

## Assignment 2

Subject: Artificial Intelligence

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### Code Explanation and screenshot:

1. The code is written in python language. The code is written in a jupyter notebook.
2. Recency, Frequency, and Monetary (RFM) analysis is a tried-and-true marketing model for segmenting consumers based on their actions. It categorises customers based on how recently, how often, and how much they have purchased.
3. To determine quantitatively which customers are the best ones by examining how recently a customer has purchased:

InvoiceDate	
CustomerID	
12346.0	325 days 02:33:00
12347.0	1 days 20:58:00
12348.0	74 days 23:37:00
12349.0	18 days 02:59:00
12350.0	309 days 20:49:00

4. how often they purchase:

InvoiceDate	
CustomerID	
12346.0	2
12347.0	182
12348.0	31
12349.0	73
12350.0	17

5. how much the customer spends:

UnitPrice	
CustomerID	
12346.0	2.08
12347.0	481.21
12348.0	178.71
12349.0	605.10
12350.0	65.30

6. R\_F\_M analysis is based on the marketing axiom that 80% of your business comes from 20% of your customers.

```
RFMscores.quantile([.80, 1], axis=0)
```

Out[44]:

	recency	frequency	monetary	AggrScore
0.8	4.0	4.0	1.0	3.0
1.0	4.0	4.0	4.0	4.0

7. Who are my best customers? Which customers are at the verge of churning? Who has the potential to be converted in more profitable customers? Who are lost customers that you do not need to pay much attention to? Which customers you must retain? Who are your loyal customers? Which group of customers is most likely to respond to your current campaign?

```
In [47]: loyalty = RFMscores['AggrScore'].iloc[[x >= 3.33333 for x in RFMscores['AggrScore']]]
loyal = pd.DataFrame(loyalty, columns = ['AggrScore'])
LoyalCustomers = list(loyal.index)
LoyalCustomers
```

Out[47]:

12352.0,  
12359.0,  
12362.0,  
12415.0,  
12417.0,  
12428.0,  
12433.0,  
12437.0,  
12444.0,  
12451.0,  
12471.0,  
12473.0,  
12474.0,  
12476.0,  
12477.0,  
12536.0,  
12539.0,  
12540.0,  
12567.0,  
12569.0

```
In [28]: ► lost = RFMScores['AggrScore'].iloc[[x <= 1.0 for x in RFMScores['AggrScore']]]  
lost_customer = pd.DataFrame(loss, columns = ['AggrScore'])  
Lost_Customer = list(loss_customer.index)  
Lost_Customer
```

```
Out[28]: [12346.0,  
12353.0,  
12355.0,  
12361.0,  
12386.0,  
12401.0,  
12402.0,  
12441.0,  
12450.0,  
12505.0,  
12509.0,  
12547.0,  
12548.0,  
12551.0,  
12565.0,  
12574.0,  
12605.0,  
12622.0,  
12641.0,  
12651.0]
```