#### Customer Relationship Managemen Prof. Swagato Chatterjee Vinod Gupta School of Management Indian Institute of Technology, Kharagpur

#### Lecture – 27 Customer Equity in CRM (Contd.)

Hello everybody. Welcome to the course NPTEL Swayam course on Customer Relationship Management. This is Dr. Swagato Chatterjee from the VGSOM IIT, Kharagpur who is taking this course, we are discussing about Customer Equity and the relationship with that with the acquisition and retention spent.

So, how do you decide how much money you will spend on acquisition and how much money we will spend in retention? And this is a pretty important problem because we all know that retention is more important in the context of CRM than acquisition. Now if it is more important, how much more? What is the ratio exactly in the monetary terms that you want to spend on each customer or each potential customer in case of acquisition — that we will be discussing here in this particular case.

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| +    |           | Total M Size                  | 246477    | KI       | 0.17329   | Retention            | 8                   |         | Retention rate                                  | 60%          |               | Max KK    | 80%                                |   |
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So, there is a excel file that has been given. There is lots of calculations given here and I would probably, the first thing that I will do is: I will delete this whole table. So, that you remain with me at the same page. I have deleted the table.

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|           |          | Total M Size  | 10000                   | k1       | 0.17329    | Retention    | 8        | 3         | Retention rate         | 60%           |               | Max RR            | 80%           |      |
|           |          | Total CLV     | 0                       |          |            |              |          |           |                        |               |               |                   |               |      |
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So, let me tell you the problem first. So, the problem so, let us delete this and delete this also, the problem is like this that okay.

So, the problem is like this; whatever is been written here right now. Let me zoom a little bit. So, there are a company which has 500 customers and the total market size is 10000. So, 500 customers it has and 9500 customers are outside the market. They are the potential customers they have not been acquired yet. 500 customers have been acquired already.

So, this is the two values that has been given to me. Now what? This customer, this company generally spends 2 dollars per potential customer, 2 dollars per potential customer for acquisition spend, and 8 dollars per existing customers for retention spend. 2 dollars per potential customer; that means; if I have 9500, then 9500 into 2 19000 dollars part time period, let us per month.

I do acquisitions expenditure and retention expenditure is 500 customers, I am spending 8 dollars fair enough. So, 4000 dollar is the retention expenditure. And while it does that, by spending 2 dollars it gets 6% conversion rate, acquisition rate and by spending 8 dollars it gets 60 % retention rate.

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So, what do I have basically? I am saying that when A is equal to 2, when A is equal to 2; my small a is equal to 6% and when retention is equal to 8; my r is equal to 60 %. These are the two things that have been told to me, fair enough. Or it has been also told that the maximum possible conversion rate, the ceiling rate and the maximum possible retention rate is 10% and 80 % through the ceiling of acquisition is 10% and ceiling of retention is 80%.

Now, it is asking me, what should be the optimal acquisition and retention spend. So, let us do this thing. So, what do I know? I know that a is equal to  $CR \ a \ 1 \ minus \ e \ to \ the \ power \ minus \ k \ 1 \ into \ A \ do I \ know that or \ can I \ write \ a \ by \ CR \ a \ is \ equal \ to \ 1 \ minus \ e \ to \ the \ power \ minus \ k \ 1 \ A \ .$  I can write that or I can also write this then just changing the side.

Or I can also write this then, fair enough then I can write this. So, by using this formula I can calculate the value of k1 similarly k2s formula will be nothing but, something like this; these are the formula. So, based on these two formula; first thing that I will do is, I will calculate k1 and k2. Let us calculate k1 and k2 first. So, what is k1? Let me just put it here, what is k 1 and what is k 2, what is k 1 and what is k 2.

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The k1 is basically 1 by a a is 2. So, minus 0.5 then write 1 by 2 is 0.5 into log of 1 minus something and what is that something? Into 1 minus this is 6% and CR a is 10 %. So, 6 by 10 -0.6.

That is my k1 fair enough. And what is my k2 then in this particular maths? Just 1 minute minus 0.5 just let me okay. So, this might be wrong. So, I will I will come to this and what is what is k2? k2 is minus 1 by 8 minus 1 by 8 into LN1 minus small r by CR, small r is 60% this is 80%.

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So, 0.6 by 0.8, these are the two values. So, this value is correct this 0.17329, I have written it here.

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| 3      | 10000 | ) k1                | 0.17329                  | Retention                      | 8                           | 3                               | Retention rate                         | 60%                              |                 | Max RR   | 80%                                     |
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|     | 500     | 1 1/2               | 0.49915            | AcSpend      | 2                | 10       | Con rate              | 6%              |                 | Max CR       | 10%                 |
|     | 10000   | ) k1                | 0.17329            | Retention    | 8                | 10       | Retention rate        | 60%             |                 | Max RR       | 80%                 |
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This value will be basically not LN, this will be *1 minus* and here it will be 0.5 into right; that will be the value, k1 and k2. So, k1 and k2 I have got these two values fair enough.

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So, 1 is for, first one K1 is for retention and K2 okay. So, I have done it wrong. So, K1 and K2; the first one this K1 is for acquisition and second one is for retention. These are the two values that I have got. Then what is my acquisition spent initially? If it is 2, if I spent 2 dollars initially.

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|               | 500     | K1                              | 0.45815           | AcSpend                        | Q 2                                | -10                              | Con rate                             | =M2*(1-E       | XP(-E2*G2)        | )   | 10%                                   |
|               | 10000   | K2                              | 0.17329           | Retention                      | 8                                  |                                  | Retention rate                       | 60,            | XP(number)        | Max RR  | 80%                                   |
|               | 0       |                                 |                   |                                |                                    |                                  |                                      |                |                   |   |                                       |
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| 5             | Cust    | Retained                        | Acquired          | Potential                      | Rs                                 | As                               | Ts                                   | rev            | profit            | tvm   |                                       |
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Then what will be my conversion ratio my conversion ratio is the maximum acquisition rate which is M2. The maximum acquisition rate which is M2 minus 1 minus E2 which is the k1 basically into G2 which is the acquisition spent, that is what I get.

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Similarly, my retention is the maximum thing which is M3 into 1 minus exponential of minus E3; E3 is this one into G3 which is the K2 into retention retention expenditure. So, this is the retention rate that I got, fair enough. Along with this, it has been also told to me that each guy whom I acquire pays 50 dollars each customer pays 50 dollars per time period or in this case per month. This has been told.

So, I spend 8 dollar for retention, but they spend 50 dollar in the business. So, now, what is my total CLV? So, first time period I have 500 customers. None are retain, none are acquired. So, basically *this minus* 500 and I will put a F4 here, this is my total number of potential customers. How much is the retentions spent? This into my retention spent and I put a 'F4 'here.

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How much is the acquisition spent? This is my potential customers, each customer I paid 2 dollar.

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So, that is my, this two are randomly taken this two I randomly taken total is 10. This two are randomly taken. So, this is my acquisition spent that this thing is this plus this this is my total expenditure.

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| 2     | 500         | K1                  | 0.45815                | AcSpend    | 2                             | 10                  | Con rate                    | 6%             |                 | Max CR      | 10%  |
| 3     | 10000       | K2                  | 0.17329                | Retention  | 8                             |                     | Retention rate              | 60%            |                 | Max RR      | 80%  |
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| 6     | Cust        | Retained            | Acquired               | Potential  | Rs                            | As                  | Ts                          | rev            | profit          | tvm         |  |
| 7     | 500         | 0                   | 0                      | 9500       | 4000                          | 19000               |                             | 25000          | =J7-17          |             |  |
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What is my revenue? My revenue is 500 customers into 50; that is my revenue. So, what is my profit? My profit is: *revenue minus the total expenditure* and what is the time value of money?

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This time value of money is Let's say, if I 10% time value of money. This is *this divided by* 1.1 to the power; in the first case it is **0** and second case onwards it will go on. So, I will just write *this minus* **1**. So, the first case it will be the same value.

085 Sign in INSERT PAGELAVOUT FORMULAS. DATA REVIEW 限 Ħ 田 · ð · A · 三三三 伝伝 団M fr =: 7\* 1:53 C D E G Н M Cust 500 K1 0.458145 AcSpend 2 10 Con rate 6% Max CR 10% Total M Size 10000 K2 0.173287 Retention 60% Max RR 809 Retention rate 2000 Total CLV Yea Cust Retained Acquired Potential Rs As Ts rev profit tvm 500 0 0 9500 4000 19000 23000 25000 2000 2000 8 =C7\*\$J\$3 10 11 12 13 14 15 16 10 Sheet2 Sheet3 EX **7** 🚺

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So, just check what I, did I did it quickly you should pause the video and slowly do it. Now what happens in the next time period? In the next time periodout of this 500 people, how many gets retained? This many people get retained. So, I put a F4 sign here.

(Refer Slide Time: 12:05)



So, 300 get retained out of this 500 people and how many do I acquire more? *This into the conversion ratio*, these many customers I acquired new in this particular thing.

(Refer Slide Time: 12:21)



So, these are the new acquired customer, this is the retained customer. So, the new customer in the next time period *is this plus this* and basically the potential customer left after time period two is these many fair enough.

### (Refer Slide Time: 12:30)



So, this many is my customers who I am got from the potential customer base these many is the customer whom I could retain. *So, put a new customer plus old customer get the total customer.* All, all potential market size minus the total customer creates my next period's potential customer. So, that is how thus things change. How much is the retention spent? The retention spent in this time period is I spend on this 870 people 8 dollars.

(Refer Slide Time: 13:11)

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|------|---------------------------|-----------------------------------|------------|------------------------------------|-----------------------------|--------------------------------|-----------------|---|------------------|---|--|--------------|
| UN   | • • i >                   | √ fx                              | =C8*\$G\$3 |                                    |                             |                                |                 |   |                  |   |  |              |
|      | В                         | С                                 | D          | E                                  | F                           | G                              | Н               | I   | J                | К   | L  | М            |
| 1    |                           |                                   |            |                                    |                             |                                |                 |   |                  |   |  |              |
| 1    | Cust                      | 500                               | К1         | 0.458145                           | AcSpend                     | 2                              | 10              | Con rate  | 6%               |   | Max CR   | 10           |
| 1    | Total M Size              | 10000                             | K2         | 0.173287                           | Retention                   | 8                              |                 | Retention rate  | 60%              |   | Max RR   | 80           |
| ł    | Total CLV                 | 2000                              |            |                                    |                             |                                | 0               |   |                  |   |  |              |
| 1    |                           |                                   |            |                                    |                             |                                | Ē               |   |                  |   |  |              |
| 5    | Year                      | Cust                              | Retained   | Acquired                           | Potential                   | Rs                             | As              | Ts  | rev              | profit  | tvm  |              |
| 7    | 1                         | 500                               | 0          | 0                                  | 9500                        | 4000                           | 19000           | 23000   | 25000            | 2000  | 2000   |              |
| 3    | 2                         | 870                               | 300        | 570                                | 9130                        | =C8*\$G\$3                     |                 |   |                  |   |  |              |
| )    | 3                         |                                   |            |                                    |                             |                                |                 |   |                  |   |  |              |
| 0    | 4                         |                                   |            |                                    |                             |                                |                 |   |                  |   | 1 BACK   |              |
| 1    | 5                         |                                   |            |                                    |                             |                                |                 |   |                  | 15  |  |              |
| 2    | 6                         |                                   |            |                                    |                             |                                |                 |   |                  |   | -  |              |
| 3    | 7                         |                                   |            |                                    |                             |                                |                 |   |                  | 1   | aver   |              |
| 4    | 8                         |                                   |            |                                    |                             |                                |                 |   |                  | 61  |  |              |
| 5    | 9                         |                                   |            |                                    |                             |                                |                 |   |                  | K   | per l  |              |
| 6    | 10                        |                                   |            |                                    |                             |                                |                 |   |                  |   | -  | a l          |
| 0    |                           |                                   |            |                                    |                             |                                |                 |   |                  |   |  |              |

So, retention spend is *this into 8 and* on these 9130 people I spend 2 dollars. So, this my total spent, this is my total expenditure, revenue and time value of money. And specifically, I decided that I will do it for 30 years your choice after some period it is a, it is basically mark of chain if you do well marketing analysis you will understand.

(Refer Slide Time: 13:49)

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|       | В                     | C         | D         | E                            | F                             | G                             | H   | I  | J                 | К                                 | L   | М       |   |
| 25    | 19                    | 1304.336  | 782.5951  | 521.7405                     | 8695.664                      | 10434.68                      | 17391.33  | 27826.01339  | 65216.78          | 37390.76                          | 6725.058                                    |         |   |
| :6    | 20                    | 1304.341  | 782.6013  | 521.7399                     | 8695.659                      | 10434.73                      | 17391.32  | 27826.04723  | 65217.06          | 37391.01                          | 6113.729                                    |         |   |
| 27    | 21                    | 1304.344  | 782.6047  | 521.7395                     | 8695.656                      | 10434.75                      | 17391.31  | 27826.0655   | 65217.21          | 37391.15                          | 5557.956                                    |         |   |
| 8     | 22                    | 1304.346  | 782.6066  | 521.7393                     | 8695.654                      | 10434.77                      | 17391.31  | 27826.07537  | 65217.29          | 37391.22                          | 5052.697                                    |         |   |
| 9     | 23                    | 1304.347  | 782.6075  | 521.7392                     | 8695.653                      | 10434.77                      | 17391.31  | 27826.0807   | 65217.34          | 37391.26                          | 4593.366                                    |         |   |
| 0     | 24                    | 1304.347  | 782.6081  | 521.7392                     | 8695.653                      | 10434.78                      | 17391.31  | 27826.08358  | 65217.36          | 37391.28                          | 4175.789                                    |         |   |
| 1     | 25                    | 1304.348  | 782.6084  | 521.7392                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.08513  | 65217.38          | 37391.29                          | 3796.173                                    |         |   |
| 2     | 26                    | 1304.348  | 782.6085  | 521.7391                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.08597  | 65217.38          | 37391.3                           | 3451.067                                    |         |   |
| 3     | 27                    | 1304.348  | 782.6086  | 521.7391                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.08642  | 65217.39          | 37391.3                           | 3137.334                                    |         |   |
| 4     | 28                    | 1304.348  | 782.6086  | 521.7391                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.08667  | 65217.39          | 3739                              | 122   |         |   |
| 5     | 29                    | 1304.348  | 782.6087  | 521.7391                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.0868   | 65217.39          | 37                                | 3   |         |   |
| 6     | 30                    | 1304.348  | 782.6087  | 521.7391                     | 8695.652                      | 10434.78                      | 17391.3   | 27826.08687  | 65217.39          | 37                                | 5   |         |   |
| 7     |                       |           |           |                              |                               |                               |   |  |                   | 1                                 | X   | p.+     |   |
| 8     |                       |           |           |                              |                               |                               |   |  |                   | 1                                 | art.  |         |   |
| 9     |                       |           |           |                              |                               |                               |   |  |                   | 1                                 |   |         |   |
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So, so after one point of time it will basically saturate. So, I will go on after 30 years you will see last values are all same, all rows are same almost.

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| SUN   | 1 * i >              | √ fx        | =SUM(L7:L36)            |           |                |           |                                |  |                  |                |                                  |       |
| 1     | В                    | С           | D                       | E         | F              | G         | Н                              | Ι  | J                | K              | L                                | М     |
| 1     |                      |             |                         |           |                |           |                                |  |                  |                |                                  |       |
| 2     | Cust                 | 500         | К1                      | 0.458145  | AcSpend        | 2         | 10                             | Con rate   | 6%               |                | Max CR                           | 109   |
| 3     | Total M Size         | 10000       | K2                      | 0.173287  | Retention      | 8         |                                | Retention rate                                       | 60%              |                | Max RR                           | 809   |
| 4     | Total CLV            | =SUM(L7:    | L36)                    |           |                |           |                                |  |                  |                |                                  |       |
| 5     |                      | SUM(number  | 1, [number2],}          |           |                |           |                                |  |                  |                |                                  |       |
| 6     | Year                 | Cust        | Retained                | Acquired  | Potential      | Rs        | As                             | Ts   | rev              | profit         | tvm                              |       |
| 7     | 1                    | 500         | 0                       | 0         | 9500           | 4000      | 19000                          | 23000  | 25000            | 2000           | 2000                             |       |
| 8     | 2                    | 870         | 300                     | 570       | 9130           | 6960      | 18260                          | 25220  | 43500            | 18280          | 16618.18                         |       |
| 9     | 3                    | 1069.8      | 522                     | 547.8     | 8930.2         | 8558.4    | 17860.4                        | 26418.8  | 53490            | 27071 2        | 22372.89                         |       |
| 10    | 4                    | 1177.692    | 641.88                  | 535.812   | 8822.308       | 9421.536  | 17644.62                       | 27066.152  | 58884.6          | 31             | 05.67                            |       |
| 11    | 5                    | 1235.954    | 706.6152                | 529.3385  | 8764.046       | 9887.629  | 17528.09                       | 27415.72208  | 61797.68         | 3              | 8.34                             |       |
| 12    | 6                    | 1267.415    | 741.5722                | 525.8428  | 8732.585       | 10139.32  | 17465.17                       | 27604.48992  | 63370.75         | 3              | 3.03                             |       |
| 13    | 7                    | 1284.404    | 760.449                 | 523.9551  | 8715.596       | 10275.23  | 17431.19                       | 27706.42456  | 64220.2          | 36.            |                                  |       |
| 14    | 8                    | 1293.578    | 770.6425                | 522.9358  | 8706.422       | 10348.63  | 17412.84                       | 27761.46926  | 64678.91         | 3691           | 2.48                             |       |
| 15    | 9                    | 1298.532    | 776.1469                | 522.3853  | 8701.468       | 10388.26  | 17402.94                       | 27791.1934   | 64926.61         | 3713           |                                  |       |
| 16    | 10                   | 1301.207    | 779.1193                | 522.0881  | 8698.793       | 10409.66  | 17397.59                       | 27807.24444  | 65060.37         | 37             | In                               |       |
|       |                      | 1000 000    | 700 7044                | F04 0076  | 0007 040       | 10101 00  | 47004 7                        | 07045 040  | 0040             | M              |                                  | 111 B |

So, it saturates at some point of time and that gives me the total CLV it's nothing but the summation of the time value of money and I get this 318214.5.

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|-----|---|----------|--------------|------------------------------|-----------------------------|---------------------------------|--------------|--|------------------|---|--|--------|
| 4   | • : ×   | √ fx     | =SUM(L7:L36) |                              |                             |                                 |              |  |                  |   |  |        |
|     | В   | С        | D            | E                            | F                           | G                               | Н            | I  | J                | K   | L  | М      |
|     |   |          |              |                              |                             |                                 |              |  |                  |   |  |        |
| 2   | Cust  | 500      | K1           | 0.458145                     | AcSpend                     | 2                               | 10           | Con rate   | 6%               |   | Max CR   | 10     |
| 3   | Total M Size                                    | 10000    | K2           | 0.173287                     | Retention                   | 8                               |              | Retention rate   | 60%              |   | Max RR   | 80     |
| 4   | Total CLV                                       | 318214.5 |              |                              |                             |                                 |              |  |                  |   |  |        |
| 5   | Vear  | Cust     | Retained     | Acquired                     | Potential                   | Re                              | Δe           | Te   | rev              | profit  | tum  |        |
| 7   | 1   | 500      | 0            | 0                            | 9500                        | 4000                            | 19000        | 23000  | 25000            | 2000  | 2000   |        |
| 8   | 2   | 870      | 300          | 570                          | 9130                        | 6960                            | 18260        | 25220  | 43500            | 18280   | 16618.18   |        |
| 9   | 3   | 1069.8   | 522          | 547.8                        | 8930.2                      | 8558.4                          | 17860.4      | 26418.8  | 53490            | 27071.2   | 22372.89   |        |
| 0   | 4   | 1177.692 | 641.88       | 535.812                      | 8822.308                    | 9421.536                        | 17644.62     | 27066.152  | 58884.6          | 31818   | 67   |        |
| 1   | 5   | 1235.954 | 706.6152     | 529.3385                     | 8764.046                    | 9887.629                        | 17528.09     | 27415.72208  | 61797.68         | 343   |  |        |
| 2   | 6   | 1267.415 | 741.5722     | 525.8428                     | 8732.585                    | 10139.32                        | 17465.17     | 27604.48992  | 63370.75         | 3576  | _  |        |
| 3   | 7   | 1284.404 | 760.449      | 523.9551                     | 8715.596                    | 10275.23                        | 17431.19     | 27706.42456  | 64220.2          | 3651  | 8  |        |
| 4   | 8   | 1293.578 | 770.6425     | 522.9358                     | 8706.422                    | 10348.63                        | 17412.84     | 27761.46926  | 64678.91         | 36917.  | - 8  |        |
| .5  | 9   | 1298.532 | 776.1469     | 522.3853                     | 8701.468                    | 10388.26                        | 17402.94     | 27791.1934   | 64926.61         | 37135   | EL   |        |
| .6  | 10  | 1301.207 | 779.1193     | 522.0881                     | 8698.793                    | 10409.66                        | 17397.59     | 27807.24444  | 65060.37         | 3   | -10  | 17     |
|     |   | 1000 000 |              | F04 0076                     | 0003 040                    | 40404 00                        | 47004 7      | 27045 042  | er 4 0           | MA  |  |        |

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| 4  | * 1 >        | √ fx                    |   |           |                |          |          |                          |                  |                     |               |     |
|    | В            | С                       | D   | E         | F              | G        | Н        | I                        | J                | К                   | L             | М   |
| 1  |              |                         |   |           |                |          |          |                          |                  |                     |               |     |
| 2  | Cust         | 500                     | K1  | 0.458145  | AcSpend        | Q 1      | 10       | Con rate                 | 4%               |                     | Max CR        | 10  |
| 3  | Total M Size | 10000                   | K2  | 0.173287  | Retention      | 5        |          | Retention rate           | 46%              |                     | Max RR        | 80  |
| 4  | Total CLV    | 191588.3                |   |           |                |          |          |                          |                  |                     |               |     |
| 5  |              |                         |   |           |                |          |          |                          |                  |                     |               |     |
| 6  | Year         | Cust                    | Retained                                  | Acquired  | Potential      | Rs       | As       | Ts                       | rev              | profit              | tvm           |     |
| 7  | 1            | 500                     | 0   | 0         | 9500           | 2500     | 9500     | 12000                    | 25000            | 13000               | 13000         |     |
| 8  | 2            | 580.988                 | 231.8207                                  | 349.1672  | 9419.012       | 2904.94  | 9419.012 | 12323.95185              | 29049.4          | 16725.45            | 15204.95      |     |
| 9  | 3            | 615.5607                | 269.3701                                  | 346.1906  | 9384.439       | 3077.803 | 9384.439 | 12462.24267              | 30778.03         | 18315.79            | 15137.02      |     |
| .0 | 4            | 630.3193                | 285.3994                                  | 344.9199  | 9369.681       | 3151.597 | 9369.681 | 12521.27723              | 31515.97         | 18994.6             | -             |     |
| 1  | 5            | 636.6196                | 292.2421                                  | 344.3774  | 9363.38        | 3183.098 | 9363.38  | 12546.47831              | 31830.98         | 1928                |               |     |
| 2  | 6            | 639.3091                | 295.1632                                  | 344.1459  | 9360.691       | 3196.545 | 9360.691 | 12557.23633              | 31965.45         | 19408.              | 00            |     |
| .3 | 7            | 640. <mark>4</mark> 572 | 296.4102                                  | 344.047   | 9359.543       | 3202.286 | 9359.543 | 12561.82878              | 32022.86         | 19461.              | QQ            |     |
| 4  | 8            | 640.9473                | 296.9425                                  | 344.0048  | 9359.053       | 3204.737 | 9359.053 | 12563.78924              | 32047.37         | 19483.5             | -             |     |
| 15 | 9            | 641.1565                | 297.1697                                  | 343.9868  | 9358.843       | 3205.783 | 9358.843 | 12564.62614              | 32057.83         | 1940-               | -             | X   |
| 16 | 10           | 641.2458                | 297.2667                                  | 343.9791  | 9358.754       | 3206.229 | 9358.754 | 12564.9834               | 32062.29         |                     | -1            | r l |
|    |              | C44 004                 |   |           |                | 1000 40  |          | 40FCF 40F04              | 2200             |                     |               |     |

Now this value is not the fixed value, if I just change these to 1 and 5, this value changes if I change it to 20 and 30, this value changes.

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| i4    | • 1 2                       | √ fx      |          |                            |                             |                               |                                     |  |                  |   |  |                |
|       | В                           | C         | D        | E                          | F                           | G                             | Н                                   | I  | J                | К   | L  | М              |
| Í.    |                             |           |          |                            |                             |                               |                                     |  |                  |   |  |                |
| 2     | Cust                        | 500       | К1       | 0.458145                   | AcSpend                     | Q 20                          | 10                                  | Con rate   | 10%              |   | Max CR                                   | 10             |
| 3     | Total M Size                | 10000     | K2       | 0.173287                   | Retention                   | 30                            |                                     | Retention rate   | 80%              |   | Max RR                                   | 80             |
| 4     | Total CLV                   | -1014453  |          |                            |                             |                               |                                     |  |                  |   |  |                |
| 5     |                             |           |          |                            |                             |                               |                                     |  |                  |   |  |                |
| 6     | Year                        | Cust      | Retained | Acquired                   | Potential                   | Rs                            | As                                  | Ts   | rev              | profit  | tvm                                      |                |
| 7     | 1                           | 500       | 0        | 0                          | 9500                        | 15000                         | 190000                              | 205000   | 25000            | -180000   | -180000                                  |                |
| 8     | 2                           | 1347.691  | 397.7903 | 949.9004                   | 8652.309                    | 40430.72                      | 173046.2                            | 213476.9068  | 67384.53         | -146092   | -132811                                  |                |
| 9     | 3                           | 1937.337  | 1072.197 | 865.1402                   | 8062.663                    | 58120.1                       | 161253.3                            | 219373.3674  | 96866.84         | -122507   | 101245                                   |                |
| 10    | 4                           | 2347.489  | 1541.307 | 806.1818                   | 7652.511                    | 70424.68                      | 153050.2                            | 223474.8928  | 117374.5         | -1061   | 8  |                |
| 1     | 5                           | 2632.788  | 1867.617 | 765.1708                   | 7367.212                    | 78983.63                      | 147344.2                            | 226327.8772  | 131639.4         | -94   |  |                |
| 12    | 6                           | 2831.239  | 2094.595 | 736.644                    | 7168.761                    | 84937.16                      | 143375.2                            | 228312.3876  | 141561.9         | -867  | -  |                |
| 13    | 7                           | 2969.28   | 2252.479 | 716.801                    | 7030.72                     | 89078.39                      | 140614.4                            | 229692.7954  | 148464           | -8122   |  |                |
| 4     | 8                           | 3065.299  | 2362.301 | 702.9983                   | 6934.701                    | 91958.98                      | 138694                              | 230652.9947  | 153265           | -773  | an 3                                     |                |
| 15    | 9                           | 3132.09   | 2438.693 | 693.3973                   | 6867.91                     | 93962.7                       | 137358.2                            | 231320.9007  | 156604.5         | -7471   | -1                                       |                |
| 16    | 10                          | 3178.549  | 2491.83  | 686.719                    | 6821.451                    | 95356.47                      | 136429                              | 231785.4902  | 158927.5         |   | -  | 1              |
| -     | Sheet1                      | Sheet2 Sh | 2520 TO2 | COD 0700                   | C700 405                    | 00000 00                      | 105700 7                            |  | 40004            | M   |  |                |
| _     |                             |           |          |                            |                             |                               |                                     | · [2]  |                  |   |  |                |

I start making losses because I spend a lot than making money, but anyway this value changes. So, let's what I will do next is how I can change these two expenditure by making sure that this particular let's say total CLV this total CLV maximizes. So, what I will do is, I will go to the solver, oh I do not have solver here. So, just one minute. So, if I do not have solver do not worry I will go to options.

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| Paste | Calibri<br>En -<br>Sard 5 | • 11 • A  |              | ■ 砂・ 副<br>任任 目<br>Alignment | Wrap Te<br>Merge 8 | xt<br>Center | General<br>\$ • % *<br>% Number | 4-0 80<br>-0 +1 | Conditional<br>Formatting * | Format as Cell<br>Table * Styles *<br>Styles | Insert Delete Fo | The second seco | um * Arr find<br>Sort & Find<br>Filter * Select<br>Editing | 1<br>8<br>1* |
|-------|---------------------------|-----------|--------------|-----------------------------|--------------------|--------------|---------------------------------|-----------------|-----------------------------|--|------------------|---|--|--------------|
| 4     | • = >                     | √ fx      | =SUM(L7:L36) |                             | (                  | Add Inc      |                                 | -               | 2 ×                         | D  |                  |   |  |              |
|       | В                         | С         | D            | E                           |                    | Add-Ins      | available:                      | _               | Carter                      | I  | J                | К   | L  | М            |
| í.    |                           |           |              |                             |                    | Anal<br>Anal | lysis ToolPak                   | ^               | OK                          |  |                  |   |  |              |
| 2     | Cust                      | 500       | К1           | 0.458145                    | AcS                | Euro         | Currency Tools                  |                 | Cancel                      | ate  | 6%               |   | Max CR   | 10           |
| 3     | Total M Size              | 10000     | K2           | 0.173287                    | Rete               |              |                                 |                 | Browse                      | tion rate                                    | 60%              |   | Max RR   | 80           |
| 4     | Total CLV                 | 318214.5  |              |                             |                    |              |                                 |                 | Automation                  | ]  |                  |   |  |              |
| 5     |                           |           |              |                             |                    |              |                                 |                 |                             |  |                  |   |  |              |
| 6     | Year                      | Cust      | Retained     | Acquired                    | Pote               |              |                                 |                 |                             |  | rev              | profit  | tvm  |              |
| 7     | 1                         | 500       | 0            | 0                           |                    |              |                                 |                 |                             | 23000  | 25000            | 2000  | 2000   |              |
| 8     | 2                         | 870       | 300          | 570                         |                    | Colum        | Add in                          | Ψ.              |                             | 25220  | 43500            | 18280   | 16618.18   |              |
| 9     | 3                         | 1069.8    | 522          | 547.8                       | 8                  | Tool fe      | or optimization and             | equatio         | n solving                   | 26418.8                                      | 53490            | 27071.2   | 22372.89   |              |
| 0     | 4                         | 1177.692  | 641.88       | 535.812                     | 882                |              |                                 |                 |                             | 27066.152                                    | 58884.6          | 31818   | 67   |              |
| 1     | 5                         | 1235.954  | 706.6152     | 529.3385                    | 876                | 1            |                                 |                 |                             | 415.72208                                    | 61797.68         | 343   |  |              |
| 2     | 6                         | 1267.415  | 741.5722     | 525.8428                    | 873                |              |                                 | -               |                             | 504.48992                                    | 63370.75         | 3576  | -  |              |
| .3    | 7                         | 1284.404  | 760.449      | 523.9551                    | 871                | 5.596        | 10275.23                        | 174             | 31.19 2                     | 27706.42456                                  | 64220.2          | 3651  | 6  |              |
| 4     | 8                         | 1293.578  | 770.6425     | 522.9358                    | 870                | 6.422        | 10348.63                        | 174             | 12.84 2                     | 27761.46926                                  | 64678.91         | 36917   | .8   |              |
| .5    | 9                         | 1298.532  | 776.1469     | 522.3853                    | 870                | 1.468        | 10388.26                        | 174             | 02.94                       | 27791.1934                                   | 64926.61         | 37135   | men (  |              |
| 16    | 10                        | 1301.207  | 779.1193     | 522.0881                    | 869                | 8.793        | 10409.66                        | 173             | 97.59 2                     | 27807.24444                                  | 65060.37         | 37  | -  | 44           |
| -     | Sheet1                    | Shaat2 Sh |              | F 24 0276                   | 000                | 40           | 10101 00                        | 47              | - + •                       | 1  | -                | MAN   |  |              |

Add-Ins excel Add-Ins and I will just check the solver ok.

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| Web Sen Text | olver Parameters   | Connections 21 212  | Clear   | Rash Fill | II-a Consolidate<br>plicates IB What-II Analy<br>tion - Relationships | nis " Group U | ngroup Subtotal | <ul> <li>Data Analys</li> <li>Solver</li> </ul> | is |
|--------------|--|---|---|-----------|---|---------------|-----------------|---|----|
|              | Set Objective: 50  | 34  |   | Di        | ata Tools   |               | Outline         | ni Analysis                                     |    |
|              | То: 💿 <u>М</u> ах 🔘 М  | tig O <u>V</u> alue Of:   |   | н         | I   | - 1           | К               | L   | М  |
|              | By Changing Variable Cells:<br>SG52:SG53                       |   | 1   | 7391.46   | 27825.61976   | 65213.5       | 37387.88        | 8950.361  |    |
|              | Subject to the Constraints:                                    |   |   | 7391.39   | 27825.83467   | 65215.29      | 37389.45        | 8137.035  |    |
|              | \$157:51536 <= 70000   | *   | Add   | 7391.35   | 27825.95072   | 65216.26      | 37390.31        | 7397.473  |    |
|              |  |   | Chapper                                       | 7391.33   | 27826.01339   | 65216.78      | 37390.76        | 6725.058  |    |
|              |  |   | 2 million                                     | 7391.32   | 27826.04723   | 65217.06      | 37391.01        | 6113.729  |    |
|              |  |   | Deiete  | 7391.31   | 27826.0655  | 65217.21      | 37391.15        | 5557.956  |    |
|              |  |   | Reset All                                     | 7391.31   | 27826.07537   | 65217.29      | 37391.22        | 5052.697  |    |
|              |  | *   | Load/Save                                     | 7391.31   | 27826.0807  | 65217.34      | 37391.26        | 4593.366  |    |
|              | Make Unconstrained Variab                                      | bles Non-Negative   |   | 7391.31   | 27826.08358   | 65217.36      | 37391.28        | 4175.789  |    |
|              | Sglect a Solving Method:                                       | GRG Nonlinear   | Ogtions                                       | 17391.3   | 27826.08513   | 65217.38      | 3739            | 173   |    |
|              | Solving Method   |   |   | 17391.3   | 27826.08597   | 65217.38      | 37              | 7   |    |
|              | Select the GRG Nonlinear eng<br>Simplex engine for linear Solv | ine for Solver Problems that are smooth<br>er Problems, and select the Evolutionary | nonlinear. Select the LP<br>engine for Solver | 17391.3   | 27826.08642   | 65217.39      | 37              | 4   |    |
|              | proceens that are non-smooth                                   | n   |   | 17391.3   | 27826.08667   | 65217.39      | 373             | 12  |    |
|              | Help   | Solve   | Close   | 17391.3   | 27826.0868  | 65217.39      | 373.            | 38  |    |
|              | ,  | - 6   |   | 17391.3   | 27826.08687   | 65217.39      | 373             | m / Y   |    |
|              | _  |   |   |           |   | 10            |                 | -10   |    |
|              | Sheet1 Sheet2 Sheet3   | ( ) ( )   |   |           | i ()  | 1             | MA              |   |    |

So, in the solver what I am doing you carefully check it is written that the objective function here it is written is C4. So, C4 is this basically this is total CLV. I am maximizing this by changing G2 and G3 which is these two: 2 and 8 these two things. And I am making sure that every year I7 to I36, every year I do not spend more than 70000 dollar. So, that is something that I am putting myself in a constraint.

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| and based       a g u u u u u u u u u u u u u u u u u u  | î    | X Calibri    | - 11 - A  | = = =        | a) - B    | Wrap Te | ot        | General                             |         | 1           | 🛡 🖳            | **               | Σ AutoSi      | ···· Ay #   | b  |
|--|------|--------------|-----------|--------------|-----------|---------|-----------|-------------------------------------|---------|-------------|----------------|------------------|---------------|-------------|----|
| Prior         First         Alignment         D         Number         Other         Colt         Editory           4         I         A         A         A         A         A         Colt         Editory         Colt         Editory           4         I         A         A         A         A         A         I         J         K         L         M           8         C         D         E         Colt         Editory         I         J         K         L         M           1         DO000         K1         0.455145         Acc         Image: Colt   | iste | e 😽 BIU      | · 🗄 • 🔷 • | A. ===       | 1 E E     | Merge & | Center *  | \$ - % ,                            | *.0 .03 | Conditional | Format as Cell | Insert Delete Fo | emat & Clear* | Sort & Find | 8  |
| B         C         D         E           B         C         D         E           Cust         S00 K1         0.45815 Acs           Total M Size         10000 K2         0.173287 Ret           Total CLV         318214.5         Immediate           1         500 K1         0.45815 Acs           2         870         300           2         870         300           3         1069.8         522           51         1235.954         706.6152           5         1235.954         706.6152           6         1267.415         741.5722           7         1284.404         760.449           7         1284.404         760.449           7         1284.404         760.449           9         1298.532         776.14592           9         1001.0207         779.1193         522.0881           9         1298.532         776.1469         523.881.793           10         1001.0207         779.1193         522.0881           9         1003.10207         779.1193         522.0831           100         1003.10207         779.14593         27032.0424444     <  | b    | ioard G      | Font      |              | Alignment |         | 5         | Number                              | G       | ronnatung - | Styles         | Cells            |               | Editing     |    |
| B         C         D         E           Gust         500 K1         0.4558145 Acs         Image: State St  |      | * : >        | √ fx      | =SUM(L7:L36) |           | 1       |           |                                     | _       | 0 0         | D              |                  |               |             |    |
| Cust         500         Cust         Cust <thc< td=""><td></td><td>в</td><td>C</td><td>D</td><td>F</td><td></td><td>Add-Ins</td><td></td><td></td><td></td><td>T</td><td></td><td>к</td><td>L 1 1</td><td>м</td></thc<>   |      | в            | C         | D            | F         |         | Add-Ins   |                                     |         |             | T              |                  | к             | L 1 1       | м  |
| Cust         500 K1         0.458145 Acs         Image fragments         Image fragments <thimage fragments<="" th="">         I</thimage>   |      | 0            |           | U            | L         |         | Add-ans a | varlable:<br>sis ToolPak            |         | OK          | 1              |                  | K             | L.          |    |
| Total M Size         10000 K2         0.173287 Ret         Image: Market in the second secon |      | Cust         | 500       | К1           | 0.458145  | AcS     | Euro      | sis ToolPak - VBA<br>Currency Tools |         | Cancel      | ate            | 6%               |               | Max CR      | 10 |
| Total CLV         318214.5         rev         profit         tvm           1         500         0         0         0         2         2000         2000         2000         2000         2000         2000         2000         2000         2000         2000         25220         43500         18280         16618.18         26418.8         53490         27071.2         22372.89         2706.152         5838.4         31811         67         15.72208         61797.68         3431         67         15.72208         61797.68         3431         67         15.72208         5370.75         3574         50         48         36370.75         3574         50         48         36370.75         3574         50         48         36370.75         3574         50         49         51         1035.277         706.425         522.9358         870.422         10346.63         17412.84         27761.4692.6         64270.61         38         361         31657         51         310.207         779.1193         522.0881         698.793         1040.96         17397.59         27807.24444         6500.37         33           4         8         1039.207         779.1193         522.0881         658.793   |      | Total M Size | 10000     | К2           | 0.173287  | Rete    |           | NOT N                               |         | Browse      | tion rate      | 60%              |               | Max RR      | 80 |
| Year         Cust         Retained         Acquired         Pote           1         500         0         0           2         870         300         570           3         1069.8         522         547.8         5           0         4         1177.692         641.88         535.812         881           1         5105         522         547.8         5         1235.954         706.6125         529.3385         67           2         61         1267.415         741.5722         525.8428         87         1415.72208         61797.68         36370.75         357           3         1284.404         760.4429         522.9358         8706.422         10348.63         17412.84         27706.42456         64270.2         3551           4         8         1293.578         770.6425         522.9358         8701.468         10388.26         17402.94         27796.42456         64270.2         3551         8           5         10         1012.027         779.1193         522.0881         8698.793         10409.66         17397.59         27807.244444         6506.37         33           6         10         10         10 <td>Į</td> <td>Total CLV</td> <td>318214.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Agtomation</td> <td></td> <td></td> <td></td> <td></td> <td></td>   | Į    | Total CLV    | 318214.5  |              |           |         |           |                                     |         | Agtomation  |                |                  |               |             |    |
| Year         Cust         Retained         Acquired         Pote           1         500         0         0         0         2         2000         2000         2000         2000         2000         2000         2000         2000         2000         2000         2000         2000         2000         2500         2500         2500         2500         2500         2500         2500         2500         2500         2500         2520         6418.8         535.812         881         1         Totate optimization of equation safe         26418.8         53490         2707.15         527         547.88         5440.8         547.98         547.98         549.9         2706.425         5884.6         31818         67         15.722.08         61797.68         343         604.48992         63370.75         57         642.02         3651         44         8         1293.578         770.6425         522.9358         870.6422         10348.63         1741.244         27761.46926         64678.91         36917         8         8         5         9         1293.578         770.6425         522.9358         870.6422         10348.63         1741.972.94         27761.46926         64678.91         36917         8   |      |              |           |              |           |         |           |                                     |         |             |                |                  |               |             |    |
| 1         500         0         0         23000         2000         2000         2000           2         870         300         570         300         570         32000         25000         12820         16618.13           0         4         1177.692         641.88         535.812         88         150         150         25220         43500         12820         16618.13           1         5         1235.954         706.6152         529.3385         87         157         157.2208         61797.68         3431           2         6         1267.415         741.5722         525.8428         871         500.4221         1034.63         1741.284         2706.4255         6427.8         3551         874           4         8         1293.578         770.6425         522.9388         870.6421         1034.63         1741.284         27751.46926         64678.91         36917         8           5         9         1298.532         776.425         522.3853         870.4626         17407.9444         5060.377         37           4         10         100.1007         779.1193         522.0823         1049.66         17397.59         27807.244444  | 5    | Year         | Cust      | Retained     | Acquired  | Pote    |           |                                     |         |             |                | rev              | profit        | tvm         |    |
| 1         2         870         300         570         More radade           1         1069.8         522         547.8         547.8         522         547.8         522         547.8         522         547.8         524         548.8         53490         2701.2         22372.89           0         4         1177.692         641.88         553.912         883         547.8         522         547.8         524         547.8         524         547.8         524         547.8         524         547.8         524         547.8         524         548.9         701.2         22372.89         2706.61.52         5888.6         3431         67         115.7220.8         547.8         504.48992         63370.75         357         504.48992         63370.75         357         56         2756.4245.6         64220.2         3651         76           3         7         1284.040         760.4425         522.9358         870.422         12048.6.3         17412.84         27751.4692.6         64678.91         3691.7         8           4         8         1293.578         770.4245         52.2353.8         8701.468         10383.26         17402.9         27751.4692.6         64678.91   | 1    | 1            | 500       | 0            | 0         |         |           |                                     |         |             | 23000          | 25000            | 2000          | 2000        |    |
| 1         3         1069.8         522         547.8         567.4         547.8         547.8         567.4         547.8         547.8         567.4         547.8         547.8         567.4         547.8         547.8         567.4         567.8         3637.07         357.8         567.8         527.9         587.8         360.1         587.8         360.1         58         567.8         567.8         369.1         58         577.9         577.6         469.2         647.9         369.1         58         577.9         577.9  |      | 2            | 870       | 300          | 570       |         |           | 44.10                               | -       |             | 25220          | 43500            | 18280         | 16618.18    |    |
| 0         4         1177.692         641.88         535.812         883         27066.152         5888.6         31818         67           1         5         1235.954         706.6512         529.335         874         15.72208         61797.68         343           2         6         1267.415         741.5722         525.842         874         504.4892         6370.75         377           3         7         1284.404         760.449         523.951         8715.596         10275.23         17431.19         27706.4245         64220.2         3651           4         8         1293.578         770.6425         522.9358         870.422         10348.63         17412.84         27761.46926         64270.91         36917         8           5         9         1298.532         775.1469         520.3831         8701.468         10383.26         17402.94         277601.6926         64270.91         36917           6         10         1030.207         779.1193         522.0881         6989.793         10409.66         17397.59         27807.24444         5060.37         33  | )    | 3            | 1069.8    | 522          | 547.8     | 8       | Tool for  | optimization and e                  | quation | solving     | 26418.8        | 53490            | 27071.2       | 22372.89    |    |
| 1       5       1235.954       706.6152       529.385       874       115.72208       61277.68       3437         2       6       1267.415       741.5722       525.8428       874       504.48992       63370.75       3574         3       7       1284.404       760.449       523.9551       8715.596       10275.23       17431.19       27706.42456       64220.2       3651         4       8       1293.578       770.6425       522.9358       8706.422       10348.63       17412.84       27761.4692.6       6478.91       36117       8         5       9       1298.532       776.1469       522.3853       8701.468       10388.26       17402.94       27791.1934       6492.6.1       3715       8         6       10       1301.207       779.1193       522.0851       868.793       10409.66       17397.59       27807.24444       65060.37       37         6       10       1301.207       779.1193       52.0851       808.793       10409.66       17397.59       27807.24444       65060.37       37  | 0    | 4            | 1177.692  | 641.88       | 535.812   | 882     |           |                                     |         |             | 27066.152      | 58884.6          | 31818         | 67          |    |
| 2         6         1267.415         741.5722         525.8428         874         604.48992         63370.75         3576           3         7         1284.404         760.449         523.9551         8715.596         10275.23         17431.19         27706.42456         64220.2         3651           4         8         1293.578         770.4425         522.9358         8706.422         10348.63         17412.84         27761.46926         64678.91         3913         8           5         9         1298.532         776.1469         522.3853         870.468         1388.26         17402.94         27791.1934         64926.61         31315         8           6         100         1001.207         779.1193         522.0851         869.793         1000.66         17397.59         27807.24444         5606.037         33           7         9         1298.793         406.61         13797.59         27807.24444         5606.037         33  | 1    | 5            | 1235.954  | 706.6152     | 529.3385  | 876     |           |                                     |         |             | 415.72208      | 61797.68         | 343           | 5           |    |
| 3         7         1284.404         760.449         523.9551         8715.596         10275.23         17431.19         27706.42456         64220.2         3651         8           4         8         1293.578         770.6425         522.9358         8706.422         10346.63         17412.84         27761.4692.6         64678.91         3691         8           5         9         1298.532         776.1469         522.3853         8701.468         17412.84         27791.1934         64926.61         37135           5         10         1031.207         7791.1934         5698.733         1006.61         17397.59         27807.24444         5606.37         31           6         100         1031.207         7791.1934         56290.37         31         100 <td>2</td> <td>6</td> <td>1267.415</td> <td>741.5722</td> <td>525.8428</td> <td>873</td> <td>-</td> <td></td> <td>-</td> <td></td> <td>504.48992</td> <td>63370.75</td> <td>3576</td> <td>-</td> <td></td>   | 2    | 6            | 1267.415  | 741.5722     | 525.8428  | 873     | -         |                                     | -       |             | 504.48992      | 63370.75         | 3576          | -           |    |
| 4 8 1293.578 770.6425 522.9358 8706.422 10348.63 17412.84 27751.46926 64678.91 36017<br>5 9 1298.532 776.1469 522.3853 8701.468 10388.26 17402.94 27791.1934 64926.61 37135<br>6 10 1301.207 779.1193 522.0881 8698.793 10409.66 17397.59 27707.24444 65060.37 33  | 3    | 7            | 1284.404  | 760.449      | 523.9551  | 871     | 5.596     | 10275.23                            | 1743    | 1.19 2      | 27706.42456    | 64220.2          | 3651          | 6           |    |
| 5 9 1298.532 776.1469 522.3853 8701.468 10388.26 17402.94 27791.1934 64926.61 37135<br>6 10 1301.207 779.1193 522.0881 8698.793 10409.66 17397.59 27807.24444 65060.37 37  | 4    | 8            | 1293.578  | 770.6425     | 522.9358  | 870     | 6.422     | 10348.63                            | 1741    | 2.84 2      | 27761.46926    | 64678.91         | 36917         | .8          |    |
| 6 10 1301.207 779.1193 522.0881 8698.793 10409.66 17397.59 27807.24444 65060.37 37   | 5    | 9            | 1298.532  | 776.1469     | 522.3853  | 870     | 1.468     | 10388.26                            | 1740    | 2.94        | 27791.1934     | 64926.61         | 37135         | -           |    |
|  | 6    | 10           | 1301.207  | 779.1193     | 522.0881  | 869     | 8.793     | 10409.66                            | 1739    | 7.59 2      | 27807.24444    | 65060.37         | 37            | -           | 44 |
|  | 1    | > Sheet1     | Sheet2 Sh | eet3 (+)     | F04 0076  |         | 7 9 4 9   | 10101 00                            | 1 7 9   |             | (              |                  | Mal           |             |    |
|  | Ĺ    | A 🎮          |           |              | X         |         | (1)       | <b>1</b>                            |         |             |                |                  |               | No Carl     |    |

Add-Ins excel Add-Ins and I will just check the solver ok.

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Now use GRG Nonlinear and try to solve and it found a solution for me and the solution is spend this much money. And you will see that it is asking me to spend more on retention though the retention customers are low. It is saying that spend more on your existing customer than your potential customer. The chances of they coming back is much lower that. So, how much more? 5 times more; you spend 5 times more to on your existing customer than 3 than something to your potential customer.

That will ultimately give you better total CLV or basically customer equity. So, this is how if the life is limited, if I am doing it for 30 years rather than 100 years using excel we can easily find out how much should be our optimal acquisition spend and optimal retention spend in the context of customer relationship management. Thank you very much for being with me. It was a nice discussion and I will see you in the next video.

Thank you.