# UNB Data Sprint 2021

**Project Niagara**

Background

The ever-dynamic Asian telecommunication industry is facing stiff competition amongst service providers with rapid introduction of innovative features and services such as airtime transfer, data sharing, mobile money, location aware apps, advanced social networking, and several OTT services. Fast growing telecom market in developing Asian countries is primarily a prepaid connections market. Among the various ways to reload a prepaid mobile phone through a refill card, online bank transfer, electronic reload at convenient store etc. peer to peer airtime transfer is emerging as a popular option. Peer to peer transfer involves a subscriber A transfer a part of their balance to subscriber B which can then be used for data, SMS, or voice call.

Challenge

The airtime transfer can be done in two ways: direct transfer and accepting a request for a transfer. Direct transfer involves a subscriber A initiating a transfer directly to subscriber B. Request transfer involves subscriber B raising a request for a certain amount from subscriber A and then subscriber A either accepts or rejects the transfer request. Typically, the transfer is done through an SMS in a specific format to a toll-free number. Many a times the transfer fails for variety of reasons such as incorrect amount (Only integer amount of $1 - $25 is allowed), incorrect mobile number, sending airtime to a post postpaid number, technical glitches etc. The objective of this data challenge is to characterize the users and identify the drivers of airtime transfer to enhance the count and value of successful transactions.

Data

The data provided here has a transaction profile of around 9.4 million customers for a period 8 months from a prominent telecom service provider. The variables in the dataset are as follows:

1. TX Total transactions done by a subscriber
2. Success Number of Months with successful transactions
3. mn1 Successful transactions in month 1
4. mn2 Successful transactions in month 2
5. mn3 Successful transactions in month 3
6. mn4 Successful transactions in month 4
7. mn5 Successful transactions in month 5
8. mn6 Successful transactions in month 6
9. mn7 Successful transactions in month 7
10. mn8 Successful transactions in month 8
11. activedays Number of days a subscriber is active on network
12. Total\_Amount Total amount transacted
13. Avg\_Amount Average amount transacted per transaction
14. TA1 1 - if the subscriber sent a direct transfer
15. TB1 1 - if the subscriber received a direct transfer
16. RA1 1 - if the subscriber sent a request for a transfer
17. RB1 1 - if the subscriber received a requested transfer
18. tx\_mn1 Number of transactions attempted in month 1
19. tx\_mn2 Number of transactions attempted in month 2
20. tx\_mn3 Number of transactions attempted in month 3
21. tx\_mn4 Number of transactions attempted in month 4
22. tx\_mn5 Number of transactions attempted in month 5
23. tx\_mn6 Number of transactions attempted in month 6
24. tx\_mn7 Number of transactions attempted in month 7
25. tx\_mn8 Number of transactions attempted in month 8
26. suc\_tx\_mn1 Number of successful transactions in month 1
27. suc\_tx\_mn2 Number of successful transactions in month 2
28. suc\_tx\_mn3 Number of successful transactions in month 3
29. suc\_tx\_mn4 Number of successful transactions in month 4
30. suc\_tx\_mn5 Number of successful transactions in month 5
31. suc\_tx\_mn6 Number of successful transactions in month 6
32. suc\_tx\_mn7 Number of successful transactions in month 7
33. suc\_tx\_mn8 Number of successful transactions in month 8
34. cnt\_uid Number of unique phone numbers transacted with
35. suc\_ta\_mn1 Successfully sent direct transfer in month 1
36. suc\_ta\_mn2 Successfully sent direct transfer in month 1
37. suc\_ta\_mn3 Successfully sent direct transfer in month 1
38. suc\_ta\_mn4 Successfully sent direct transfer in month 1
39. suc\_ta\_mn5 Successfully sent direct transfer in month 1
40. suc\_ta\_mn6 Successfully sent direct transfer in month 1
41. suc\_ta\_mn7 Successfully sent direct transfer in month 1
42. suc\_ta\_mn8 Successfully sent direct transfer in month 1
43. suc\_tb\_mn1 Successfully received transfer in month 1
44. suc\_tb\_mn2 Successfully received transfer in month 1
45. suc\_tb\_mn3 Successfully received transfer in month 1
46. suc\_tb\_mn4 Successfully received transfer in month 1
47. suc\_tb\_mn5 Successfully received transfer in month 1
48. suc\_tb\_mn6 Successfully received transfer in month 1
49. suc\_tb\_mn7 Successfully received transfer in month 1
50. suc\_tb\_mn8 Successfully received transfer in month 1
51. suc\_ra\_mn1 Successful sent transfer to a request in month 1
52. suc\_ra\_mn2 Successful sent transfer to a request in month 1
53. suc\_ra\_mn3 Successful sent transfer to a request in month 1
54. suc\_ra\_mn4 Successful sent transfer to a request in month 1
55. suc\_ra\_mn5 Successful sent transfer to a request in month 1
56. suc\_ra\_mn6 Successful sent transfer to a request in month 1
57. suc\_ra\_mn7 Successful sent transfer to a request in month 1
58. suc\_ra\_mn8 Successful sent transfer to a request in month 1
59. suc\_rb\_mn1 Successful received transfer as requester in month 1
60. suc\_rb\_mn2 Successful received transfer as requester in month 1
61. suc\_rb\_mn3 Successful received transfer as requester in month 1
62. suc\_rb\_mn4 Successful received transfer as requester in month 1
63. suc\_rb\_mn5 Successful received transfer as requester in month 1
64. suc\_rb\_mn6 Successful received transfer as requester in month 1
65. suc\_rb\_mn7 Successful received transfer as requester in month 1
66. suc\_rb\_mn8 Successful received transfer as requester in month 1
67. TA\_S Number of successful transfers sent
68. TB\_S Number of successful transfers received
69. RA\_S Number of successful requests accepted
70. RB\_S Number of successful requests received
71. ID

Evaluation Rubric

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| Criteria | Weight | 5 | 10 | 15 | 20 |
| Exploratory Data Analysis | 40% | Mostly inappropriate or simplistic plots and interpretations | Plots and interpretations “shot from the hip” and show promise but too little detail | Team didn’t always use best plots for the context. Interpretations are solid though | Team has used the proper plots and interpreted them well |
| Models and their Interpretation | 30% | Claims made about models have large errors in logic or understanding | Interpretations are incorrect in a significant way but in right direction | Interpretations are imprecise but generally correct | Team has accurately interpreted their models; they do not overstate claims |
| Readability and Argumentation | 30% | The Team’s solution is hard to understand. The visuals and models do not hold together very well | The judge can make a guess at the team’s solution with some work but the report doesn’t hold together very well. | The solution is fairly clear but the report “meanders” a little that distract from the main point | It is obvious what the Team is trying to put forth, and all models and diagrams help support their solution |