**Nithin Das, CWID: 10422784, Date: 11/14/19 Assignment W&A 4th Edition, Ch 8, Q 15, Page 460**

I pledge on my honor that I have not given or received any unauthorized assistance on this

assignment/examination. I further pledge that I have not copied any material from a book, article,

the Internet or any other source except where I have expressly cited the source.

Signature: NITHIN DAS

Date: 11/14/2019

**Management Overview**

* **Problem Statement**

To assign the 25 MBA colleges to 4 different clusters of colleges based on various college features using Evolutionary algorithm.

* **Data Sources**

Percentage of applicants accepted, Percentage of accepted applicants who enroll, Mean GMAT score of enrollees, Mean undergraduate GPA of enrollees, Annual cost of school (for

state schools, this is the cost for out-of-state students), Percentage of students who are minorities, Percentage of students who are non-U.S. residents, Mean starting salary of graduates.

* **Model Approach**
* Enter the college names and its features in the spreadsheet.
* Standardize the values to have similar units and variances
* Choose 4 random colleges as changing cells
* Calculate the distance between each college features and 4 randomly chosen colleges
* Calculate the minimum distance for each college and assign the college to the cluster
* Use Solver and choose Evolutionary algorithm to select 4 colleges that minimizes the total distance between each college to the 4 clusters
* **Solution**

Results:

The 4 cluster centers are : Duke, Washington University, Wharton and Texas

Colleges under each cluster are:

Duke: Michigan, Northwestern, Virginia, Columbia, Chicago, Dartmouth, Duke, UCLA, NYU, Cornell

Wharton: Harvard, Wharton, Stanford, MIT, Berkeley, Yale

Washington University: Carnegie Mellon, Rochester, SMU, Vanderbilt, Thunderbird, Washington University

Texas: Indiana, UNC, Texas

**Observation**:

**For the colleges under Wharton Cluster**, the mean GMAT score to receive admit is 668.33 and Mean undergraduate GPA is 3.38. The average starting salary is $101.16k . This shows that these universities are top ones with respect to quality of education. The percentage admit rates are also less for these colleges, which shows that the competitions for these colleges are high and it is difficult to receive admit from the universities.

**For the colleges under Texas cluster**, the average age acceptance percentage is 27.33%.The mean GMAT scores average is 630.33. This shows the GMAT requirements is less for the colleges. The percentage Non-US students is less for these colleges(17% approx.) which makes these colleges least choice for international students.

**For colleges under Washington cluster**, the average percentage accepted is 48.16%. This shows, it is easy to get admit to these colleges. Out of admitted students, approximately 52% students accept the offer. The average GMAT requirement is also less for these colleges (615). These colleges have average percentage Non-US students of 31%. These details show that international students will less GMAT score and UG GPA of 3.2 are more likely to get admit to these university

**For colleges under Duke cluster**, the average percentage admits is 19.1%, which is one of the least for clusters. The average tuition fee is $31220, which is one of the highest for the universities. The percentage Non -US students is 22.7%. The average starting salary is 87.4k. Therefore, international students who are willing to pay high tuition fee with average GMAT score of 655 has high chance of getting admitted to these universities.

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