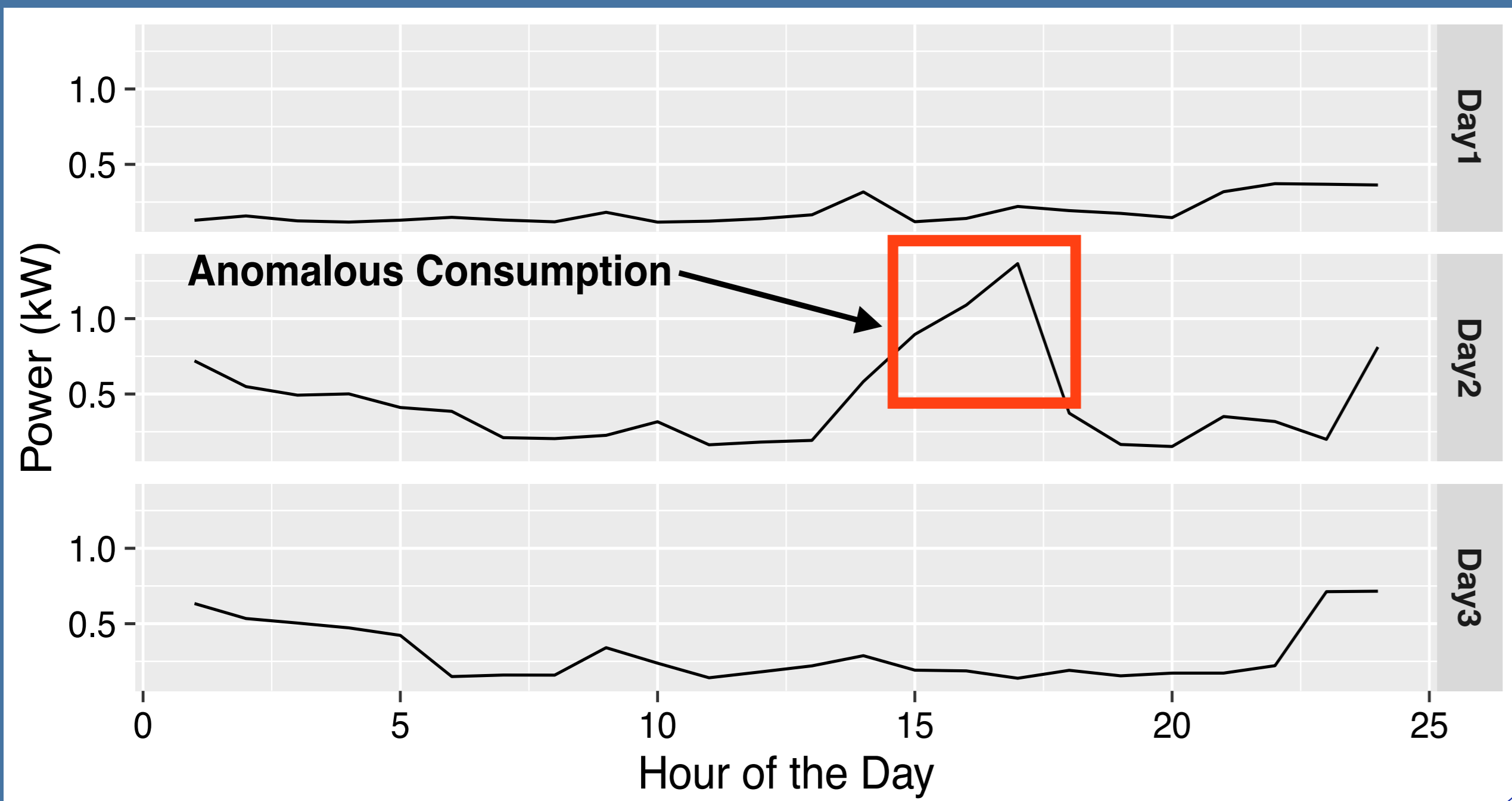


Collect, Compare, and Score: A Generic Data-driven Anomaly Detection Method for Buildings

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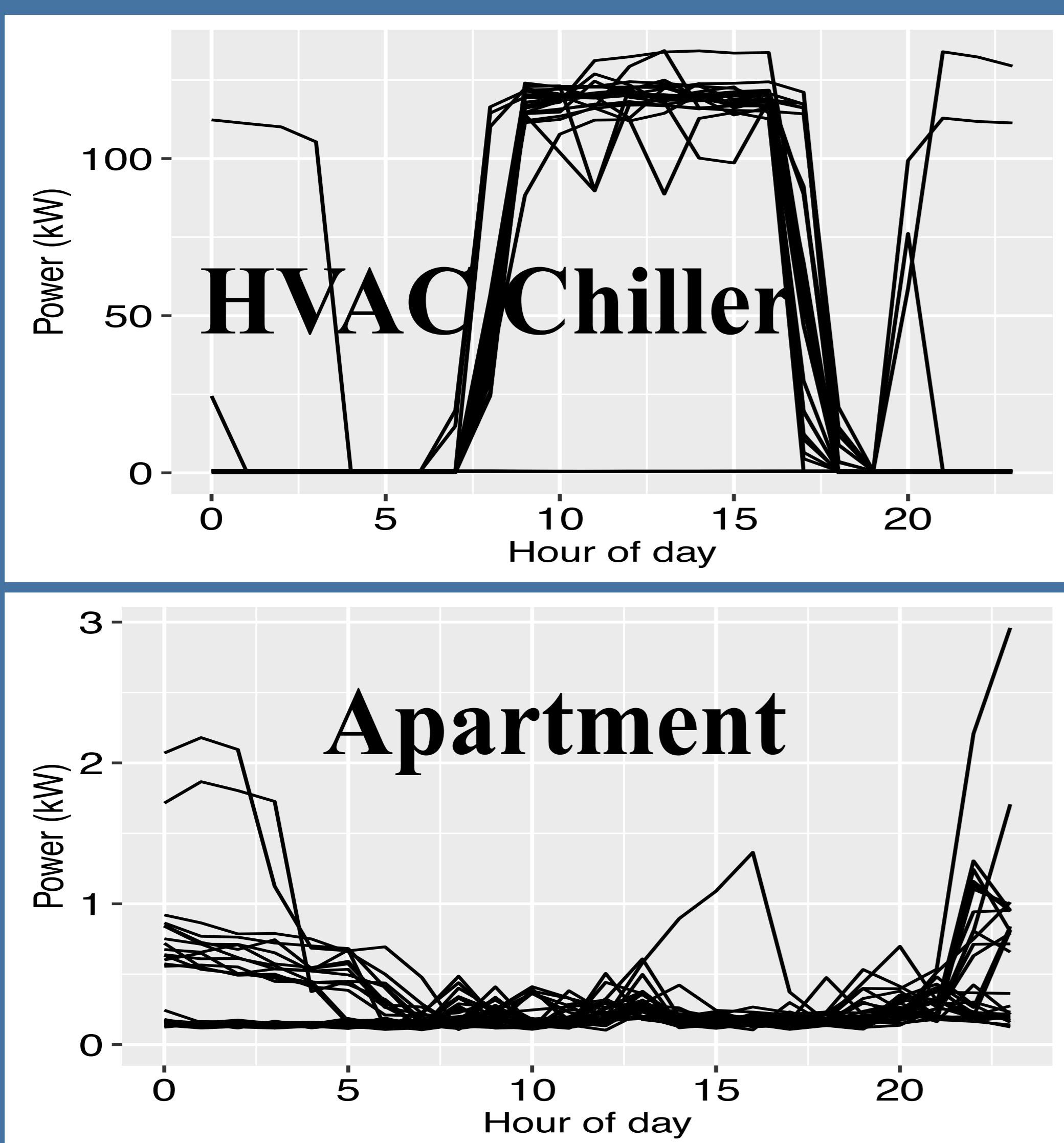


1 Anomaly: The abnormal power usage, which significantly differs from previous patterns is referred as an anomaly.

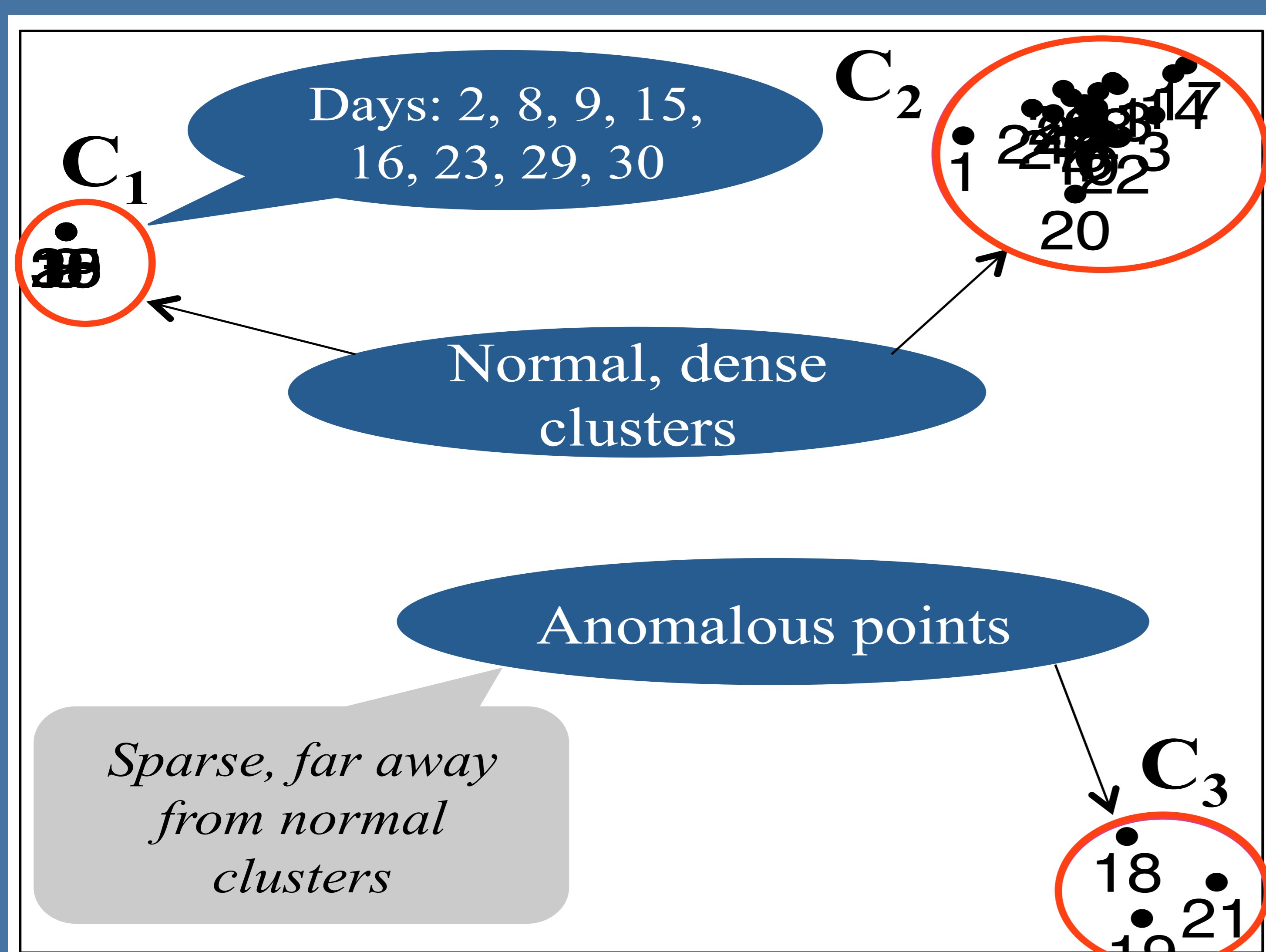


2 Dataset Used: Aggregate smart meter data of Apartments, Lecture block and HVAC chiller at IIIT-Delhi campus. Sampling rate is hourly average.

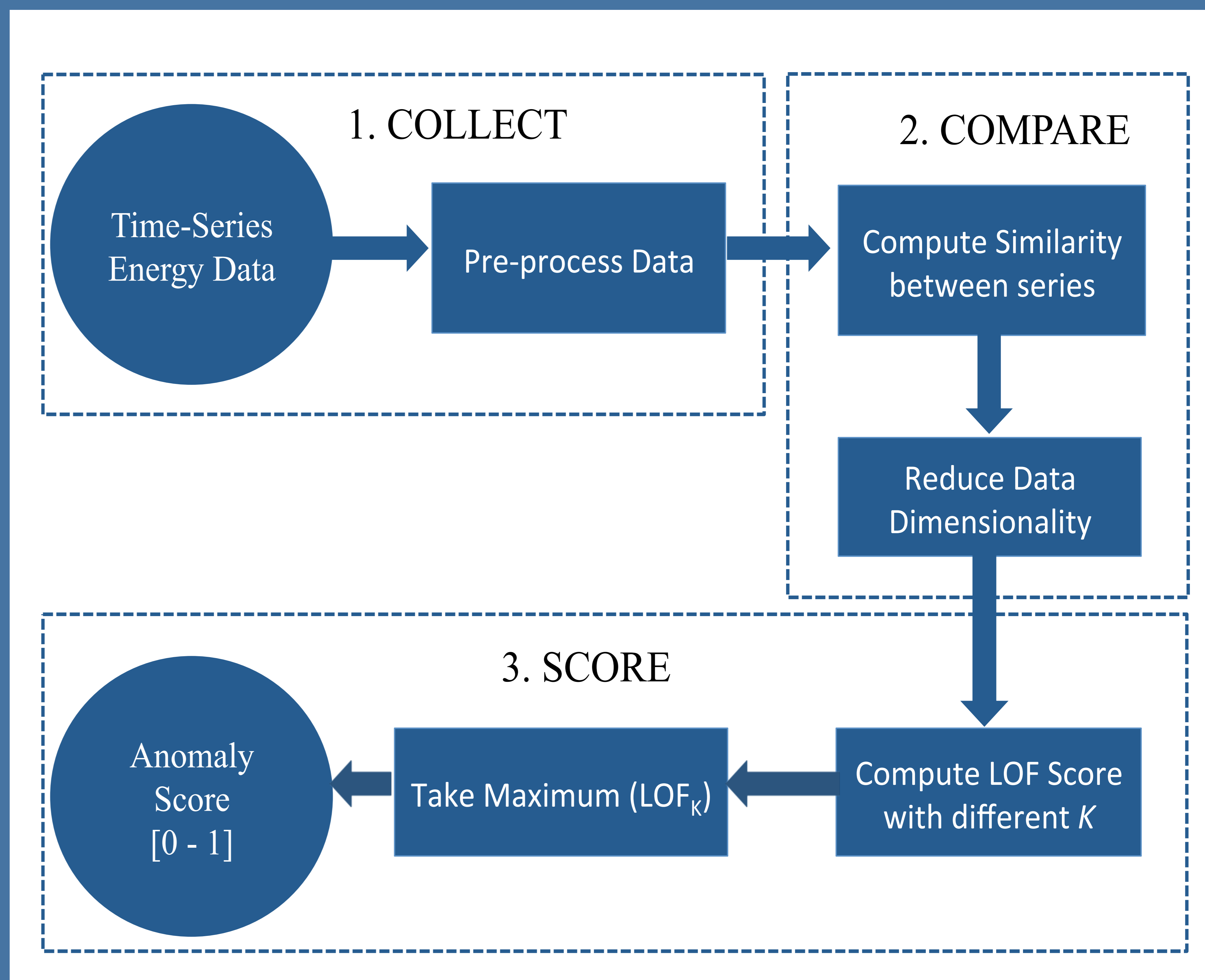
3 Observation: Energy usage across days results in several distinct dominant patterns



4 Density Approach for Anomaly detection: Instances with less and far away neighbors are possible anomalous instances



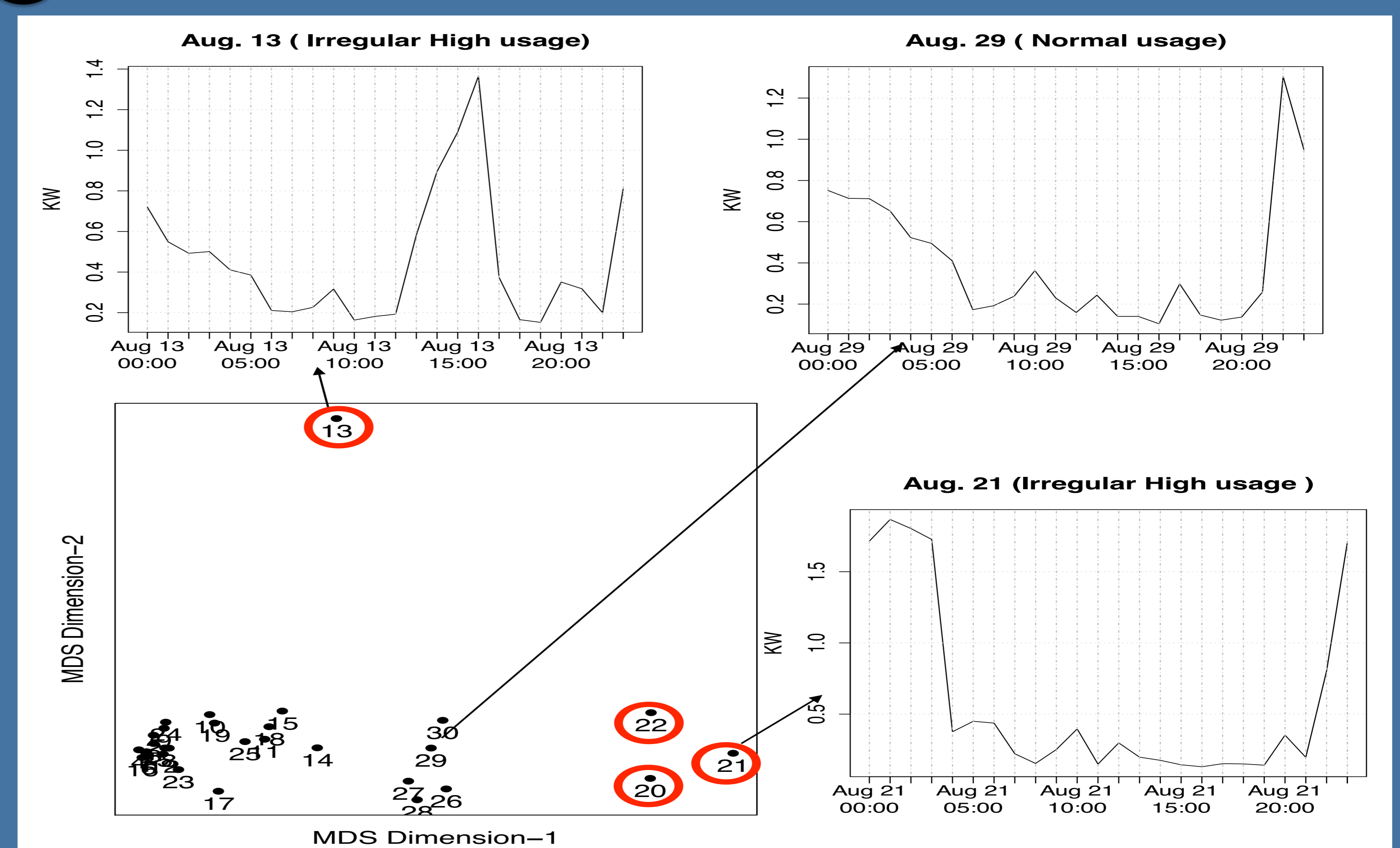
5 Flowchart: Cluster, Compare, Score (CCS)



6 Results: Area Under ROC Curve (AUC) value for CCS and BADA [1]

Method	HVAC chiller	Lecture Block	Apartment1	Apartment2
CCS	0.89	0.83	1.00	0.98
BADA	0.65	0.67	0.87	0.95

7 An example of Anomalous and Normal Usage



8 Conclusion: We find an increase of 25% in the AUC value of CCS as compared to baseline, BADA. This increase is due to the decrease of false positives in CCS.

Acknowledgment: Authors would like to acknowledge the support provided by ITRA project, funded by DEITY, Government of India, under grant with Ref. No. ITRA/15(57)/Mobile/HumanSense/01