

**GANADIPATHI TULSI'S JAIN ENGINEERING COLLEGE  
VELLORE**



## **APPROVAL AUTHORITY SYSTEM**

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### **GUIDE BY**

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## **ABSTRACT**

- The Approval Authority System is a web-based application developed to automate the approval process of SAP-related transactions.
- The system supports multi-level approval flows based on roles, departments, plants, and value thresholds.
- Technologies used include React.js for the front-end, Node.js for the back-end, and Microsoft SQL Server for the database.
- Role-based access ensures that users (Requestor, Approver, Admin) see only the functions relevant to their role.
- Secure authentication and session handling are implemented to protect user data and system integrity.
- Real-time tracking, approval status updates, and Excel export features are included to improve transparency and reporting.
- The main objective is to reduce manual workload, minimize approval delays, and improve operational efficiency.



## INTRODUCTION

- ✓ In large organizations, managing approvals for purchase requests, service entries, and material transactions is a critical process that directly impacts operations and compliance.
- ✓ Traditionally, these approvals are handled through manual methods such as paperwork or emails, which often lead to delays, lack of visibility, human errors, and inconsistent tracking.
- ✓ To overcome these limitations, the **Approval Authority System** has been developed as a centralized, web-based solution.
- ✓ This system automates the entire approval workflow by incorporating role-based access, multi-level validation, real-time tracking, and seamless integration with SAP.
- ✓ It ensures faster processing, better accountability, improved data accuracy, and complete transparency throughout the approval lifecycle.



## EXISTING SYSTEM

The current system follows a manual approval process using physical files or emails. There is no centralized platform to manage or track requests, leading to delays and limited visibility. Users cannot view the real-time status of their submissions, and approvals depend on individual follow-ups. The absence of dynamic validation rules makes the process inconsistent across departments, lacking transparency, standardization, and efficient communication.

### **Disadvantage Of Existing System**

➤ **Manual Approval Process:**

In the existing system, approvals are typically handled through physical files or emails, leading to delays and lack of standardization.

➤ **Lack of Transparency:**

Users have no clear visibility into the status of their requests, and approvers often lose track of pending approvals.

➤ **High Risk of Human Error:**

Manual data entry and communication increase the chances of mistakes in approval routing, request details, or final records.



# PROPOSED SYSTEM

The proposed Approval Authority System is a web-based solution that automates SAP-related approvals like Purchase Requests and Service Entries. It offers a structured, multi-level approval workflow based on role, department, and value. With real-time tracking, audit logs, and a user-friendly interface, it enhances transparency, reduces manual errors, and ensures faster processing. The system integrates React.js, Node.js, and Microsoft SQL Server to deliver secure and efficient operations.

## **Advantage Of Proposed System**

➤ **Real-Time Status Tracking:**

Users can instantly view the current status of requests, improving visibility and reducing follow-up delays.

➤ **Role-Based Access Control (RBAC):**

Each user (Requestor, Approver, Admin) has tailored access, ensuring security and ease of use.

➤ **Secure and Centralized Data Management:**

All transactions and records are stored in a centralized SQL Server database with encryption and access control.

➤ **Secure Authentication:**

The system uses encrypted credentials and secure sessions to prevent unauthorized access.



## HARDWARE REQUIREMENTS

Component	Specification
Processor	Intel i5 or higher
RAM	Minimum 8 GB
Hard Disk	256 GB SSD or more
Operating System	Windows 10 / 11 (64-bit)
Network	Stable internet connection for client-server interaction



# SOFTWARE REQUIREMENTS

Software	Purpose
Visual Studio Code	Code editor for frontend and backend development
Node.js	JavaScript runtime for backend services
Express.js	Backend web framework for handling API routes
React.js	Frontend JavaScript library for building user interfaces
MSSQL Server	Relational database management system
Postman	API testing tool
Git	Version control system



# **MODULES**

## **Login Module**

Handles secure user authentication. Users log in using credentials, and access is granted based on their assigned role (admin, approver, requester).

## **Dashboard Module**

Provides a personalized overview of requests, pending approvals, notifications, and real-time status updates. Enables users to take quick actions.

## **Request Module**

Allows users to create and submit purchase requests, service entries, or material inwards. Supports data validation and attachment uploads.

## **Approval Module**

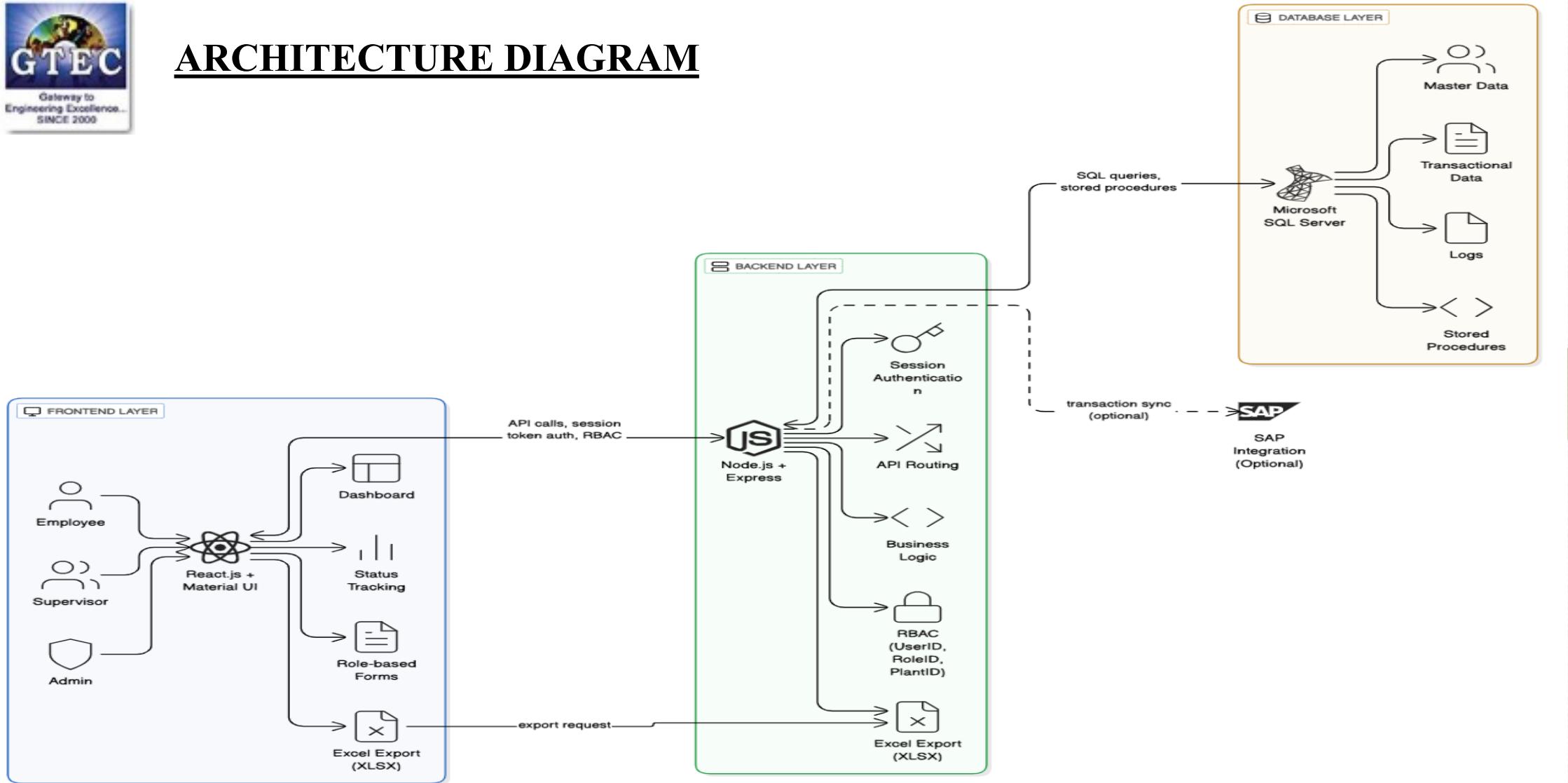
Manages multi-level approval workflows based on request type, value, department, and plant. Enables approvers to approve, reject, or comment on requests.

## **Master Data Management Module**

Admins can manage static data such as plants, departments, roles, vendors, materials, and user-role mappings.

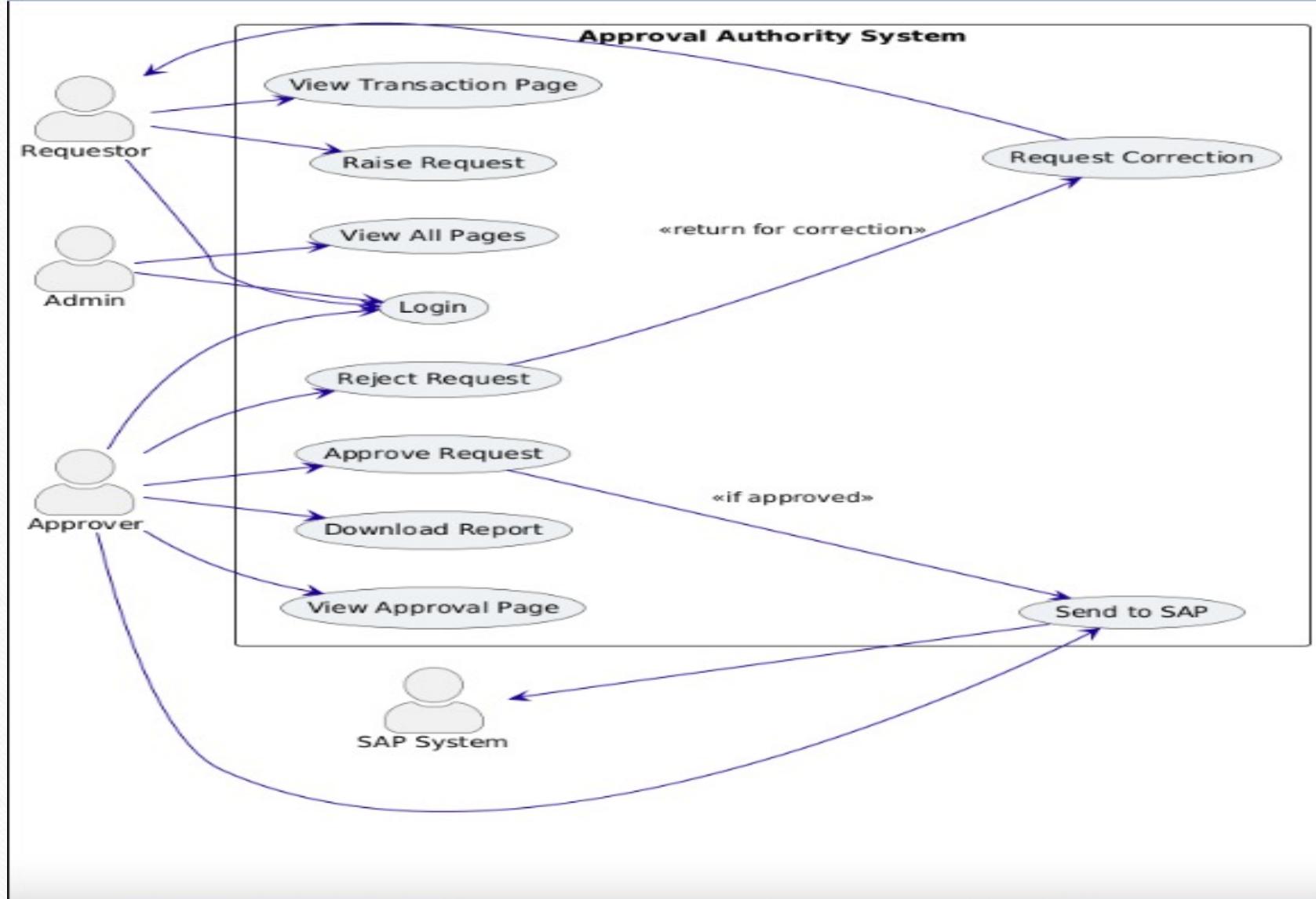


# ARCHITECTURE DIAGRAM



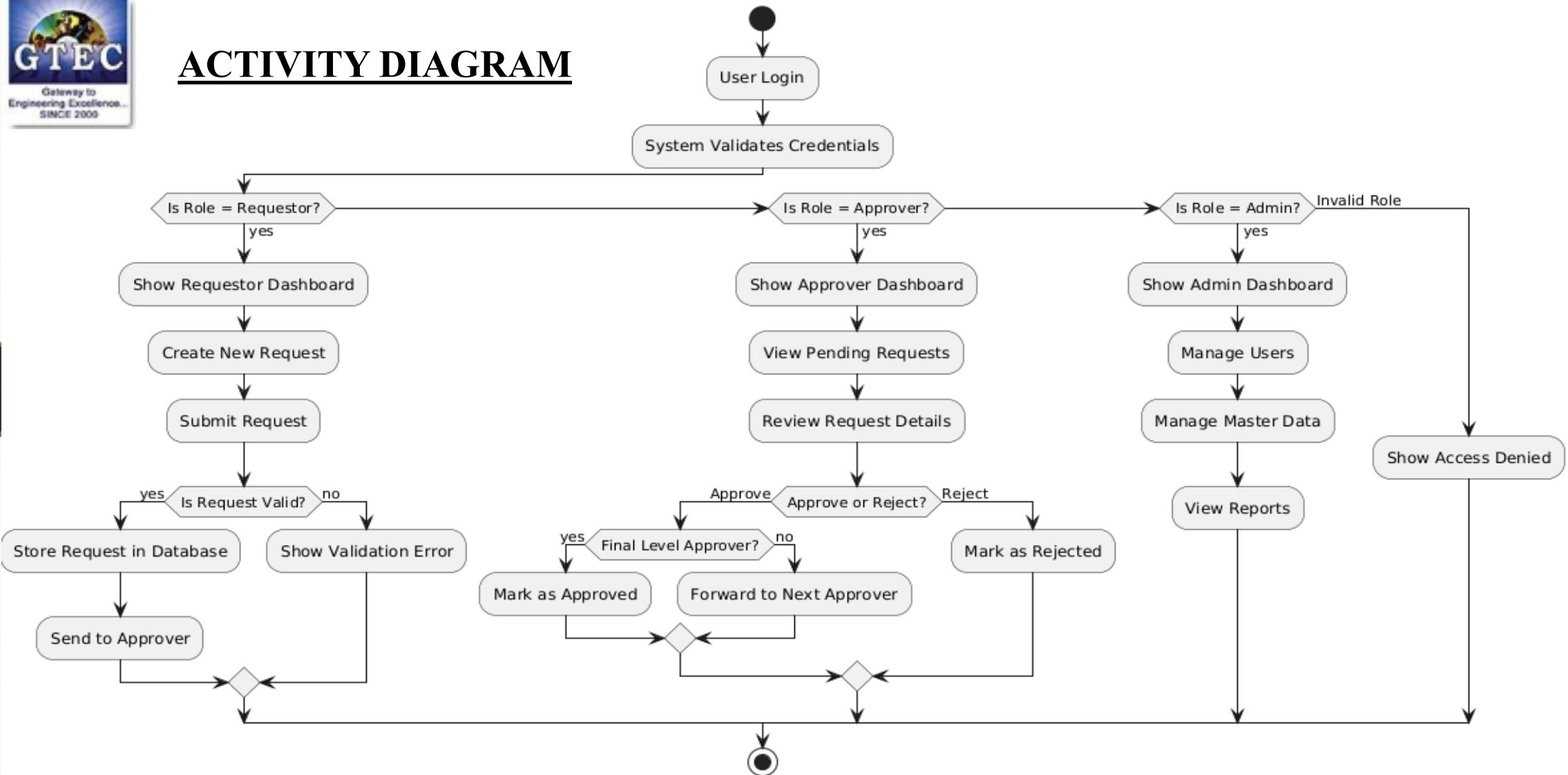


## USECASE DIAGRAM



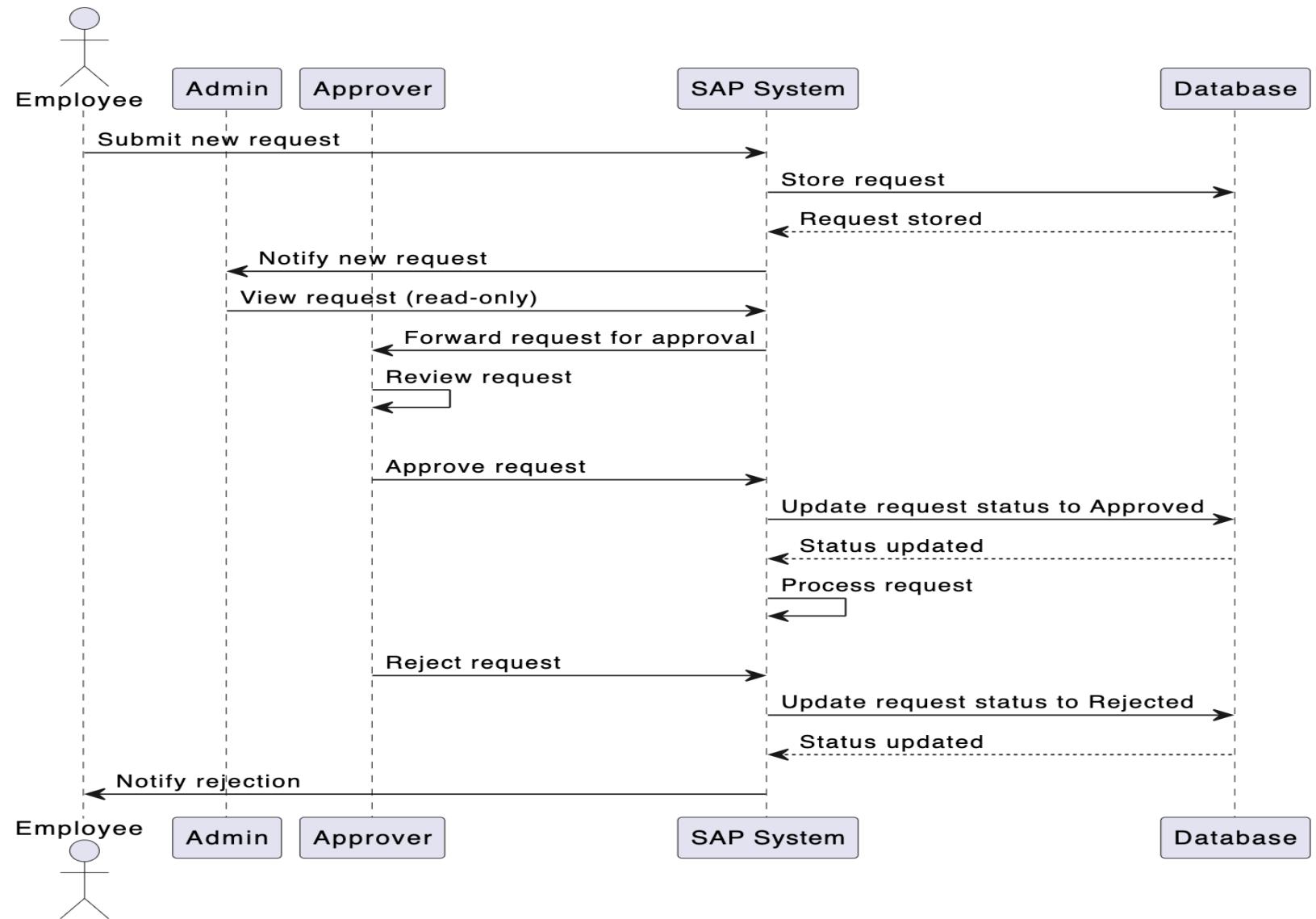


## ACTIVITY DIAGRAM



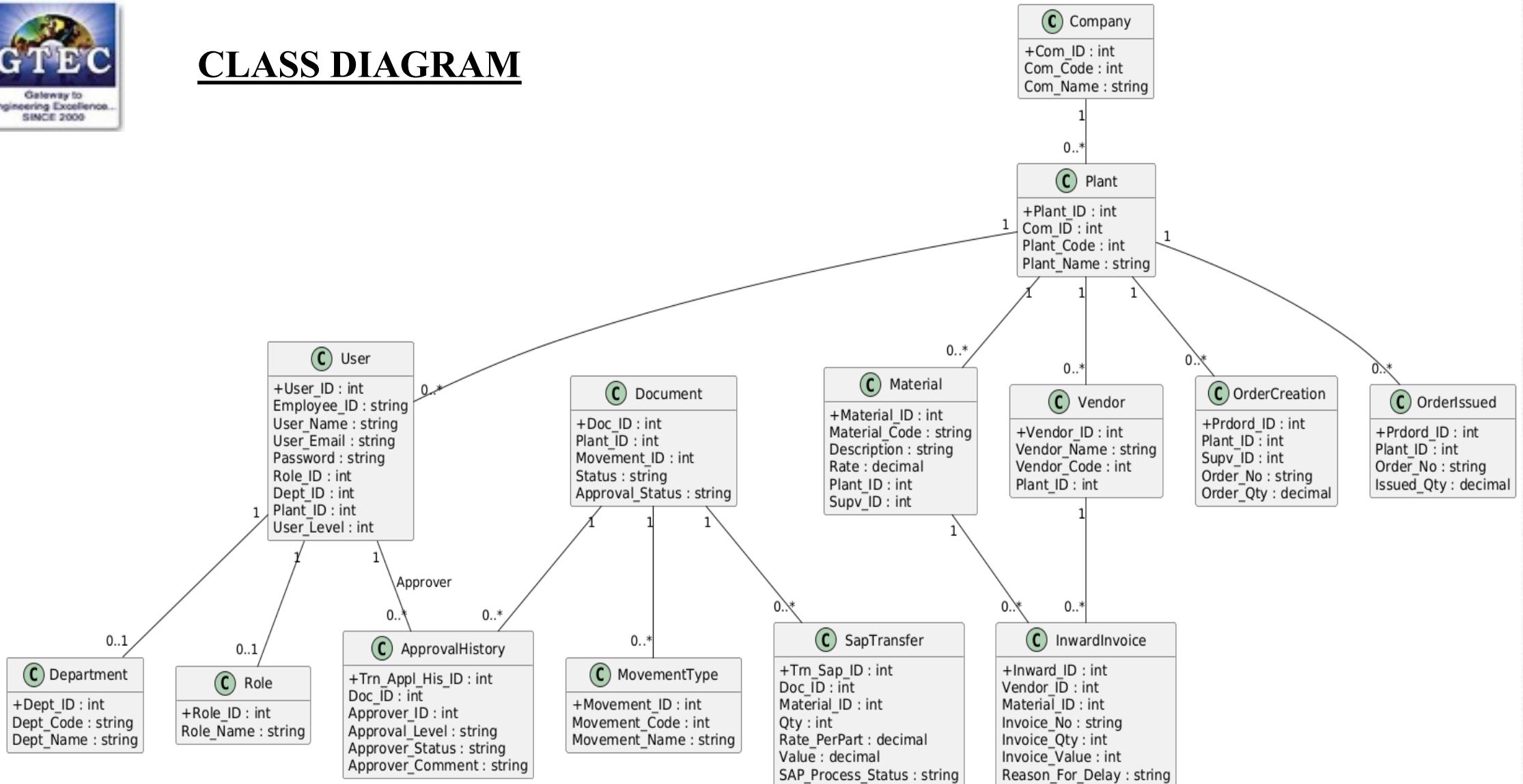


## SEQUENCE DIAGRAM





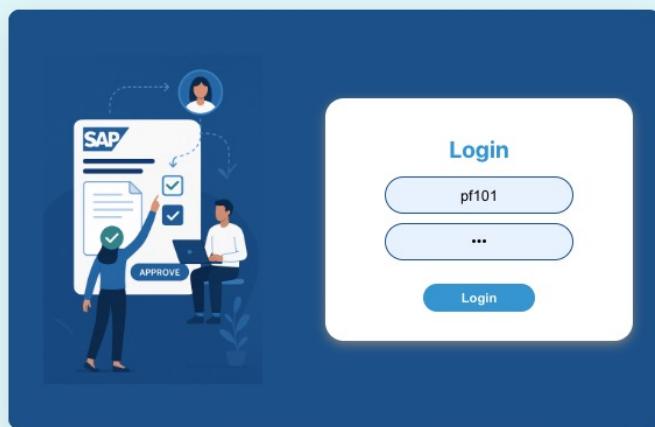
## CLASS DIAGRAM



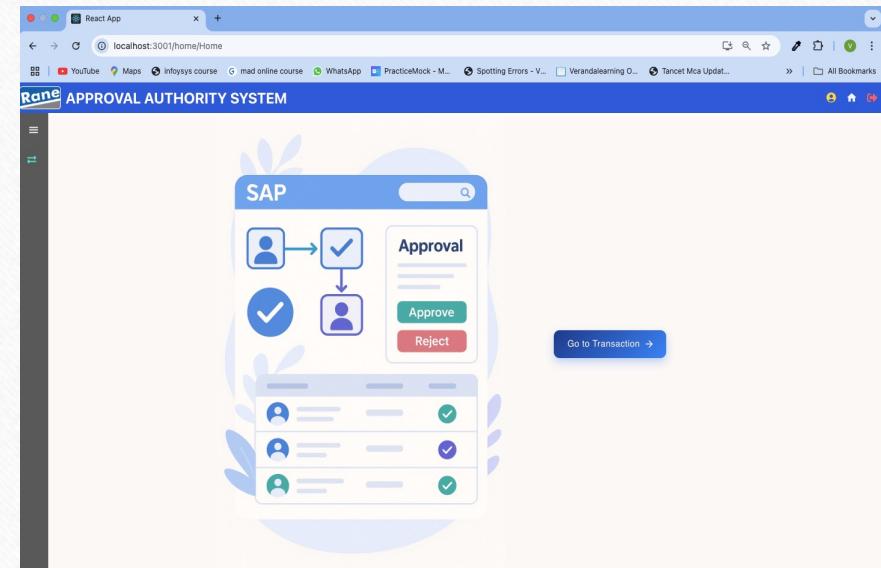


## LOGIN PAGE

# APPROVAL AUTHORITY SYSTEM



## HOME PAGE





## Rane APPROVAL AUTH SYSTEM

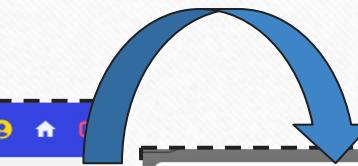
Company Master

Company Master		
Type here... <input type="text"/>		
<input type="button" value="SEARCH"/>		
<input type="button" value="COLUMNS"/> <input type="button" value="FILTERS"/> <input type="button" value="EXPORT"/>		
Company Code	Company Name	Company Logo
1000	RML	

Masters

Company

Click



Add Company

Company Code*	Company Name*
<input type="file" value="Choose file"/> No file chosen	<input checked="checked" type="checkbox" value="Active"/> Active
<input type="button" value="CANCEL"/>	<input type="button" value="ADD"/>

Edit Company

Company Code	Company Name*
1000	RML
<input type="file" value="Choose file"/> No file chosen	<input checked="checked" type="checkbox" value="Active"/> Active
<input type="button" value="CANCEL"/>	<input type="button" value="UPDATE"/>

Excel Download

A	B	C
Company_Code	Company_Name	ActiveStatus
1000	RML	Active



Add Plant

Edit

### Rane APPROVAL AUTHORITY SYSTEM

#### Plant Master

Plant Master			
Company Code		Plant Code	Plant Name
1000		1200	RML - Mysore
1000		1300	RML - Pondicherry
1000		1150	RML - Varanavasi
1000		1210	RML-Mysore Unit-1
1000		1250	RML - Pantnager
1000		1000	RML-HO

Add Plant

```
graph LR; Masters --> AddPlant[Add Plant]; AddPlant --> EditPlant[Edit Plant]
```

Company Code	Plant Code *
Plant Name *	Short Name *
<input checked="" type="checkbox"/> Active	
<input type="button" value="CANCEL"/> <input type="button" value="ADD"/>	

Edit Plant

Company Code	Plant Code
1000	1200
Plant Name *	Short Name *
RML - Mysore	P1
<input checked="" type="checkbox"/> Active	
<input type="button" value="CANCEL"/> <input type="button" value="UPDATE"/>	

Excel Download



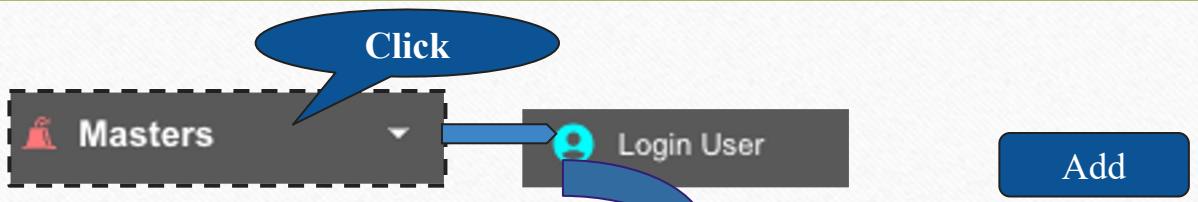
### Rane APPROVAL AUTHORITY SYSTEM

#### Plant Master

Plant Master			
Company Code			
1	CompanyCode	PlantCode	PlantName
2	1000	1200	RML - Mysore
3	1000	1300	RML - Pondicherry
4	1000	1150	RML - Varanavasi
5	1000	1210	RML-Mysore Unit-1
6	1000	1250	RML - Pantnager
7	1000	1000	RML-HO
8			



1	CompanyCode	PlantCode	PlantName	ActiveStatus
2	1000	1200	RML - Mysore	Active
3	1000	1300	RML - Pondicherry	Active
4	1000	1150	RML - Varanavasi	Active
5	1000	1210	RML-Mysore Unit-1	Active
6	1000	1250	RML - Pantnager	Active
7	1000	1000	RML-HO	Active
8				



Rane APPROVAL AUTHORITY SYSTEM

HOME

- Masters
- Company
- Business Division
- Plant
- Department
- User
- Role
- Material
- Vendor
- Customer
- Storage Location
- MNT List Item
- Cost Center
- ValuationType
- SupCode
- Module
- Time
- Transaction
- Approval
- Store Dashboard
- Production Plan
- Report
- SAP LOGIN

User Master

Plant Code	Employee ID	User Name	Department	Role	Active Status
1210	16877	Rajmannar	QAD - QUALITY	CORP ADMIN	Active
1210	16847	Raj	CMED/CMPD - CORPORATE MFG ENGINEERING	Requestor	Active
1210	02344	kumar	IS - INFORMATION SYSTEMS	plant finance head	Active
1210	15432	karthi	CHR - PLANT HUMAN RESOURCE	plant MRPC	Active
1210	16221	azar	PRODUCT ENGINEERING	plant head	Active
1210	C102623	pavi	PMMD - PLANT MATERIALS	CORP Finance Head	Active
1210	C102624	vishnu	MKT - MARKETING	CORP MRPC	Active
1200	R101	user 2001	MED/MFD - ENGINEERING	Requestor	Active
1200	CMRP01	user 2002	FIN - FINANCE	CORP MRPC	Active
1200	PMMD01	user 2003	CMMD - CORPORATE MATERIALS	plant mmd head	Active
1200	PF101	user 2004	FIN - FINANCE	plant finance head	Active
1200	PMRP01	user 2005	CHR - PLANT HUMAN RESOURCE	plant MRPC	Active
1200	PH101	user 2006	CHR - PLANT HUMAN RESOURCE	plant head	Active
1200	CFH101	user 2007	PHR - PLANT HUMAN RESOURCE	CORP Finance Head	Active

Add User

Plant	Role
Employee ID	UserLevel
Email	User Name
Password	Department

Active

CANCEL ADD

Edit User

Plant *	Role
Employee ID *	Email *
User Name *	UserLevel
Password	Department

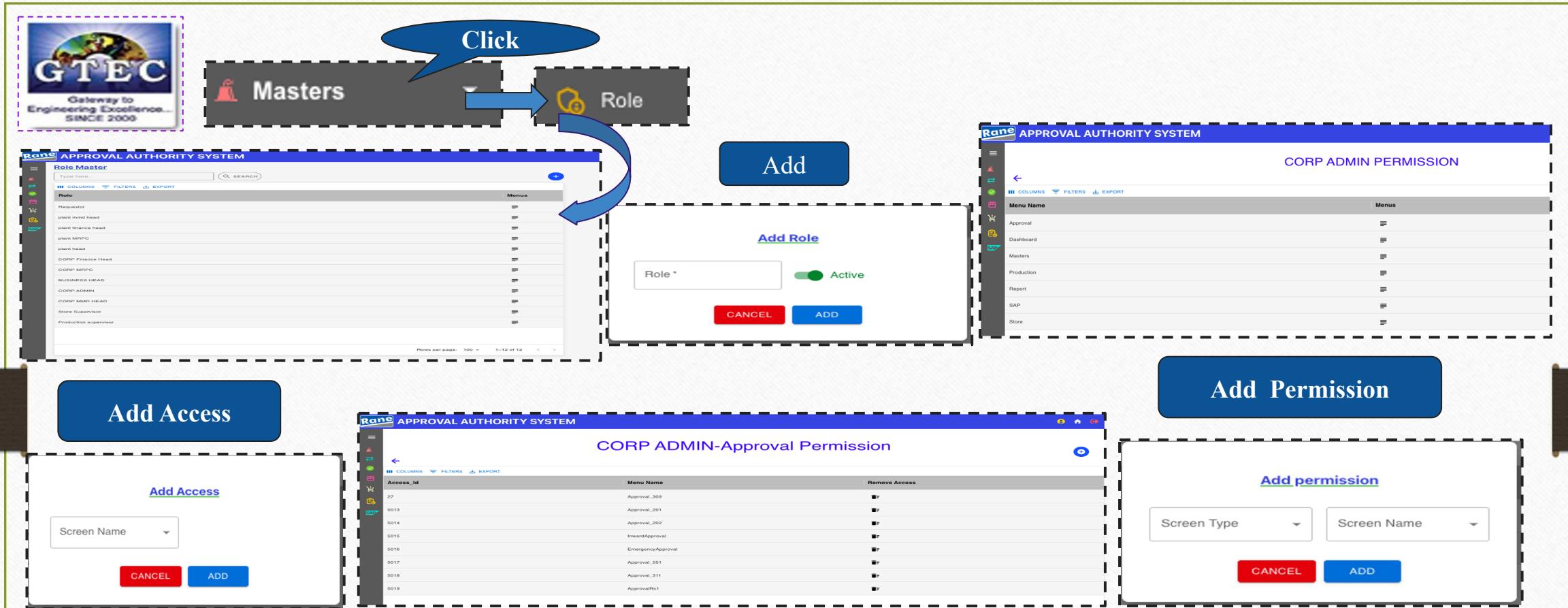
Active

CANCEL UPDATE

Excel  
Download

Plant\_Code EmployeeID UserName Department Role UserLevel Email

A	B	C	D	E	F	G
1210 16877	Rajmannar	QAD - QUALITY	CORP ADMIN	L3.FUNCTIONAL HEAD/PLANT HEAD		user2001@gmail.com
1210 16847	Raj	CMED/CMPD - CORPORATE MFG ENGINEERING	Requestor	L1.CREATOR/REQUESTOR		user2001@gmail.com
1210 02344	kumar	IS - INFORMATION SYSTEMS	plant finance head	L2.DEPARTMENT HEAD		user2003@gmail.com
1210 15432	karthi	CHR - PLANT HUMAN RESOURCE	plant head	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnu04@gmail.in
1210 16221	azar	PRODUCT ENGINEERING	CORP MRPC	L3.FUNCTIONAL HEAD/PLANT HEAD		pavi1203@gmail.com
1210 C102623	pavi	PMMD - PLANT MATERIALS	CORP Finance Head	L3.FUNCTIONAL HEAD/PLANT HEAD		vish@gmail.com
1210 C102624	vishnu	MKT - MARKETING	CORP MRPC	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 R101	user 2001	MED/MFD - ENGINEERING	Requestor	L1.CREATOR/REQUESTOR		vishnupriyaazhagaranan07@gmail.com
1200 CMRP01	user 2002	FIN - FINANCE	CORP MRPC	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 PMMD01	user 2003	CMMD - CORPORATE MATERIALS	plant mmd head	L2.DEPARTMENT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 PF101	user 2004	FIN - FINANCE	plant finance head	L1.CREATOR/REQUESTOR		vishnupriyaazhagaranan07@gmail.com
1200 PMRP01	user 2005	CHR - PLANT HUMAN RESOURCE	plant MRPC	L2.DEPARTMENT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 PH101	user 2006	CHR - PLANT HUMAN RESOURCE	plant head	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 CFH101	user 2007	PHR - PLANT HUMAN RESOURCE	CORP Finance Head	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaazhagaranan07@gmail.com
1200 CMRP01	user 2008	CMMD - CORPORATE MATERIALS	plant Super head	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaazhagaranan07@gmail.com
1300 S101	Sowmya	PMMD - PLANT MATERIALS	Store Supervisor	L1.CREATOR/REQUESTOR		vishnupriyaazhagaranan07@gmail.com
1150 S101	store1	CMMD - CORPORATE MATERIALS	Store Supervisor	L1.CREATOR/REQUESTOR		vishnupriyaazhagaranan07@gmail.com
1150 2001	user 2004	CHR - PLANT HUMAN RESOURCE	CORP ADMIN	L3.FUNCTIONAL HEAD/PLANT HEAD		vishnupriyaviji072@gmail.com



- 1) Admin add Role after adding role .
- 2) Give permission to access the screen For specific Role.
- 3) Delete Permission.

**GTEC**  
Gateway to  
Engineering Excellence...  
SINCE 2000

**Masters** → **Material**

**Click**

**Upload**

**Rane APPROVAL AUTHORITY SYSTEM**

**Material Master**

Plant Code	Material Type	Material Code	Description	Rate	Active Status
1200	ROH	MAT001	Test Part No 1	100	Active
1200	HALB	MAT002	Test Part No 2	200	Active
1300	FERT	MAT003	Test Part No 3	150	Active
1300	ROH	MAT004	Test Part No 4	150	Active
1150	HALB	MAT005	Test Part No 5	125	Active

**Material Master Excel File Upload**

- DOWNLOAD TEMPLATE
- Choose file No file chosen
- CLOSE
- UPLOAD

**Add Material**

**Edit**

**Template for upload**

**Excel Download**

**Add**

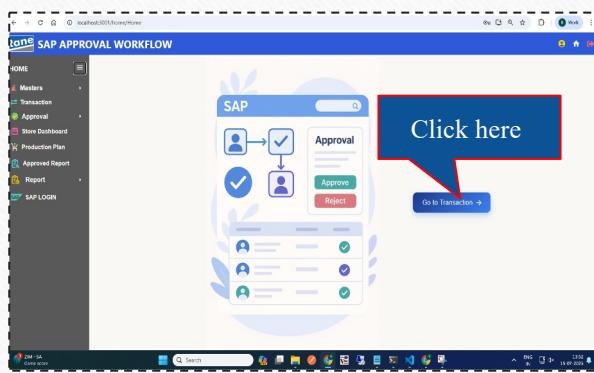
**Material Data**

Plant_Code	Material_Type	Material_Code	Description	Rate	ActiveStatus
1200	ROH	MAT001	Test Part No 1	100	Active
1200	HALB	MAT002	Test Part No 2	200	Active
1300	FERT	MAT003	Test Part No 3	150	Active
1300	ROH	MAT004	Test Part No 4	150	Active
1150	HALB	MAT005	Test Part No 5	125	Active

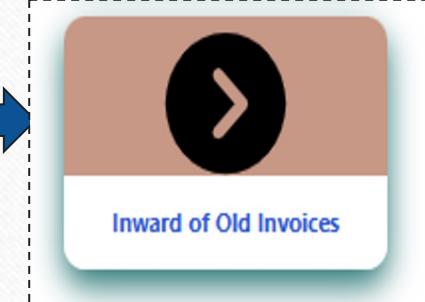


# Inward of Old Invoices Purchase Request (Requester)

(1) Transaction Page Navigation



(2) Click to Start a Purchase Request



Purchase Requester Page

Vendor Code	Vendor Name	Invoice Date	Invoice No	Quantity	Invoice Value	Purchase Order	Part No	Monthly Scheduled Qty	Current Stock	Reason For Delay	Status	Actions

(3) Click here to add Purchase

(4) Add Purchase Request

## Approval workflow:

Request >>> Follows Case (i) or Case (ii) based on Invoice Date:

Case (i): Invoice < 1 Year.      Level 1: Corp MRPC >>> Send to SAP

Case (ii): Invoice > 1 Year.      Level 1: Corp MRPC >>> Level 2: Corp Finance Head or Corp MMD Head >>> Send to SAP

## Add Purchase Inward old Invoice

Vendor Code	Purchase Order *
Invoice Date *	dd-mm-yyyy
Invoice No *	Part No
Invoice Qty *	Monthly Scheduled Qty *
Invoice Value *	Current Stock *
Reason For Delay	
<input type="button" value="CANCEL"/>	<input type="button" value="ADD"/>



# Inward of Old Invoices Purchase Resubmit (Requester)

(1) Requester Page After Rejected

Inward of Old Invoices

Purchase Invoice Service Invoice

Type here... SEARCH

COLUMNS FILTERS EXPORT

Vendor Code	Vendor Name	Invoice Date	Invoice No	Quantity	Invoice Value	Purchase Order	Part No	Monthly Scheduled Qty	Current Stock	Reason For Delay	Status	Action
130396	FRONTLINE	17-07-2025	AVC012	100	5000	DAD123	3125114130	40	1000	test	Rejected	

(2) Click to View Status

## Inward Approval Status

Level	Status	Approver	Comment
Level 1 - CORP MRPC	Approved	Sujatha K	check L2
Level 2 - CORP MMD HEAD	Rejected	Karthikeyan M	no

(3) Click Row to Edit Purchase

## Edit Purchase Inward old Invoice

Vendor Code \* Purchase Order \*

130396-FRONTLI... DAD123

Invoice Date \* 17-07-2025

Part No 3125114130

Invoice No \* AVC012

Monthly Scheduled Qty \* 400

Invoice Qty \* 100

Current Stock \* 1000

Invoice Value \* 5000

Reason For Delay test

**ACTIONS**

CANCEL UPDATE

(5) After editing, add a comment & Resubmit

Add Comment

Enter your comment here...

(4) Click Here to Resubmit

Actions

## Approval workflow:

Request >>> Follows Case (i) or Case (ii) based on Invoice Date:

Case (i): Invoice < 1 Year.      Level 1: Corp MRPC >>> Send to SAP

Case (ii): Invoice > 1 Year.      Level 1: Corp MRPC >>> Level 2: Corp Finance Head or Corp MMD Head>>> Send to SAP

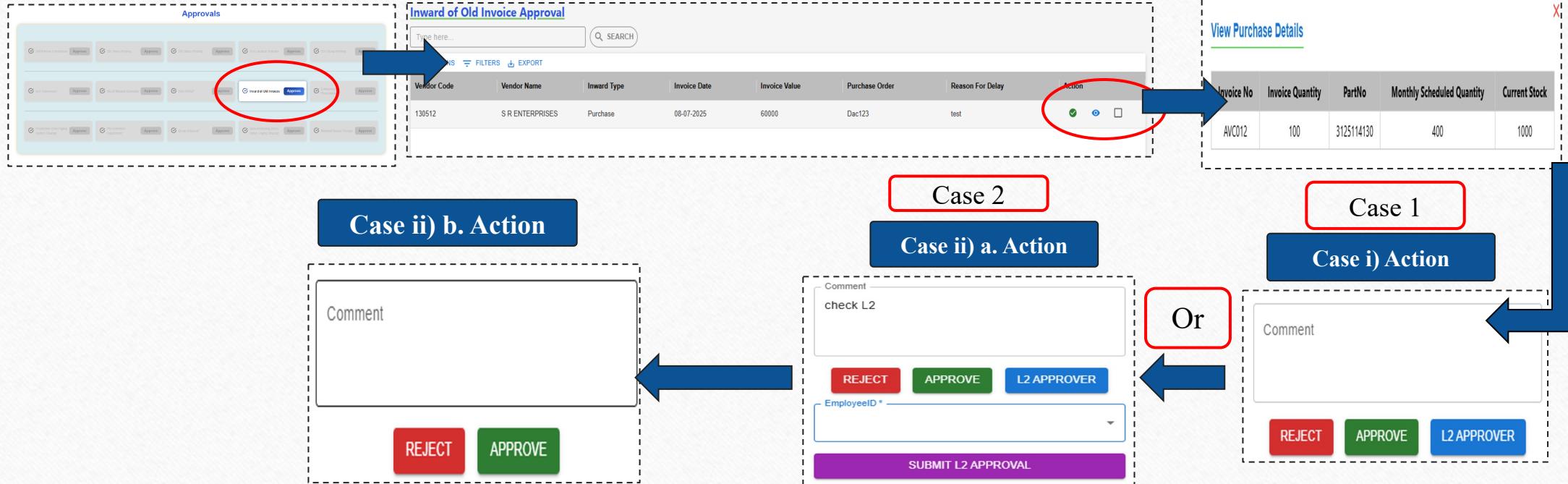


## **Inward of Old Invoices Purchase Approval (Approver)**

## (1)Approver Home Page

**(2) View Records,  
Take Action Case i) or Case ii)**

**Click the "View" icon to see Purchaser details**



## Approver workflow :

Case (i): Invoice < 1 Year. Level 1: Corp MRPC >>> Send to SAP

Case (ii): Invoice > 1 Year, Level 1: Corp MRPC >>> Level 2: Corp Finance Head or Corp MMD Head>>> Send to SAP



Store Dashboard

Click

Rane APPROVAL AUTHORITY SYSTEM

Store Dashboard

P3 RM Stores 1 (Open) P3 RM Stores 1 (Closed) P3 RM Stores 2 (Open) P3 RM Stores 2 (Closed) P3 RM Stores 3 (Open) P3 RM Stores 3 (Closed)

Date & Time: 24/07/2025, 10:51:44 pm

Store 1 - Open Orders

S.No	Work Scheduler Name	Order No	Material	Description	Order Qty	Order Date	Lead Time	Delay Time
1	003 - Ball Joint Assembly	OR1624001	s3	Steel Rod 10mm	500	2025-07-24T13:53:37...	02:00	03:28
2	002 - Ball pin	OR162002	s2	Copper Wire 5mm	300	2025-07-24T14:53:17...	02:00	02:28
3	003 - Ball Joint Assembly	OR1672001	s1	Steel Rod 10mm	500	2025-07-24T15:52:40...	02:00	01:29

Rane APPROVAL AUTHORITY SYSTEM

Store Dashboard

P3 RM Stores 1 (Open) P3 RM Stores 1 (Closed) P3 RM Stores 2 (Open) P3 RM Stores 2 (Closed) P3 RM Stores 3 (Open) P3 RM Stores 3 (Closed)

Store 1 - Closed Orders

Supervisor Name	No. Of Total Orders	No. Of Open Orders	No. Of Orders Closed	Material Issued On Time	Material Issued Delay 60 Mi...	Material Issued Delayed
002 - Ball pin	1	0	1	0	0	1
003 - Ball Joint Assembly	2	0	2	0	0	2
<b>SubTotal</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

Excel  
Download



G27 A B C D E F G

From Date 2025-07-24 To Date 2025-07-24

**Store 1**

Sup_Name	No_Of_Orders	No_Open_Orders	No_Order_Close	Issue_Posted_on_Time	Issue_Posted_Delay60	Issue_Posted_Delay
002 - Ball pin	1	0	1	0	0	1
003 - Ball Joint Assembly	2	0	2	0	0	2
<b>SubTotal</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

N1 A B C D E F G H I J

Sup\_Name

Sup_Name	Order_No	Order_Qty	Material_No	Material_Description	Order_Created_Date	Order_Closed_Date	Supv_Lead_Time	TotalDuration	Ontime_S
002 - Ball pin	OR162002	300	s2	Copper Wire 5mm	2025-07-24T14:53:17.613	2025-07-24T16:54:16.193	02:01	R	
003 - Ball Joint Assembly	OR1624001	500	s3	Steel Rod 10mm	2025-07-24T13:53:37.060	2025-07-24T16:54:16.193	03:01	R	
003 - Ball Joint Assembly	OR1672001	500	s1	Steel Rod 10mm	2025-07-24T15:52:40.317	2025-07-24T16:54:16.193	01:02	R	



SAP SAP LOGIN

Click

#### Rane APPROVAL AUTHORITY SYSTEM

Sap Access Login								
Plant	Sap Login	Employee ID	Name	Category	Department	Active Status	Last Punch	
1200	AB1234	11054	HARISHA N	Executive	HRD	Active	22-05-2025	
1300	Abcdee	13880	PREMANAND E	Executive	Wrong Dept	Active	28-05-2025	
1150	cdeee	16486	SAKTHIVEL K	Executive	HRD	Active	22-05-2025	
1300	Nc1095ff	13157	KARTHIK S	Executive	MMD	Active	31-05-2023	
1300	ADE4546	27016	K KANIMOZHI	Temporary	QA-SSL	Active	31-05-2023	
1200	BH123	N10670	MADAN KUMAR M	Temporary	PROD-SSL	Active	22-05-2025	
1200	AB234	10252	Kaleel Ullah	Executive	PROD-SSL	Active	22-05-2025	
1200	Nc1095ffg							

ADD

Add Sap Access

Plant Code	SAP_LOGIN_ID *
<input type="button" value="CANCEL"/>	<input type="button" value="ADD"/>

CANCEL ADD

EDIT

i)Employee

ii)Temporary

- 1) Plant & Sap Login Id Added by Admin or CORP MRPC.
- 2) Later Employee ID Added by PLANT MRPC in edit, Employee ID fetched from DHRM Database (Employee & Trainee Table Based on the Category).
- 3) Last Punch of the Employee is Less than 5 days Trigger a mail to CORP MRPC, PLANT MRPC & Admin.

Edit SAP Access Login

Plant Code	1200	SAP_LOGIN_ID	Nc1095ff
Category	<input type="radio"/> Executive	<input checked="" type="radio"/> Temporary	
Employee	N10679 - PUNIT...	User Name	PUNITH KUMAR H N
Department	QA-SSL	Active Status	Active
<input type="button" value="CANCEL"/>		<input type="button" value="UPDATE"/>	

Edit SAP Access Login

Plant Code	1200	SAP_LOGIN_ID	Nc1095ff
Category	<input checked="" type="radio"/> Executive	<input type="radio"/> Temporary	
Employee	06002 - Govind N...	User Name	Govind Naik R
Department	HRD	Active Status	Active
<input type="button" value="CANCEL"/>		<input type="button" value="UPDATE"/>	



## **CONCLUSION AND FUTURE ENHANCEMENT**

- The Approval Authority System successfully automates multi-level approvals with real-time tracking and SAP integration, ensuring efficiency and accuracy.
- Future enhancements include mobile accessibility, escalation workflows, and audit dashboards to boost performance and usability.
- These improvements aim to provide greater flexibility and control for users.  
Ongoing feedback will guide continuous system evolution to meet business needs.

**THANK YOU**