**CIS 476/566 Graduate Student Term Project**

**Document/Program Due Dates: Monday 04/06/20**

**Demo Time: 04/06/20 6pm**

This project is required for all graduate students. Undergraduate student who chooses to work on this project and successfully finishes it will get additional 10 points. No team work on this project

In this project, you are required to design a data driven direct mail planning software “RouteMining” that will help marketing team to analyze specific carrier routes and house address data. The RouteMining can be standalone or web-based software with the following functions/features.

* Input is a list of addresses in Excel format containing street number, street name, optional apartment number, city, state, zip
* RouteMining should be able to connect to google, usps or any web or API of your choice to validate and correct the address automatically
* RouteMining should be able to use <https://eddm.usps.com/eddm/customer/routeSearch.action> or any web API of your choice to find an address’s carrier route
* RouteMining should provide a GUI to display two reports and allow a user to export the report in Excel format.
  + Report one: a list of addresses plus carrier route
  + Report two: a list of route plus number of addresses in each route.
* **Notes:** 
  + **Perform some preliminary analysis on what design patterns you will use to solve the problem.**
  + **Provide detailed design of patterns used in the solution via class diagram with mapping of pattern classes to the actual application classes.**
  + **You are required to use at least 3 design patterns while solving this problem.**
  + **The developed code must be thoroughly commented and synchronized with the model.**
* **Submission**
  + **Submit One .zip file that contains the followings**
    - **Source code**
    - **A report that includes class diagrams and their descriptions, database schema and descriptions, user-interface screen shots and descriptions, references.**