MONTHLY WORK REPORT

(To be filled by the Candidate)

Candidates Name: Mr. Moses Charlie Yalla	**Designation:** WBL Trainee
Period: 15 July 2025 - 14 August 2025	**WBL Level:** I
Department: Industrial Material and Systems division	**Employee Code:** 210
Name of the Supervisor: Mr. Abhishek Jha	**Name of the HoD:** Smt. Poornima Srivastava
Name of the Project: Radiometric Data Extraction and Filtering Automation for Atmospheric Retrieval	
Technology Area: Atmospheric Science	

Details of the work done

Objective: To apply scientific filtering conditions to radiometric datasets and automate the process of extracting valid data for further analysis in atmospheric retrieval algorithms.

Tools & Technologies Used:

1) Python (libraries: pandas, numpy)
2) Google Colab
3) Jupyter Notebook
4) Microsoft Excel (for before/after comparison)

Key Tasks Performed:

1. Dataset Loading and Merging

- Multiple CSV files were uploaded using files.upload() in Google Colab.
- Datasets were merged into a single Data Frame, keeping only required columns:
    1. System Time,
    2. RTC Time,
    3. ANRTD,
    4. AMBRTD1-4 values,
    5. *KRTD, VRTD, LORTD values.*

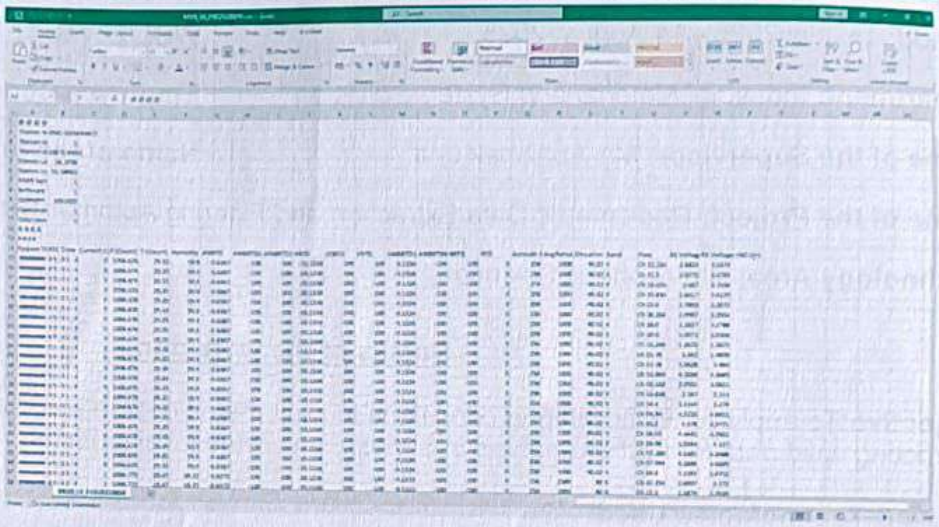
Screenshot 1: *Code snippet for data upload using files.upload()*

- This refers to the **Python code cell in Google Colab** where you write and run the following code to upload your .csv files:

Screenshot 2: *Sample of merged raw Excel data (Before Filtering)*
This is a screenshot showing **raw/unfiltered data** after you've merged multiple .csv files using code like:

```
merged.head(10)
```

	@@@@
0	RMC-GUWAHATI
1	1
2	180 ft AMSL
3	26.103804
4	91.58963
5	1
6	1.0
7	26042025
8	1
9	0



Before Filtering

2. Data Filtering Based on Scientific Conditions

Condition 1 – ANRTD Filtering:

- Rows were retained only if ANRTD values were **between 20 and 35**.
- Rows with values **< 20 or > 35** were deleted.

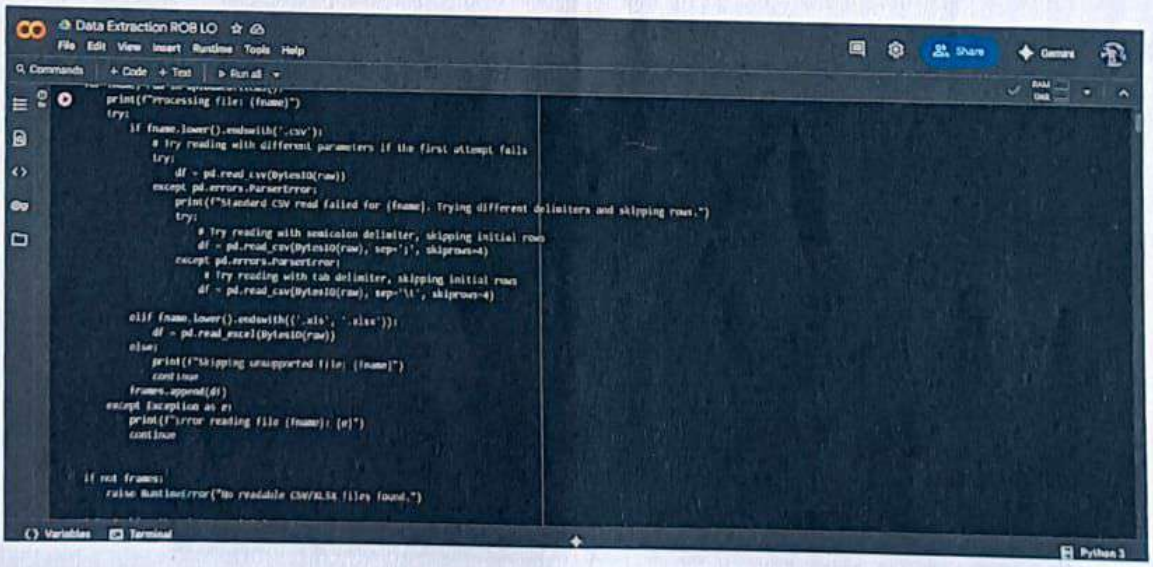
Condition 2 – AMBRTD Filtering:

- For all four columns (AMBRTD1, AMBRTD2, AMBRTD3, AMBRTD4), values must lie between **25 and 35**.
- Any row violating even one of these limits was dropped.

Condition 3 – Radiometric Threshold:

- For KRTD, VRTD, LORTD, values **must be ≥ 50**.
- If any of these values were less than 50, the entire row was eliminated.

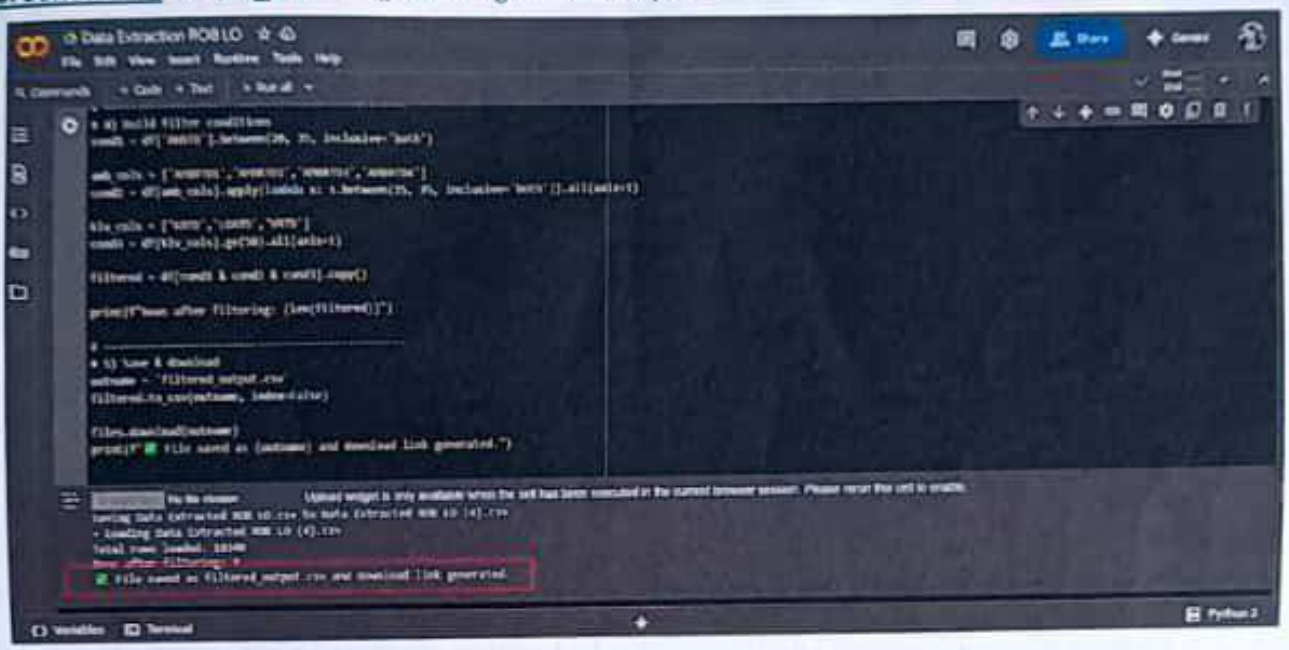
Screenshot 3: *Code snippet showing filtering logic using pandas df[(...)]*



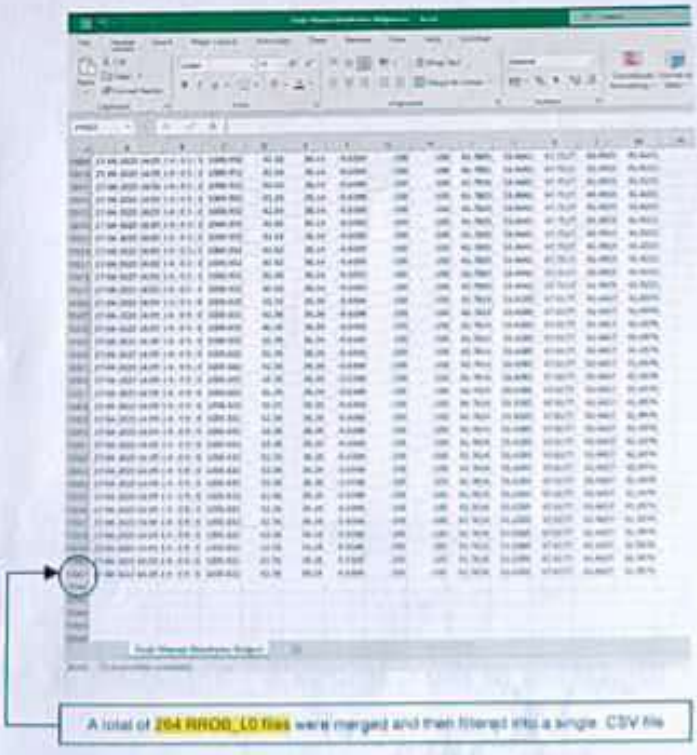
3. Data Export and Final Display

- The filtered Data Frame was displayed using .head() to verify structure.
- The cleaned data was exported to a new CSV file using to_csv() for further analysis.

Screenshot 4: *RROB_L1.head() showing filtered output*



Screenshot 5: *Excel file after filtering (final cleaned dataset)*



Learning Outcomes

- Automated end-to-end data pre-processing using Google Colab.
- Deepened understanding of valid data ranges in radiometric datasets.
- Gained hands-on experience with pandas for conditional filtering.
- Developed skill in validating outputs and comparing changes using Excel.

Signature of the Candidate	Signature of Supervisor	Signature of HoD
Moses Charlie		20.8.25
Date: 07-08-2025	Date: 07-08-2025	Date: 07-08-2025

CANDIDATE FEEDBACK

(To be filled and signed by the Supervisor/HoD)

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Sr. No.	Criterion	Marks in the Scale of 1-10 (1-Poor, 10-Excellent)
1	Initiative (personal drive, enthusiasm)	8
2	Acceptance of responsibility	8
3	Technical knowledge, problem solving skills and expertise	8
4	Work quality and output	8
5	Communication (Oral/Written) skills	7
6	Behavior, tact and courtesy	8
7	Attitude/willingness to work	8
8	Time management	8
9	Punctuality and regularly	8
10	Self-improvement	8
	Overall Score (1-10)	8/10

Signature of Supervisor	Signature of HoD
08/08/25	20-8-25
Date: 07-08-2025	**Date: 07-08-2025**

Evaluation Guidelines:

1. Candidate will submit monthly work report to the supervisor.
2. Supervisor will submit his feedback on the work report to concerned Head of the Division.
3. Supervisor will forward the monthly report along with supervisor's feedback to center coordinator Shri. Vijay Sarode, WBL Coordinator (Email: vijay@sameer.gov.in)
4. Supervisor feedback should be in the format given above.
5. The Mid-term and End of term review of WBL candidates by TECH-MEC would be carried out based on evaluation of survey/Study, Design aspects, technology understanding, Initial Prototyping etc.