**MCRM Group 4: Managing Customer Profitability at MGM Grand**

**Data Modeling:**

* Remove All NA’s or Null’s as PLAYER\_ID in both the data sets.
* Calculated Net earnings of individual categories (Hotel, F&B, Entertainment, Rental, Others) with Debit-Credit values respectively.
* Grouped the data with respective PLAYER\_ID I.e. Calculated individual player total (Sum of) Debit, Credit, First Arrival (min(FOL\_ACT\_ARR\_DATE)), Recent Departure (max(FOL\_ACT\_DEP\_DATE)), numbers of days from 2002 Jan 3rd to his/her recent departure, individual category wise spending sum, Frequency of Hotel Visits and Casino visits, Age, Table and Slot actual wins and theoretical, total comps and total theoretical wins.
* Merged the Casino data to Hotel data with respect to PLAYER\_ID and formed a single file.

**Segmentation Algorithm:**

* We have chosen RFM Classification technique to identify individual segments of customers.
* ***Recency***: The given data has 3 Years of hotel customer records, starting from 2002 Jan till 2005 Jan. We considered recent customer departure to 2002 Jan 3rd (oldest date in records) for recency calculations. We have understood that the Quantiles for this period is of (0-754-873-967-1096) days but based on this we are not able at make meaning split because 754 days is almost 2 years. So we considered the split as 12, 20, 30, 36 Months. Following is the detail table of it.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Recency** | **Bucket Code** | **Recency Cut-offs** | **Bucketed Customers** | **Percentage** |
| 4 | 12 Months | 211 | 16.36 |
| 3 | 20 Months | 134 | 10.39 |
| 2 | 30 Months | 765 | 59.30 |
| 1 | 36 Months | 180 | 13.95 |

* **Frequency:** Frequency is calculated as how many times a customer has visited the hotel, for this we used PLAYER\_ID based frequency. We found that more than 65% for the customers are less than 3 times visited and the overall data frequency has a range of 1 to 41.

So we have taken this as a 3 segment classification with 1 visit who has come only once (Being a Los Vegas most people come as a touristic visit or to check off from bucket list), 2 to 5 visits as second bucket – These are the customer who came multiple times in 3 years’ spans, says they are target audience and has high chances of coming again, and the final bucket as people who came more than 5 times – These are very frequent and trusted customers. Following is the detail table of it.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Frequency** | **Bucket Code** | **Frequency Cut-offs** | **Bucketed Customers** | **Percentage** |
| 3 | 6-41 times | 71 | 3.76 |
| 2 | 2-5 times | 472 | 24.97 |
| 1 | 1 time | 1347 | 71.27 |

* **Monetary:** For monetary calculation we considered the average amount spent by a customer towards hotel i.e. TOTAL\_CHARGES/FREQUENCY.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monetary** | **Bucket Code** | **Monetary Cut-offs** | **Bucketed Customers** | **Percentage** |
| 4 | 3921$ | 27 | 1.43 |
| 3 | 1500$ | 861 | 45.56 |
| 2 | 300$ | 857 | 45.34 |
| 1 | 75 $ | 145 | 7.67 |

This amount has a range of up to 3921$, So we have considered to split them as less profitable, moderately profitable, high profitable, very high profitable (luxurious). Following is the detail table of it.

**Classification Based on Buckets:**

For the chosen RFM with 4\*3\*4 segmentation we would ideally get 48 segments but in our case we have only 31 segments because there was no customer for some combination of RFM like 111. These 31 segments were classified into 4 classes based on their hotel profitability, they are the below

|  |  |  |
| --- | --- | --- |
| **Class** | **Class %** | **Hotel Profit % WRT Total Profits** |
| *High Profit* | 1.38 | >= 45% |
| *Moderate Profit* | 76.72 | 50-15% |
| *Low Profit* | 21.75 | 15-0% |
| *Negative Profit* | 0.16 | <0% |

As it is clear we have a large class of customer who are moderately profitable, our focus should be creating campaigns such that these will turn out to be the next class soon.

**Insights:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Class** | **Bucket Code** | **B\_Count** | **Remarks** |
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| High Profit | 213 | 3 | Most valuable but not recent, target them for luxurious event campaigning |
| 221 | 1 | Include them in all campaigns, which are less campaigning cost to the company |
| 131 | 13 |
| 231 | 9 |
| Moderate Profit | 222 | 45 | Include them in all campaigns, which are less campaigning cost to the company |
| 233 | 293 | Used to be Freq - Discounts on previous bills kind of campaigning |
| 322 | 60 | Include them in all campaigns, which are less campaigning cost to the company |
| 122 | 34 |
| 232 | 280 | Used to be Freq - Discounts on previous bills kind of campaigning |
| 422 | 72 | Cost sensitive - Discount related campaigning, which are less campaigning cost to the company |
| 411 | 2 |
| 133 | 316 | Target them for luxurious event campaigning |
| 132 | 348 | Used to be Freq - Discounts on previous bills kind of campaigning, which are less campaigning cost to the company |
| Low Profit | 223 | 64 | Awareness campaigning’s, campaigning, which are less campaigning cost to the company |
| 423 | 73 | Recent Potential User - Include in all campaigning’s, which are less campaigning cost to the company |
| 313 | 6 | Potential Users -- Awareness, which are less campaigning cost to the company |
| 323 | 48 |
| 123 | 23 | Awareness campaigning’s, campaigning, which are less campaigning cost to the company |
| 412 | 19 | Recent User - Discounts on previous bills kind of campaigning |
| 413 | 31 |
| 124 | 9 | All luxurious campaigning, which are less campaigning cost to the company |
| 134 | 37 |
| 224 | 18 |
| 414 | 6 | Recent User - Discounts on previous bills kind of campaigning |
| 321 | 2 | Cost sensitive - Discount related campaigning |
| 314 | 1 | Awareness on luxurious offers, campaigning needed |
| 324 | 15 |
| 234 | 51 |
| 424 | 8 | Recent User - Awareness on luxurious offers, campaigning needed |
| Negative Profit | 312 | 2 | No Profit on either hotel or casino despite of Comps - Avoid Comps |
| 212 | 1 |

**Conclusion:**

In short MGM should concentrate on awareness campaigns with less campaigning cost on all segments of ***Moderate class***, this will help to improve hotel business of MGM as this is potentially a hotel customer base having 50-80% of cross sell business at casino. For more details please refer (MGM\_BuketWise\_data\_1.xlsx).