Roll shop Data Entry System

Project Documentation

Project Summary

Plant Name	JSW Steel Limited
Plant Location	Seawoods
Project Ord No	
Project Description	Roll shop Data Entry System

Document Information

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Endorsement and Approval

JSW - IT TEAM

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Project Documentation: Roll Shop Data Entry System

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1. Project Overview

The **Roll Shop Data Entry System** is a Streamlit-based application developed to support manual and automated data entry for operations at a steel manufacturing roll shop. The application connects to two Oracle databases to manage and monitor operational data through multiple interactive modules.

The main tabs include:

- **Grinding Details**
- **Job Work Details**
- **Level2 Data**
- **SAP Purchase Details**

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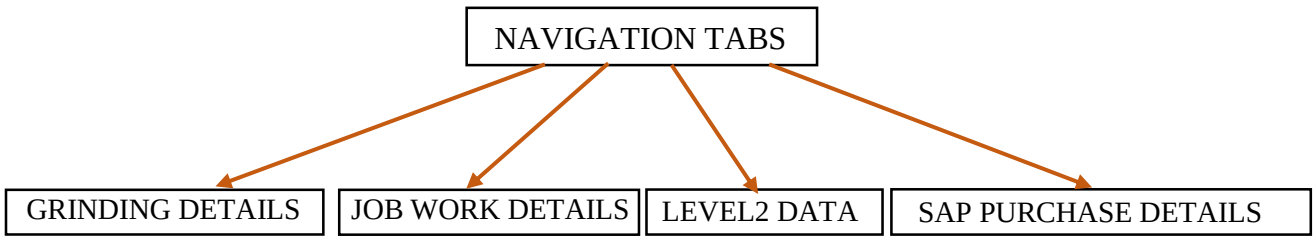
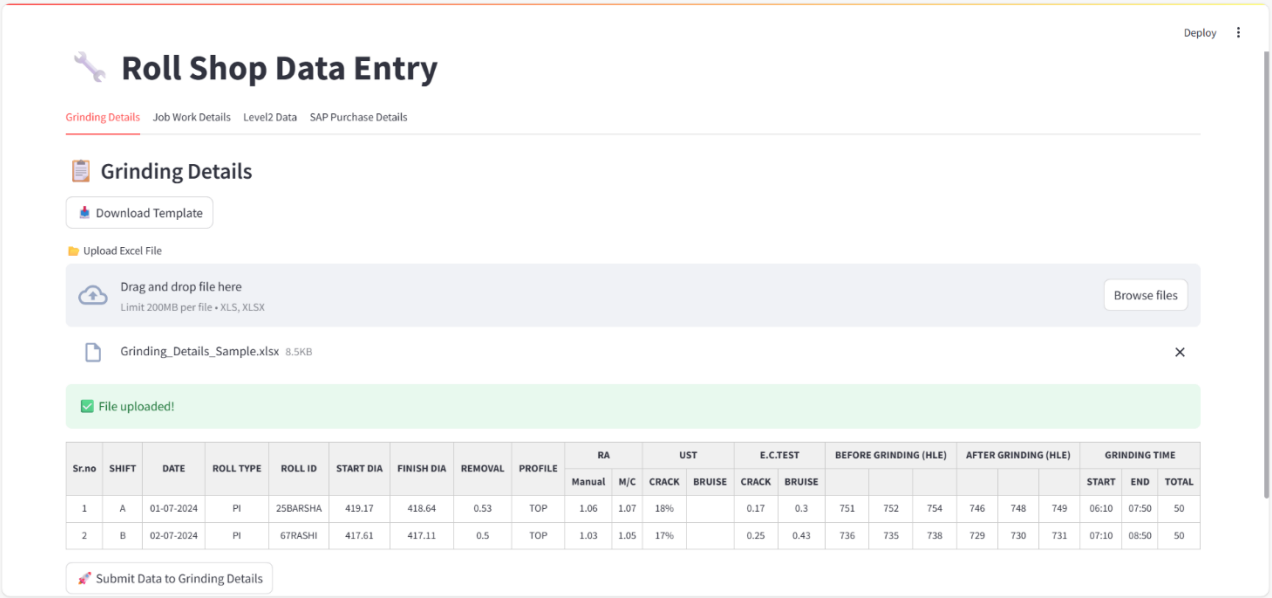
2. Navigation Flow



3. Module Descriptions

3.1 Grinding Details



Sr.no	SHIFT	DATE	ROLL TYPE	ROLL ID	START DIA	FINISH DIA	REMOVAL	PROFILE	RA		UST		E.C.TEST		BEFORE GRINDING (HLE)			AFTER GRINDING (HLE)			GRINDING TIME		
									Manual	M/C	CRACK	BRUISE	CRACK	BRUISE							START	END	TOTAL
1	A	01-07-2024	PI	25BARSHA	419.17	418.64	0.53	TOP	1.06	1.07	18%		0.17	0.3	751	752	754	746	748	749	06:10	07:50	50
2	B	02-07-2024	PI	67RASHI	417.61	417.11	0.5	TOP	1.03	1.05	17%		0.25	0.43	736	735	738	729	730	731	07:10	08:50	50

Figure 1: Grinding Details Tab

Purpose: Record grinding operation parameters including roll IDs, diameters, profiles, inspection values, and time logs.

Backend:

- Reads and validates uploaded Excel files using `pandas`.
- Converts and inserts records into the `GRINDING_DETAILS` table in the TPR_ROLLSHOP Oracle database.

Frontend:

- Custom HTML table rendering for grouped headers (RA, UST) etc.
- Upload button for Excel sheet.
- Submit button for Oracle DB insertion.

3.2 Job Work Details

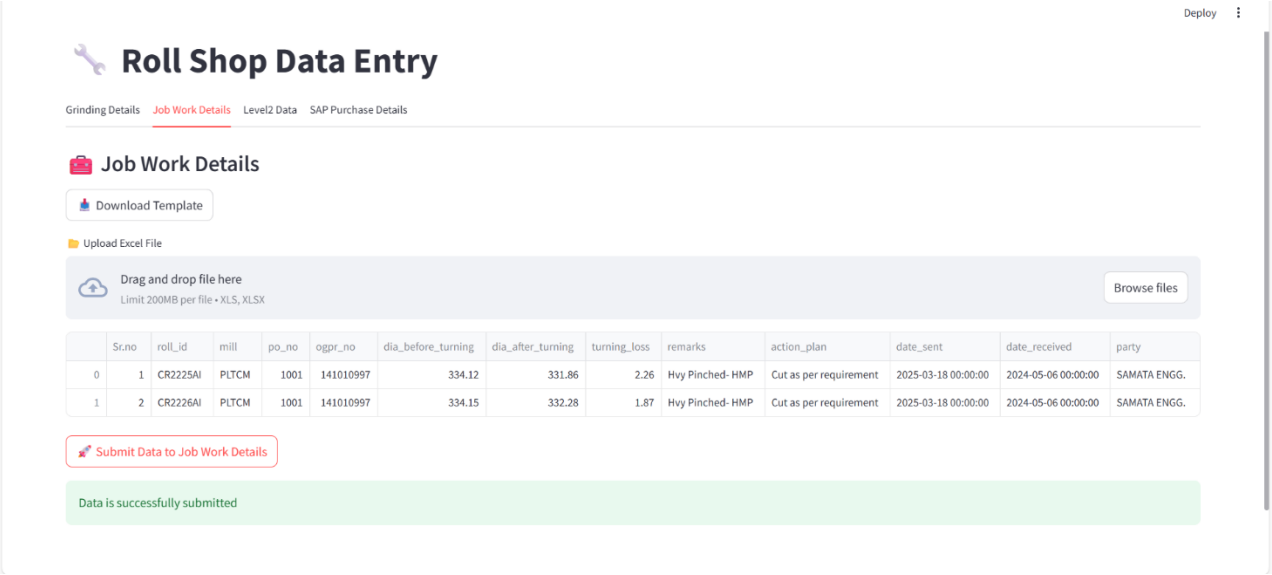


Figure 2: Job Work Details Tab

Purpose: Capture roll turning operation data including before/after diameters, PO/OGPR details, and action plans.

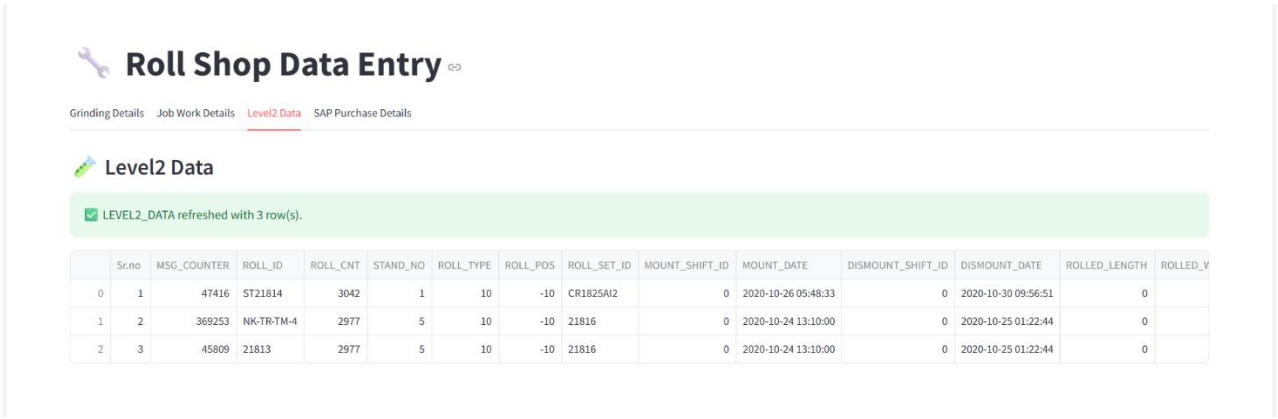
Backend:

- Validates and uploads Excel file data.
- Submits to the `JOB_WORK_DETAILS` table in the TPR_ROLLSHOP DB.

Frontend:

- Editable Streamlit table view.
- Excel uploader with session-based caching.

3.3 Level2 Data



	Sr.no	MSG_COUNTER	ROLL_ID	ROLL_CNT	STAND_NO	ROLL_TYPE	ROLL_POS	ROLL_SET_ID	MOUNT_SHIFT_ID	MOUNT_DATE	DISMOUNT_SHIFT_ID	DISMOUNT_DATE	ROLLED_LENGTH	ROLLED_W
0	1	47416	ST21814	3042	1	10	-10	CR1825AI2	0	2020-10-26 05:48:33	0	2020-10-30 09:56:51	0	
1	2	369253	NK-TR-TM-4	2977	5	10	-10	21816	0	2020-10-24 13:10:00	0	2020-10-25 01:22:44	0	
2	3	45809	21813	2977	5	10	-10	21816	0	2020-10-24 13:10:00	0	2020-10-25 01:22:44	0	

Figure 3: Level2 Data

Purpose: Automate daily import of roll operation telemetry data from `PDO_ROLL_STATUS` (TPMESPLTCM DB) into `LEVEL2_DATA` (TPR_ROLLSHOP DB).

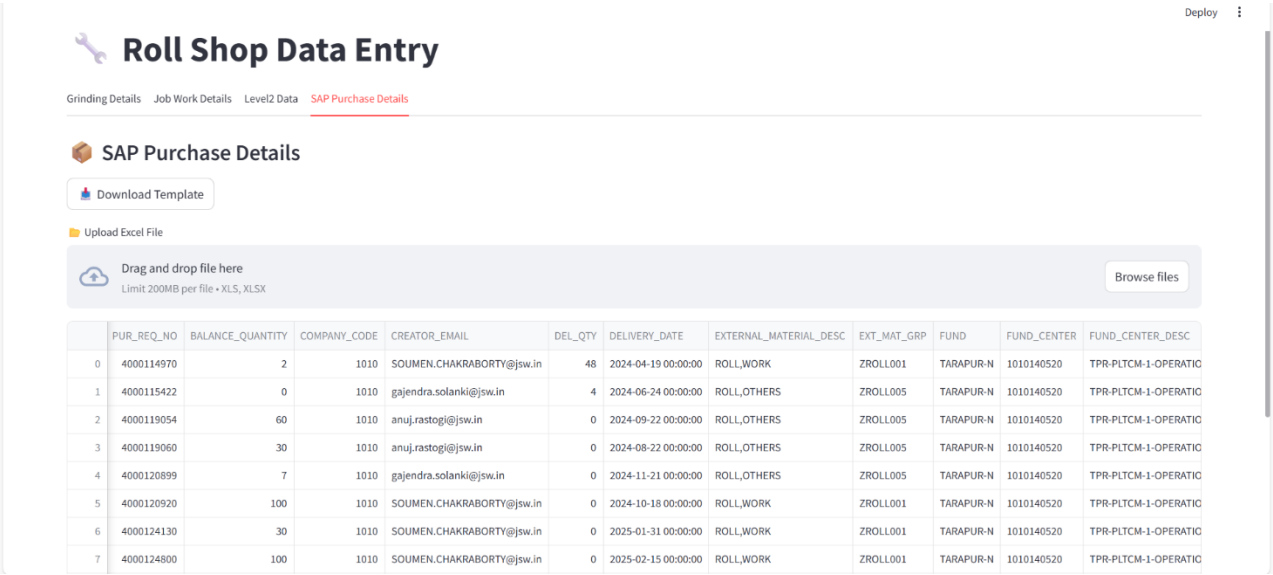
Backend:

- Automatically fetches data from source DB.
- Checks for duplicates via `MSG_COUNTER` before inserting.
- Inserts only new records into the `LEVEL2_DATA` table.

Frontend:

- Displays all records from `LEVEL2_DATA` using `st.dataframe`.
- No user input required for submission.

3.4 SAP Purchase Details



	PUR_REQ_NO	BALANCE_QUANTITY	COMPANY_CODE	CREATOR_EMAIL	DEL_QTY	DELIVERY_DATE	EXTERNAL_MATERIAL_DESC	EXT_MAT_GRP	FUND	FUND_CENTER	FUND_CENTER_DESC
0	4000114970	2	1010	SOUMEN.CHAKRABORTY@jsw.in	48	2024-04-19 00:00:00	ROLL,WORK	ZROLL001	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
1	4000115422	0	1010	gajendra.solanki@jsw.in	4	2024-06-24 00:00:00	ROLL,OTHERS	ZROLL005	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
2	4000119054	60	1010	anuj.rastogi@jsw.in	0	2024-09-22 00:00:00	ROLL,OTHERS	ZROLL005	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
3	4000119060	30	1010	anuj.rastogi@jsw.in	0	2024-08-22 00:00:00	ROLL,OTHERS	ZROLL005	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
4	4000120899	7	1010	gajendra.solanki@jsw.in	0	2024-11-21 00:00:00	ROLL,OTHERS	ZROLL005	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
5	4000120920	100	1010	SOUMEN.CHAKRABORTY@jsw.in	0	2024-10-18 00:00:00	ROLL,WORK	ZROLL001	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
6	4000124130	30	1010	SOUMEN.CHAKRABORTY@jsw.in	0	2025-01-31 00:00:00	ROLL,WORK	ZROLL001	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO
7	4000124800	100	1010	SOUMEN.CHAKRABORTY@jsw.in	0	2025-02-15 00:00:00	ROLL,WORK	ZROLL001	TARAPUR-N	1010140520	TPR-PLTCM-1-OPERATIO

Figure 4: SAP Purchase Details

Purpose: Upload and track SAP purchase records related to rolls and maintenance.

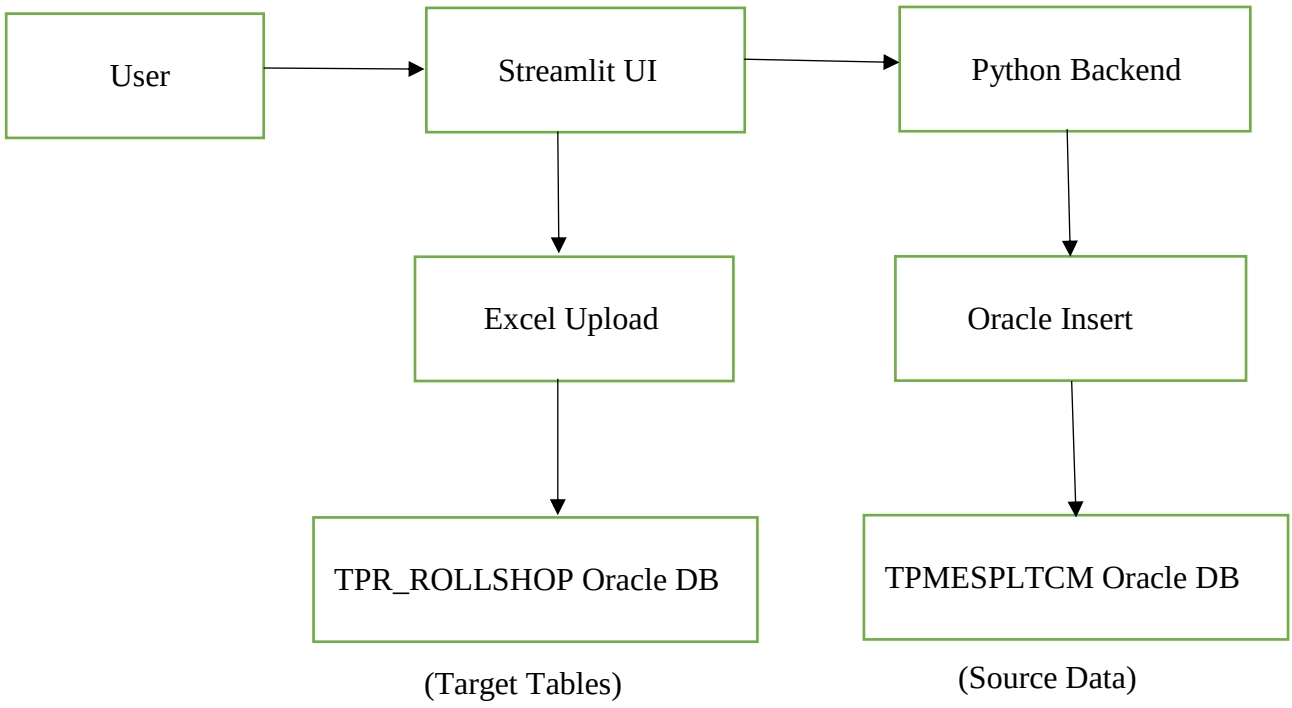
Backend:

- Upload and validate Excel files.
- Submit to `SAP_PURCHASE_DETAILS` table.

Frontend:

- File uploader.
- Table preview and submission.

4. Architecture Diagram



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5. Technology Stack

Component	Technology
Frontend	Streamlit, HTML, CSS
Backend	Python, Pandas, datetime
Database	Oracle DB (2 instances)
DB Connector	SQLAlchemy (oracle+oracledb)
File Upload	Excel via pandas.read_excel()

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6. File Structure

```
RollShopUI/
├── RollShopUI
    ├── main.py                    # Primary Streamlit app script
    ├── .idea/                     # Pycharm settings
        ├── .gitignore
        ├── misc.xml
        ├── modules.xml
        ├── RollShopUI.iml
        ├── workspace.xml
        ├── inspectionProfiles/
            ├── profiles_settings.xml
    ├── .venv/                     #Python virtual environment – contains all dependencies
        ├── .gitignore
        ├── pyvenv.cfg
        ├── table.py
        ├── etc/
        ├── include/
        ├── Lib/
```

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7. Future Enhancements (Phase-2)

- Add user login and access control
- Integrate directly with grinding machines to automatically fetch and log grinding details
- Develop a seamless interface with SAP systems to pull and update SAP purchase details

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8. Authors & Maintenance

- Primary Developer: Barsha Ghosh, Rashi Gupta
- Maintained by: JSW IT MES TEAM