists. If supervisord is started as root, it is possible to allow “normal” users to control such processes without needing to explain the intricacies of the problem to them. Supervisorctl allows a very limited form of access to the machine, essentially allowing users to see process status and control supervisord-controlled subprocesses by emitting “stop”, “start”, and “restart” commands from a simple shell or web UI.

- **Process Groups**

Processes often need to be started and stopped in groups, sometimes even in a “priority order”. It’s often difficult to explain to people how to do this. Supervisor allows you to assign priorities to processes, and allows user to emit commands via the supervisorctl client like “start all”, and “restart all”, which starts them in the preassigned priority order. Additionally, processes can be grouped into “process groups” and a set of logically related processes can be stopped and started as a unit.

Features:

- **Simple**

Supervisor is configured through a simple INI-style config file that’s easy to learn. It provides many per-process options that make your life easier like restarting failed processes and automatic log rotation.

- **Centralized**

Supervisor provides you with one place to start, stop, and monitor your processes. Processes can be controlled individually or in groups. You can configure Supervisor to provide a local or remote command line and web interface.

- **Efficient**

Supervisor starts its subprocesses via fork/exec and subprocesses don’t daemonize. The operating system signals Supervisor immediately when a process terminates, unlike some solutions that rely on troublesome PID files and periodic polling to restart failed processes.

- **Extensible**

Supervisor has a simple event notification protocol that programs written in any language can use to monitor it, and an XML-RPC interface for control. It is also built with extension points that can be leveraged by Python developers.

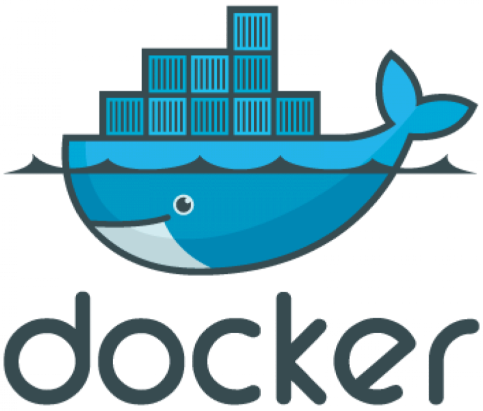
- **Compatible**

Supervisor works on just about everything except for Windows. It is tested and supported on Linux, Mac OS X, Solaris, and FreeBSD. It is written entirely in Python, so installation does not require a C compiler.

- **Proven**

While Supervisor is very actively developed today, it is not new software. Supervisor has been around for years and is already in use on many servers.

4. Docker:



Docker is a set of platform as a service (PaaS) products that use OS-level virtualization to deliver software in packages called containers.The service has both free and premium tiers. The software that hosts the containers is called Docker Engine.It was first started in 2013 and is developed by Docker, Inc.

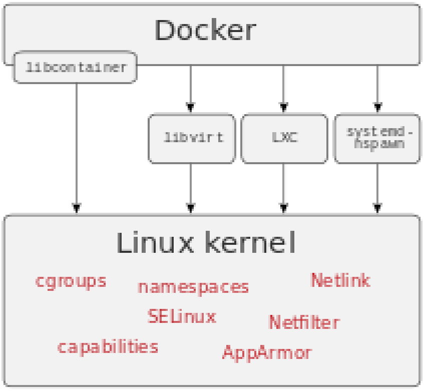
Background

Containers are isolated from one another and bundle their own software, libraries and configuration files; they can communicate with each other through well-defined channels.Because all of the containers share the services of a single operating system kernel, they use fewer resources than virtual machines.

Operation:

Docker can package an application and its dependencies in a virtual container that can run on any Linux, Windows, or macOS computer. This enables the application to run in a variety of locations, such as on-premises, in public (see decentralized computing, distributed computing, and cloud computing) or private cloud.When running on Linux, Docker uses the resource isolation features of the Linux kernel (such as cgroups and kernel namespaces) and a union-capable file system (such as OverlayFS) to allow containers to run within a single Linux instance, avoiding the overhead of starting and maintaining virtual machines.Docker on macOS uses a Linux virtual machine to run the containers.

Because Docker containers are lightweight, a single server or virtual machine can run several containers simultaneously.A 2018 analysis found that a typical Docker use case involves running eight containers per host, and that a quarter of analyzed organizations run 18 or more per host.It can also be installed on a single board computer like the Raspberry Pi.



The Linux kernel's support for namespaces mostly isolates an application's view of the operating environment, including process trees, network, user IDs and mounted file systems, while the kernel's cgroups provide resource limiting for memory and CPU.Since version 0.9, Docker includes its own component (called "libcontainer") to use virtualization facilities provided directly by the Linux kernel, in addition to using abstracted virtualization interfaces via libvirt, LXC and systemd-nspawn.

Docker implements a high-level API to provide lightweight containers that run processes in isolation.Docker containers are standard processes, so it is possible to use kernel features to monitor their execution—including for example the use of tools like strace to observe and intercede with system calls.

Components

The Docker software as a service offering consists of three components:

- **Software:** The Docker daemon, called dockerd, is a persistent process that manages Docker containers and handles container objects. The daemon listens for requests sent via the Docker Engine API.The Docker client program, called docker, provides a command-line interface (CLI), that allows users to interact with Docker daemons.
- **Objects:** Docker objects are various entities used to assemble an application in Docker. The main classes of Docker objects are images, containers, and services.
- A Docker container is a standardized, encapsulated environment that runs applications.A container is managed using the Docker API or CLI.

- A Docker image is a read-only template used to build containers. Images are used to store and ship applications.
- A Docker service allows containers to be scaled across multiple Docker daemons. The result is known as a swarm, a set of cooperating daemons that communicate through the Docker API.
- **Registries:** A Docker registry is a repository for Docker images. Docker clients connect to registries to download ("pull") images for use or upload ("push") images that they have built. Registries can be public or private. The main public registry is Docker Hub. Docker Hub is the default registry where Docker looks for images.Docker registries also allow the creation of notifications based on events.

Tools:

- **Docker Compose** is a tool for defining and running multi-container Docker applications.It uses YAML files to configure the application's services and performs the creation and start-up process of all the containers with a single command. The docker-compose CLI utility allows users to run commands on multiple containers at once, for example, building images, scaling containers, running containers that were stopped, and more.Commands related to image manipulation, or user-interactive options, are not relevant in Docker Compose because they address one container.The docker-compose.yml file is used to define an application's services and includes various configuration options. For example, the build option defines configuration options such as the Dockerfile path, the command option allows one to override default Docker commands, and more. The first public beta version of Docker Compose (version 0.0.1) was released on December 21, 2013.The first production-ready version (1.0) was made available on October 16, 2014.

- **Docker Swarm** provides native clustering functionality for Docker containers, which turns a group of Docker engines into a single virtual Docker engine. In Docker 1.12 and higher, Swarm mode is integrated with Docker Engine.The docker swarm CLI utility allows users to run Swarm containers, create discovery tokens, list nodes in the cluster, and more.The docker node CLI utility allows users to run various commands to manage nodes in a swarm, for example, listing the nodes in a swarm, updating nodes, and removing nodes from the swarm.Docker manages swarms using the Raft consensus algorithm. According to Raft, for an update to be performed, the majority of Swarm nodes need to agree on the update.

Docker Volume facilitates the independent persistence of data, allowing data to remain even after the container is deleted or re-created.
History
Docker Inc. was founded by Kamel Founadi, Solomon Hykes, and Sebastien Pahl during the Y Combinator Summer 2010 startup incubator group and launched in 2011.The startup was also one of the 12 startups in Founder's Den first cohort.Hykes started the Docker project in France as an internal project within dotCloud, a platform-as-a-service company.

Docker debuted to the public in Santa Clara at PyCon in 2013.It was released as open-source in March 2013. At the time, it used LXC as its default execution environment. One year later, with the release of version 0.9, Docker replaced LXC with its own component, libcontainer, which was written in the Go programming language.

In 2017, Docker created the Moby project for open research and development.

5. Search Engine:

We uses a open source leading search engine. Coming to what is Open Source

Open source software is software with source code that anyone can inspect, modify, and enhance.

"Source code" is the part of software that most computer users don't ever see; it's the code computer programmers can manipulate to change how a piece of software—a "program" or "application"—works. Programmers who have access to a computer program's source code can improve that program by adding features to it or fixing parts that don't always work correctly.

Some software has source code that only the person, team, or organization who created it—and maintains exclusive control over it—can modify. People call this kind of software "proprietary" or "closed source" software.

Only the original authors of proprietary software can legally copy, inspect, and alter that software. And in order to use proprietary software, computer users must agree (usually by signing a license displayed the first time they run this software) that they will not do anything with the software that the software's authors have not expressly permitted. Microsoft Office and Adobe Photoshop are examples of proprietary software.

Open source software is different. Its authors make its source code available to others who would like to view that code, copy it, learn from it, alter it, or share it. LibreOffice and the GNU Image Manipulation Program are examples of open source software.

As they do with proprietary software, users must accept the terms of a license when they use open source software—but the legal terms of open source licenses differ dramatically from those of proprietary licenses.

A search engine is a software program that helps people find the information they are looking for online using search queries containing keywords or phrases.

Search engines are able to return results quickly even with millions of records by indexing every data record they find.

6. Zabbix

ZABBIX

Zabbix is an open-source software tool to monitor IT infrastructure such as networks, servers, virtual machines, and cloud services. Zabbix collects and displays basic metrics.
Zabbix is designed primarily as an IT infrastructure monitoring tool. New features are generally released every six months to major versions and every 1.5 years to LTS versions.

Released under the terms of GNU General Public License version 2, Zabbix is free software that does not require a license to use any of its features. Even though Zabbix is open-source software, it is a closed development software product, developed by Zabbix LLC based in Riga, Latvia.

Early in its history, Zabbix was described as simple to set up compared to other monitoring solutions.However, later it was considered by some to need a significant amount of manual configuration. As an open-source product however Zabbix focusses on the usage of existing tools and functionality as well as proprietary solutions to achieve a scalable monitoring solution.

Chapter - IV Brief Description About the Work done

The company works in a structure that each person in the company will be given the work as a task the task has their respective deadlines and they have to submit the task according to the time and also the task was reviewed in the daily basis through the supervisors and mentors in the company and guidance will be given and the problem statements were discussed during the meetings which were happening daily according to the time slots.

My daily Meeting is going to be scheduled at 9:30 a.m. in the morning every day in this meeting I am going to discuss the previous data with the senior employees of the company which they are going to review the previous day and what is the work I have to do in the previous day also they are going to check and verify the job and what I am done in the meeting we are going to discuss on various topics how the work can be done of that particular task and if there are any resources on the requirements and ask seniors in the company that what are the main requirements of the task and what is the outcome of the first out this I prepare and flow in which I can make the task in easy discuss with the flow and verify whether there are there won't be any loopholes or some other It cases for any floors in the floor once the plan is made I am going to start my work so let me discuss some of the tasks in which I had worked in the company and what are the learning outcomes of the task.

- **Adding a Note Column in the telephony**

Our company has a CRM which was developed by the company and in our main thing is to develop the different features according to the client requirements in the CRM, one of the features is there is a telephone directory in which in the CRM client and the telephone agent will going to talk with them so the main problem statement over his is when one person had a conversation with the allocated list of customers and the particular telephone agent leaves after his shift and another customer doesn't know doesn't have any record that what is the conversation happened between the telephone agent and the customer.

This is the problem statement that was tackled to make and add one feature stating in which the agent is going to fill the note what is the conversation happened between the customer and the agent like the customer request to call after some time or he was not able to produce the documents which were necessary to provide producer so this was the problem statement and we use it the Python at the backend programming language so we had in which we had created one feature there will be one frontend request going to be created from the telephone agent in once the API hit the back end we are going to per the data and keep in the database which is the Postgres SQL and also we are going to give a list which can be done by the get request by fetching the all the records by the customer with the telephonic agent.

- **Structured and Ordered Bullet Points**

The second thing in the CRM there is one more feature in which the employees of the company can schedule a meeting with their co-employees in the meeting scheduler. the meeting scheduler has different kinds of features which take the input of the meeting time the agenda of the meeting and the description of it also we can add the features and select the people who are working in the company and the meeting we want to schedule.

In this meeting, there is one feature to make notes of the meeting so it's a kind of personal Notepad for everyone who is attending the meeting that can write the things in the particular Notepad and then we can say that like what are the things discuss what are the main Bullet points. we are all aware of the ordered list let me discuss the kinds of what is ordered list and an unordered list these consist of symbols that can be stated as coming to it in alphabetical order or numerical order.

Coming to the problem statement in this. if the person selects the ordered list we are getting only the numerical list while, but in the ordered list we have different kinds of types like Roman numbers numerical alphabets in the capital and small instead we are getting only the. While analyzing the problem statement and getting a talk with the requirements I got to know that there is one Level stated in the request while generating the report of the notes we made in that report levels are stated the first level is stated as one and the sub ordered list of an ordered list is stated as two. If you start the ordered list again then the level of that particular is again stated as one and the main company requirement is to include the three types of ordered lists Roman one is alphabetical and one is numerical.

The solution to this particular problem can be made through simple logic. according to the level, we made an algorithm that detects the number from the data received from the front end and the levels and marks the indentation, And gives the list and it will generate the report this is the approach we followed for this task and outcomes of this task is how the logic can be built and how we can change the order and made one list out of it to state the ordered list and unordered list of that particular statement I got to know how ordered list and the unordered list can be worked out in the Python while parsing the data

- **Checking the Code whether all the documents are attached in the Mail**

After with the development as I was allocated with a small Which is unit testing. so the main agenda of this task is to check the logic and verify the logic. in my previous task, we can send the mail of the reports to the particular person so when I click mail it is going to attach some documents which are necessary and what are the discuss different things discussed in the meeting like that and transcripts and so on.

In this, I verified the logic whether it is attaching all the documents and verifying the names and classes and the functions of the code. Once I verified the code I have gone through the front end and made different kinds of equals and tested different edge cases whether the reports are creating and attaching correctly and whether the person received the email correctly and whether the documents are sending fine and some other things.

Problem Statement:
After working on some programming tasks the company got a requirement. in our company, different servers are running for different clients and we have to deploy the codes on time for testing purposes. and we need to verify whether the changes were reflected or not by some testing.   some of the deployments are easy in which it can be done in a couple of commands but some of the deployments it is hard to deploy and it takes much time to deploy that should be one person who is continuously walking on the deployments. some deployments will take around 90 minutes also some person needs to stop the task he is working on and need to deploy this thing.

The company decided To check an alternative software or something else to do this job in which the time take to make this job might take more time but further it won't take much time to deploy the things and make things easier for those that didn't know anything. The agenda of the company is to deploy things whether the software are being complex or easy with a single click.

This is where we got to know about Jenkins. Jenkins is a leading open-source automation server that provides hundreds of plugins to support building deploying and automating any project it has different features like continuous integration and continuous delivery as an extensible automation server Jenkins can be used as a simple CI server or turned into a continuous delivery hub for any project. I am coming to the installation drinking is very easy to install and Jenkins is a self-contained Java basic program ready to run out of the box with the packages for windows Linux Mac OS and other UNIX-like operating systems.

Jenkins can be easily set up and configured via its web interface which includes on-fly errors and built-in help within the hundreds of plugins in the update center Jenkins integrates with practically every tool in the continuous integration and continuous delivery to change Jenkins can be extended by its plugin architecture providing very infinite opportunities and possibilities for what thinking can do and it can easily distribute work across the multiple machines and helping drive build test and deployment across multiple platforms faster

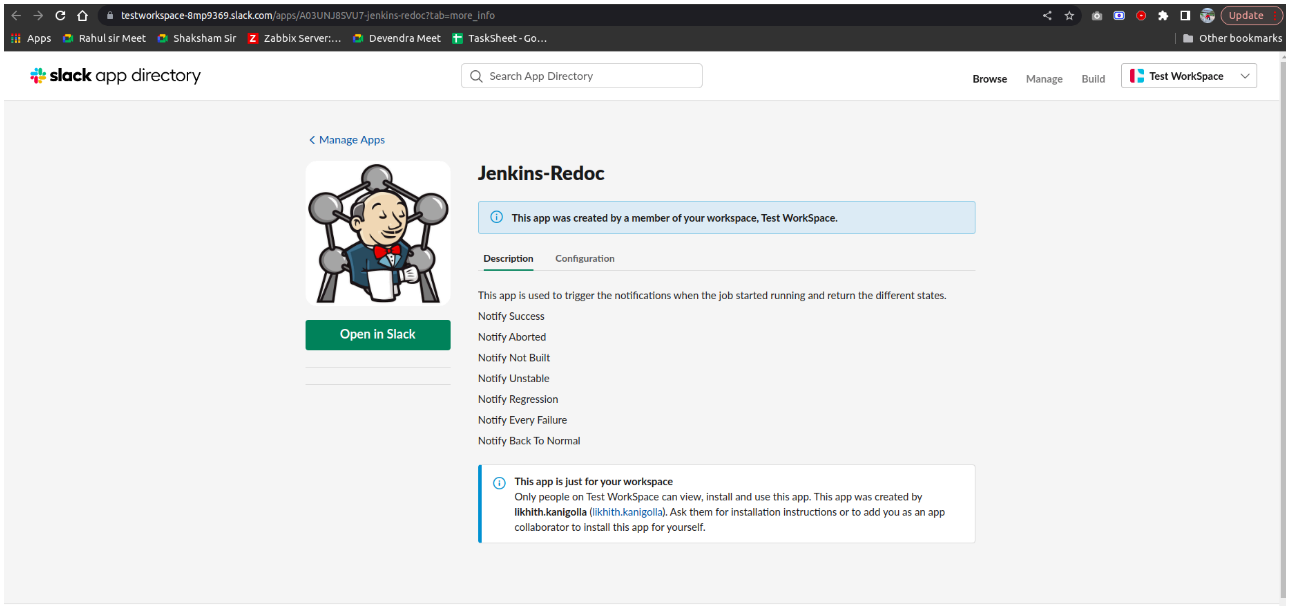
- **Setting up Jenkins server**

My first task is to set up the Jenkins server so which of the platform GCP which is known as Google cloud platform. Google Cloud console provides a web-based graphical user interface that you can manage to use your Google Cloud projects and resources and we have taken the instance to run our server. The requirement of the server for Jenkins is an operating system and you have chosen Ubuntu as our operating system. The main requirement of Jenkins is Java. Jenkins requires the Java Runtime environment. We used OpenJDK for the Java environment.

- **Jenkins Notifications in Slack**

Once we had installed our Jenkins and were successfully able to deploy the jobs and run the jobs in Jenkins. Coming to this Jenkins itself has a plugin to send slack notifications but instead, we can build our own bot. this went to slack and was first created in API so I pick the name app called Jenkins bot and then I filled the with the basic information like what is the bot for a description of the bot and then I added the functionality and given the permission which is required for Jenkins to send a slide notification to avoid workspace in which we get to know the status of the job and other details of the job what happened this whenever a job is a trigger and we include this feature in which will get a notification of the job when it is started when it is run and how much time it took so by this we can get to know what is the status of the job to all the other employees in the company.

which are required for sending the notification first one is the right scope and also the read access of the particular job and then once we get to given all the permissions or whatever the required then we can deploy the bot there is one button. stay which says to install the app to the workspace so also it will generate an access token to add it to a workspace. we get a username and the credentials for the particular bot to integrate it into the Jenkins website.



Jenkins-Redoc

This app was created by a member of your workspace, Test WorkSpace.

This app is used to trigger the notifications when the job started running and return the different states.

Notify Success
Notify Aborted
Notify Not Built
Notify Unstable
Notify Regression
Notify Every Failure
Notify Back To Normal

This app is just for your workspace
Only people on Test WorkSpace can view, install and use this app. This app was created by **likhith.kanigolla** (likhith.kanigolla). Ask them for installation instructions or to add you as an app collaborator to install this app for yourself.

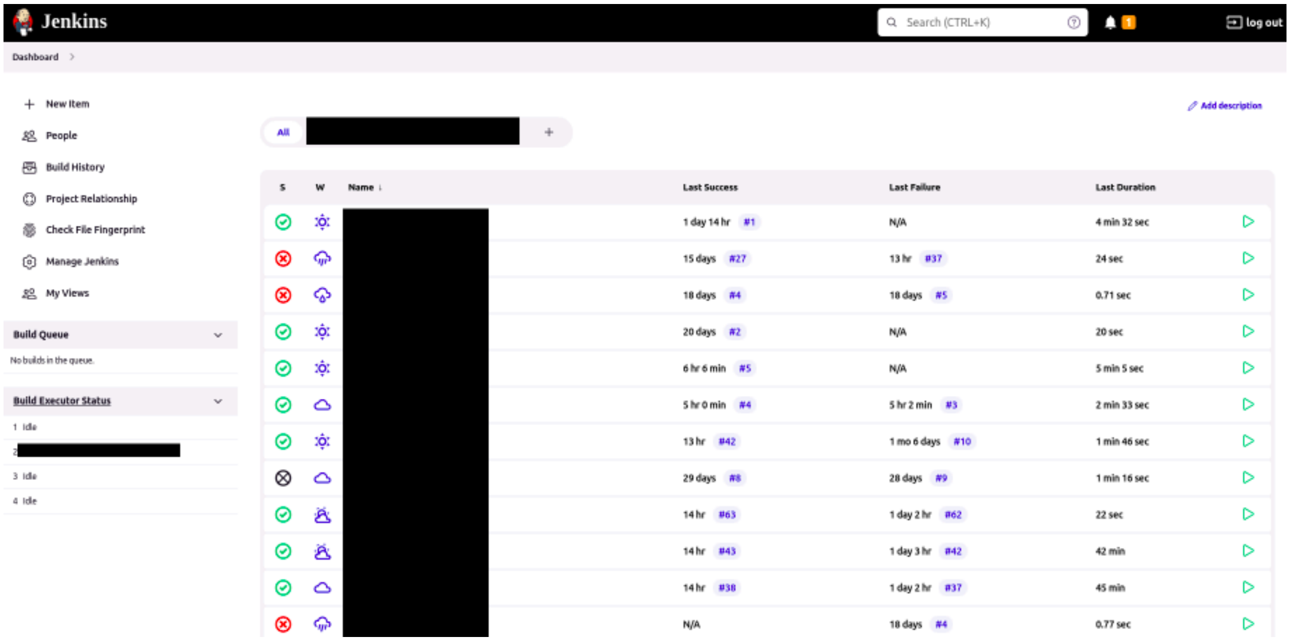
- **Deployment Jobs, Pipelines for the different servers.**

There are different servers in our company for different clients. for the initial stages, we made a small job in which it will be used for the server call readoc. being a step in the job first it is going to take the code from the AWS code commit from the specific branch specified in the job and later on it will take to do the necessary steps written in the job and it will trigger the notifications to the flag about the success or failure to the state of the particular job and only one more job is made for the notification in which it is going to be triggered one hour before it is triggering what happens if we had made and direct expression in which it is going to Trigger the job at the particle at times and it is going to Trigger a notification one hour before in which the job is made so this is what happens if we get to know the information that in one hour our job is going to be triggered and it is going to deploy so that we can do the message necessary changes and ready for the deployment.

Once we fix it and tested this flow we got to know that Jenkins is making our task more here in the part of the deployment so we had to focus it to do the jobs and trigger more jobs on Jenkins itself so, later on, we had gone through the different kinds of research tasks in which how the Jenkins is going to work and how compatible.

we need to make the deployments through the Jenkins I got to know that different task can be managed it through the Jenkins like connecting to the ssh in the initial stages I had faced for many challenges in the connecting with the different servers while the deployment, about the plugins and how the jenkins will work and what are the different plugins available in the jenkins software to make the task easier in some cases It is more difficult to connect to the different server because we need to connect to the different server and Fetch the files from the different servers to make the job done for example in a particular case we had a total of eight servers in which the server need to run out of this it has to fetch the file from the different servers available and merge them and make the job to run later on also we need to and start the server and stop the server frequently to run the job and make sure everything is running successfully.

Different servers has the different types of the deployment steps in which each has the different approaches some are with the docker images, some are with the commands.



Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 [redacted]

3 Idle

4 Idle

S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☀	[redacted]	1 day 14 hr #1	N/A	4 min 32 sec	▷
✗	🌧	[redacted]	15 days #27	13 hr #37	24 sec	▷
✗	🌧	[redacted]	18 days #4	18 days #5	0.71 sec	▷
✓	☀	[redacted]	20 days #2	N/A	20 sec	▷
✓	☀	[redacted]	6 hr 6 min #5	N/A	5 min 5 sec	▷
✓	☁	[redacted]	5 hr 0 min #4	5 hr 2 min #3	2 min 33 sec	▷
✓	☀	[redacted]	13 hr #42	1 mo 6 days #10	1 min 46 sec	▷
⊗	☁	[redacted]	29 days #8	28 days #9	1 min 16 sec	▷
✓	⛅	[redacted]	14 hr #63	1 day 2 hr #62	22 sec	▷
✓	⛅	[redacted]	14 hr #43	1 day 3 hr #42	42 min	▷
✓	☁	[redacted]	14 hr #38	1 day 2 hr #37	45 min	▷
✗	🌧	[redacted]	N/A	18 days #4	0.77 sec	▷

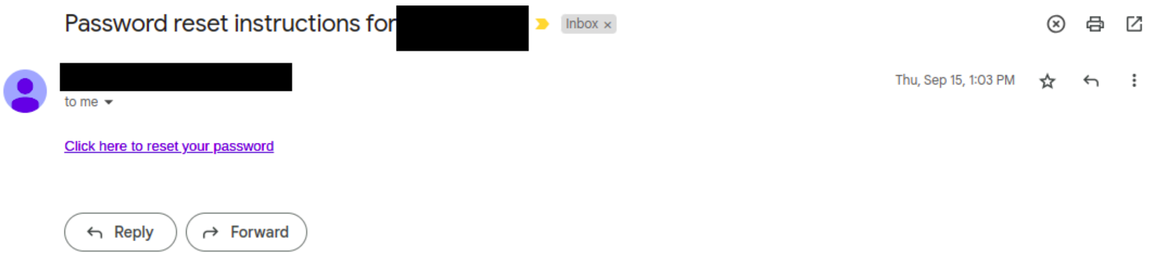
Different kinds of research is made on the every deployment because each has different kinds of deployments. Various issues has faced in the deployments. But end of the day I am able to built the CI-CD Pipelines through the jenkins. I made some tasks in which some are going to deploy automatically using the regex expressions to control the jobs.

Some of the pipelines are made with the joining of the multiple jobs like each of the job does the different tasks each are to be splitted as the different servers like frontend, backend, database etc. All the jobs are merged and make a single pipeline.

- **Role Based Access control**

Data Base is the most crucial thing in a company, As important as the database keeping it secure is the most important task. There is two level of protection is implemented in the databases. One of the security is lies with the databases in which the users added/created will be given with the specific roles to access the things. The user has a username and password also

Implemented the forgot password feature, in which the user can request the forgot password if they forgot their password to login in the email will be sent to the particular user stating that your password has been requested to reset please click on the below link to reset and once the user Clicks on that link there going to redirect with the earth dialogue box in which states To enter the new password once he entered and click for the user is going to receive and another mail stating that your password has been reset



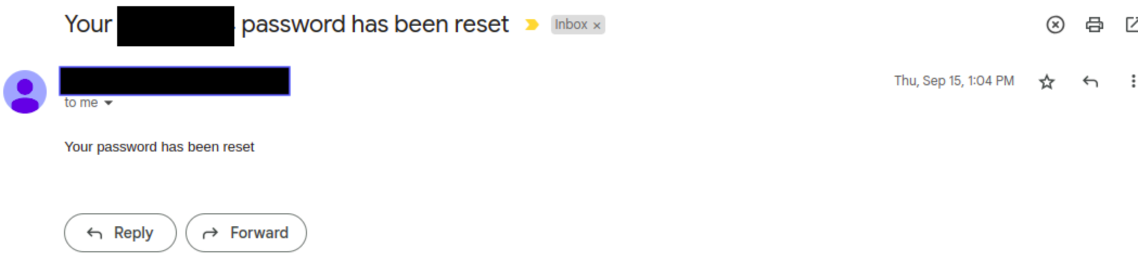
Password reset instructions for [redacted]

[redacted]

to me

Thu, Sep 15, 1:03 PM

Click here to reset your password



Your [redacted] password has been reset

[redacted]

to me

Thu, Sep 15, 1:04 PM

Your password has been reset

The above images show about the password reset and the mail which shows a link to reset the password and the image in the side shows the different roles which are created as a login user of the postgres these users act as an administrator,editor, reader which can be used while exporting the jobs through they have their own passwords in which they can be used in we can create the user by through the process of the CLI comment we can even export the different things like exporting the database or import in the database or else DBM file export can be done through different CLI commands. The complete list is hidden for privacy purposes.

- **Supervisor**

While working with Jenkins we got a problem that our servers are running continuously so if we need to start the service there we need to go to the server and run the command and exit our job but that is not happening in our case the thing happening is that the Jenkins is getting stuck for some time till it's getting timed out and our job is failing even though our command is working fine in the server at that point we made a workaround by doing the tmux sessions which is a basic session in which we are going to connect to the session and run the comments and exit and even though we tried to access the tmux through the Jenkins it is not possible in which it is going to access to the Jenkins and run the command and exit the situation. For at that time made a python script to do our job. later on we got to know that there is one tool called a supervisor which it can do our job easier.

Basically, we use the python script in which we give the commands in the script it will connect to the session and run the commands and do it. Later once with the supervisor, we are going to configure the commands, configuration and start the server and stop the service in an easy manner, made research in which we learned about that how the supervisor will work and what are the different permissions it is going to take and how the things initial stages we had to face many difficulties by changing the user and the logs are getting generated or not generated sometimes not getting things to be done. while we are going through the different things I am doing a different kind of research in which read about the documentation, and blogs about the problem statement getting faced and able to fix the things

at this point we are able to successfully run the server using the supervisor and it makes our Jenkins process is very easy in which we can stop the server and start the service with a single command in which it is going to be since it is in this command the Jenkins is considering it is as a successful state and the job is not getting failed with help the company a lot and there is more service to be set up using the Jenkins and supervisor.

- **Docker**

In our company we run then some service through docker also the research has been made on how the docker containers can be run through the supervisor and Jenkins and how what is the approach and different thing and the best practices how we can do that in the initial stages I learned about the docker but I was not sure about how it can be done because I have never done it in practical I just learned you through the YouTube resources and so on but my mentor has been guided me continuously and helping me in each problem statement where is taken I love the method in which the mentored me the instead saying the direct approach they are giving me how I can solve the problem on my one and they are giving guidance and how to choose the best blogs or how to choose the best documentation related to my work in which I am hands on my research skills by choosing the right blog at the right step and if the initial stages I use it to ask them for even a small but later on one I increase my skills I was able to debug the issues and I was able to the solve the problems of other teammates who is getting you into the docker and I was able to share my knowledge and help the others to solve their issues in the docker I learn different things in the docker like docker compose file and I was able to write my own docker images and integrate according to my needs and It helped me a lot and I got to know that docker is going to be make things easier and also it help it solves the all the most every problem.

I made the custom configurations to merge the different images in the ability to able create one file for the different images which is easier to manage. Debugged the issues faced while creating the images which helps me to learn how we can tackle the issue and debug the different things

By the time I was more into the docker and Jenkins and both became the best tasks for me. Looking forward to having more problem statements so that I can work more on this.

Chapter - V Learning Outcomes

I learn different Technologies like Jenkins, Fluentd, Elastic Search, Grafana, and Supervisord and enhanced my skills in the field of cloud computing, CI-CD, Pipelines, Deployments, Python, and docker. I am more confident about these things now.

Aside from learning the tools, I am also honed my talents in the following essential areas:

1. Understand how industries operate and improve themselves
2. Integrate and use information and skills acquired during the degree program to develop the knowledge
3. Analyze and complete independent and creative work of practical value
4. Locate answers to complicated problems to assist thousands of people
5. Summarize your own points of view based on a critical examination of works in many domains of study
6. Picking up the best practices before getting into it
7. How to choose the right software which suits the product
8. Using the Opensource technologies and software instead of paid versions
9. Different approaches in the field of research.

The areas worked here helped me to learn new things which I want to learn. This helps me to enhance and think from a different perspective before getting into any work. These things helped me to think about how things can be solved in real-world incidents

I got to know what things need to be checked before implementing anything and what are the requirements for it also while choosing the software we need to check what are things and whether it is possible for our requirement or not because one implemented and if it is not suitable at a point that it isn't views loss to the company if it is a paid version, apart from this we need to spend more time on the particular task to get it done one if it is not suitable for our requirement all the time we spent on the research and other work to implementing the process is going to be not useful for the company instead if we do the prayer research on it even if it takes time it will make more useful and we can learn the particular task which would do our process.

I would like to work on cloud computing Technologies since I was into the learning cloud technologies for the past two years it was more helpful for me to me get into things easier way also I had enhance my skills in the field of cloud Technologies and I am ready for any jobs which are going to be in the cloud and It helped me a lot to enhance it and I can say that I had to build something. I built my confidence while working here and was able to clear the AZ 900 certification.

The most difficult thing for me was accumulating the corporate working atmosphere as a newcomer it was difficult for me to comprehend the code at first within the time it became the second nature to grasp and work on any earlier implementation on the codebase in my early days away grazing myself to complete the assignment as soon as possible which resulted in several instances but with the support of my mentor and teammates I was able to overcome my shortcomings and fit within the rhythm of my team.

I was apprehensive about my talking about the large responsibility for the future because I like it conference but my mentor believed in me and give me ownership and over time again at the conference I worked on any obstacles that came my way**.** As time goes on I was thinking what are the pros and cons of the particular application if we are integrating anything and giving the permissions to the users if only if necessary questioning myself whether it is necessary or not to do the approach if it is a dead end or the paid version I was checking what are the other solutions in which I can make my best.

I was having difficulty conveying my Technological Solutions sometimes I was too shy to speak in front of my seniors and other times I couldn't get my point I know that my communication is essential for team performance, therefore, I practice a lot I am not the greatest as it is it but I am getting better and better day by day.

The Other wish you was a lack of knowledge of version control system deployment by Nyalazone. it was new it start that what are the different kinds of servers and where it is deployed on which server. I made a habit of making notes every time I have a meeting and noting down all the requirements of the particular task and asking my mentor about my each and every doubt he used to clarify the different things and assign me to the other person who can co-ordinate with me and know about the things that time I got to know that what are the things are going on under work culture on the floor of the company which helped me to do the task on time.

The main thing I face about the research because implementing new things which are not available in the company till now is a difficult task because we need to check the what are possibilities and what are the different challenges we are going to face in the company if we implement it to also I read different blocks and the documentations of the particular software which I need to implement which helped me to gain the difference knowledge and oral I can say it changed my perspective of thinking.

References

1. https://www.jenkins.io/doc/book/
2. http://supervisord.org/configuration.html
3. https://www.jenkins.io/doc/book/installing/linux/
4. https://askubuntu.com/
5. https://github.com/
6. https://www.quora.com/
7. https://medium.com/
8. https://forums.docker.com/
9. https://azure.microsoft.com/en-in/
10. https://www.cloudbees.com/
11. https://scholar.google.com/