Algorithms

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Algorithm 1: Energy-Related Sensing Data Cleaning Algorithm

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input : Username $\mathcal{U}$, Password $\mathcal{P}$, Host $\mathcal{H}$, Port $\mathcal{P}_{\sqcup}$, Database Name $\mathcal{D}$
output: Analyzed Data $\mathcal{A}$, Visualizations

```
/* Establishing a Remote Database Connection            */
```
$conn \leftarrow \text{establish\_connection}(\mathcal{U}, \mathcal{P}, \mathcal{H}, \mathcal{P}_{\sqcup}, \mathcal{D})$
$\text{display\_tables}(conn)$

```
/* Retrieving Table Data                                */
```
$df \leftarrow \text{retrieve\_data}(\text{query}, conn)$
$\text{save\_gzip}(df, \text{file\_path})$

```
/* Data Preprocessing and Analysis                      */
```
$df_i \leftarrow \text{separate\_power\_plant\_data}(df)$
$df_j \leftarrow df_i.\text{drop}('C\_pcode', \text{axis} = 1)$
$df_k \leftarrow \text{reset\_index}(df_j)$
$df_l \leftarrow \text{convert\_datetime}(df_k)$
$df_m \leftarrow \text{define\_new\_data\_frame}(df_l)$
$df_n \leftarrow \text{rename\_columns}(df_m)$

```
/* Visual Analysis                                      */
```
$\text{create\_visualizations}(df_n, \text{output\_path})$

```
/* Saving Data                                          */
```
$\text{save\_gzip}(df_n, \text{file\_path})$