README

* **Steps to Execute Code:**

1. The code is tested and implemented in Jupyter Notebook.
2. The code file name is : DataMining\_Projectone\_ShreyanshKhandelwal.ipynb
3. The code file has multiple cells and each needs to be executed to get a result in results.csv file.
4. The mean values are rounded up to nearest integer values and stored in the csv file.

* **Steps to Fulfill the Requirements:**

1. Importing Libraries such as pandas, NumPy, matplotlib and scikit-learn.
2. Reading CGMData.csv file and storing the results in the cgm\_data\_frame
3. Identifying the important attributes for the CGMData.csv file and stored them in a filtered cgm\_data\_frame.
4. Adding a ‘**Timestamp’** column to the same data frame. The Timestamp column is created using both ‘Date’ and ‘Time’ column and converted the datatype pf Timestamp column to datetime64[ns].
5. Filling all NA values with 0 in cgm\_data\_frame\_filtered set.
6. Reading CSV file InsulinData.csv file in the insulin\_data\_frame.
7. Adding a “Timestamp” column to this new data frame by combining both Date and Time column and converted the datatype of this new column to datetime64[ns].
8. Extracting only important attributes related to this project work such as ‘Date’, ‘Time’, ‘Timestamp’ and ‘Alarm’.
9. Figure out the first timestamp value where the Alarm is equal to the AUTO MODE ACTIVE PLGM OFF. The First Timestamp value received is : Timestamp('2017-08-09 08:07:13').
10. Now creating two data frames one that contains value greater than the timestamp value obtained from step 9. This one is for auto mode data frame.
11. Another data frame is for manual mode where the timestamp value is less than the timestamp value received from step 9.
12. Extracting all six features for the Auto mode with respect to “Whole Day”, “Daytime” and “Overnight”. I first calculate the count of the no of days for each metric with respect to time range and then calculate the percentage with respect to 288 no of days. On top of it calculate the mean values and rounded up to nearest decimal.
13. Extracting all six features for the Manual mode with respect to “Whole Day”, “Daytime” and “Overnight”. Capturing the mean values and rounding up to nearest decimal.
14. The Step 12 generates 18 means rounded up values for the auto mode.
15. The Step 13 generates 18 means rounded up values for the manual mode.
16. Storing the results of these details in 2 \* 18 result\_dataframe matrix.
17. Extracting the information of the data frame matrix in results.csv file with header set to None.

* **NOTE: The code is implemented using the Jupiter notebook file. You need to run all the cells before getting the results in results.csv file.**