

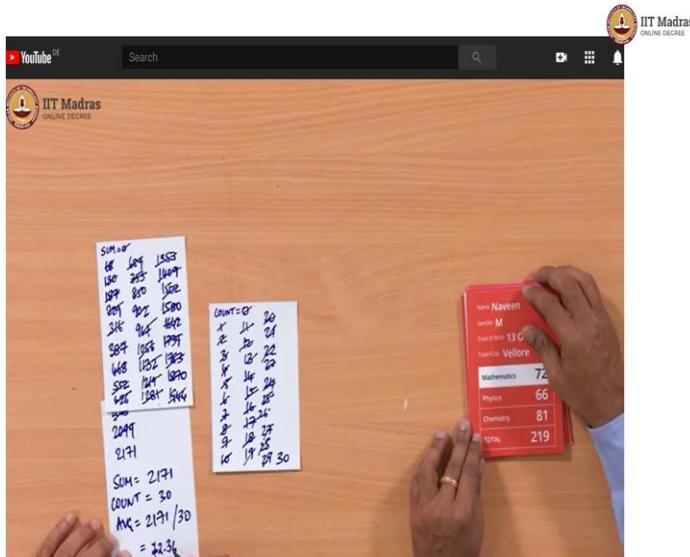
IIT Madras

ONLINE DEGREE

Computational Thinking
Indian Institute of Technology, Madras
Tutorial 3.2

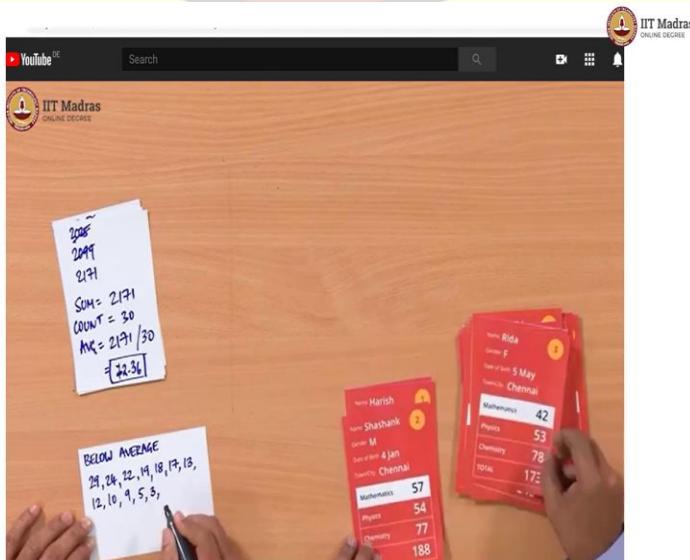
Hello, CT students, in this tutorial we will look at a task which is similar to the one performed by professors in lecture 20. In lecture 20, professors try to filter out the score cards with less than average, below average scores.

(Refer Slide Time: 00:34)



So, for that they first calculate the average by finding the sum and the count and finally they divide the total sum by the total count for the average.

(Refer Slide Time: 00:53)



Once they find the average, they do a second iteration where they go card by card finding every card where the score is below average and they note down those cards. So, this is how the filtering is done in a second iteration. So, one iteration goes into finding the average and the second iteration goes into finding the below average cards.

(Refer Slide Time: 01:16)

SV Stores		Srivatsan 1		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1.5	50	75
Soap	Toiletries	4	32	128
Tomatoes	Vegetables/Food	2	40	80
Bananas	Vegetables/Food	8	8	64
Socks	Footwear/Apparel	3	56	168
Curd	Dairy/Food	0.5	32	16
Milk	Dairy/Food	1.5	24	36
				567

Sum
567

Count
1

Now, in our tutorial task we will do something very similar which is we will find all the bills which are above the average bill amount. So, for that we have to first find the bill amount, so we should find the sum and the count. So, let us go card by card, for our first card the total bill amount the sum would be simply 567 and the count is 1 card.

(Refer Slide Time: 01:55)

Big Bazaar		Sudeep 2		
Item	Category	Qty	Price	Cost
Baked Beans	Canned/Food	1	125	125
Chicken Wings	Meat/Food	0.5	600	300
Cocoa powder	Canned/Food	1	160	160
Capsicum	Vegetables/Food	0.8	180	144
Tie	Apparel	2	390	780
Clips	Household	0.5	32	16
				1525

Sum
567
2092

Count
1
2

And then we have 1525, which gives us the sum of 567 plus 1525 is 2092 for 2 cards.

(Refer Slide Time: 02:13)

SV Stores		Akshaya 3		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Onions	Vegetables/Food	1	98	98
Bananas	Fruits/Food	4	8	32
Milk	Dairy/Food	1	24	24
Biscuits	Packed/Food	2	22	44
Maggi	Packed/Food	1	85	85
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Cereal	Packed/Food	1	220	220
Handwash	Toiletries	1	139	139
Air freshener	Toiletries	2	70	140
				1341

Sum
567
2092
3433

Count
1
2
3

And then we get the 1341 included we will have 3433 for 3 cards.

(Refer Slide Time: 2:24)

SV Stores		Advaith			4
Item	Category	Qty	Price	Cost	
Milk	Dairy/Food	2	24	48	
Bread	Packed/Food	1	30	30	
Eggs	Food	1	45	45	
				123	

Sum	Count
567	1
2092	2
3433	3
3556	4

Then we have 123 adding which is 3556 for 4 cards.

(Refer Slide Time: 02:33)

Big Bazaar		Akshaya			5
Item	Category	Qty	Price	Cost	
Trousers	Women/Apparel	2	870	1740	
Shirts	Women/Apparel	1	1350	1350	
Detergent	Household	0.5	270	135	
Tee shirts	Women/Apparel	4	220	880	
Instant Noodles	Canned/Food	3	23	69	
				4174	

Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5

Now, we have 4174 adding which gives us 7730 for 5 cards.

(Refer Slide Time: 02:46)

Sun General		Srivatsan			6
Item	Category	Qty	Price	Cost	
Batteries	Utilities	6	14	84	
USB Cable	Electronics	1	85	85	
Ball Pens	Stationery	5	12	60	
Onions	Vegetables/Food	1.25	100	125	
					354

Sum
567
2092
3433
3556
7730
8084

Count
1
2
3
4
5
6
7

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Then 354 is going to give us 8084 for 6 cards.

(Refer Slide Time: 02:57)

SV Stores		Akhil			7
Item	Category	Qty	Price	Cost	
Bread	Packed/Food	1	30	30	
Biscuits	Packed/Food	3	22	66	
					96

Sum
567
2092
3433
3556
7730
8084
8180

Count
1
2
3
4
5
6
7

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Now 96 is going to give us 8180 for 7 cards.

(Refer Slide Time: 03:07)

Big Bazaar		Advaith 8		
Item	Category	Qty	Price	Cost
Trousers	Men/Apparel	2	950	1900
Basa Fish	Meat/Food	1	350	350
Boxers	Men/Apparel	4	160	640
Face Wash	Toiletries	1	72	72
Slippers	Footwear/Apparel	1	170	170
			3132	

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Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5
8084	6
8180	7
11312	8

Now, 3132 additionally gives us 11312 for 8 cards.

(Refer Slide Time: 03:20)

Big Bazaar		Mohith 9		
Item	Category	Qty	Price	Cost
Lindt	Chocolate/Food	1	125	125
Socks	Footwear/Apparel	1	120	120
Spring Onions	Vegetables/Food	0.5	220	110
Lettuce	Vegetables/Food	0.6	150	90
Cookies	Snacks/Food	2	75	150
			595	

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Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5
8084	6
8180	7
11312	8
11907	9

Then an additional 595 gives us 11907 for 9 cards.

(Refer Slide Time: 03:32)



Sun General		Rajesh 10		
Item	Category	Qty	Price	Cost
Notebooks	Stationery	3	20	60
Apples	Fruits/Food	6	24	144
Pears	Fruits/Food	4	30	120
Chart Paper	Stationery	2	22	44
Ruler	Stationery	1	10	10
			378	

Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5
8084	6
8180	7
11312	8
11907	9
12285	10

Then this 378 gives us 12285 for 10 cards.

(Refer Slide Time: 03:45)



SV Stores		Abhinav 11		
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Cereal	Packed/Food	1	220	220
Bananas	Fruits/Food	6	8	48
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	2	24	48
Horlicks	Packed/Food	1	270	270
Plates	Household	4	45	180
Eggs	Food	1	45	45
			893	

Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5
8084	6
8180	7
11312	8
11907	9
12285	10
13178	11

Now, we have an 893 which will give us 13178 for 11 cards.

(Refer Slide Time: 03:58)

Sun General		Aparna 12		
Item	Category	Qty	Price	Cost
Mosquito Coil	Household	2	24	48
Bananas	Fruits/Food	6	5	30
Ball Pens	Stationery	4	12	48
Paper Clips	Stationery	1	60	60
			186	

Sum	Count
567	1
2092	2
3433	3
3556	4
7730	5
8084	6
8180	7
11312	8
11907	9
12285	10
13178	11
13364	12

And now another 186 which gives us 13364 for 12 cards.

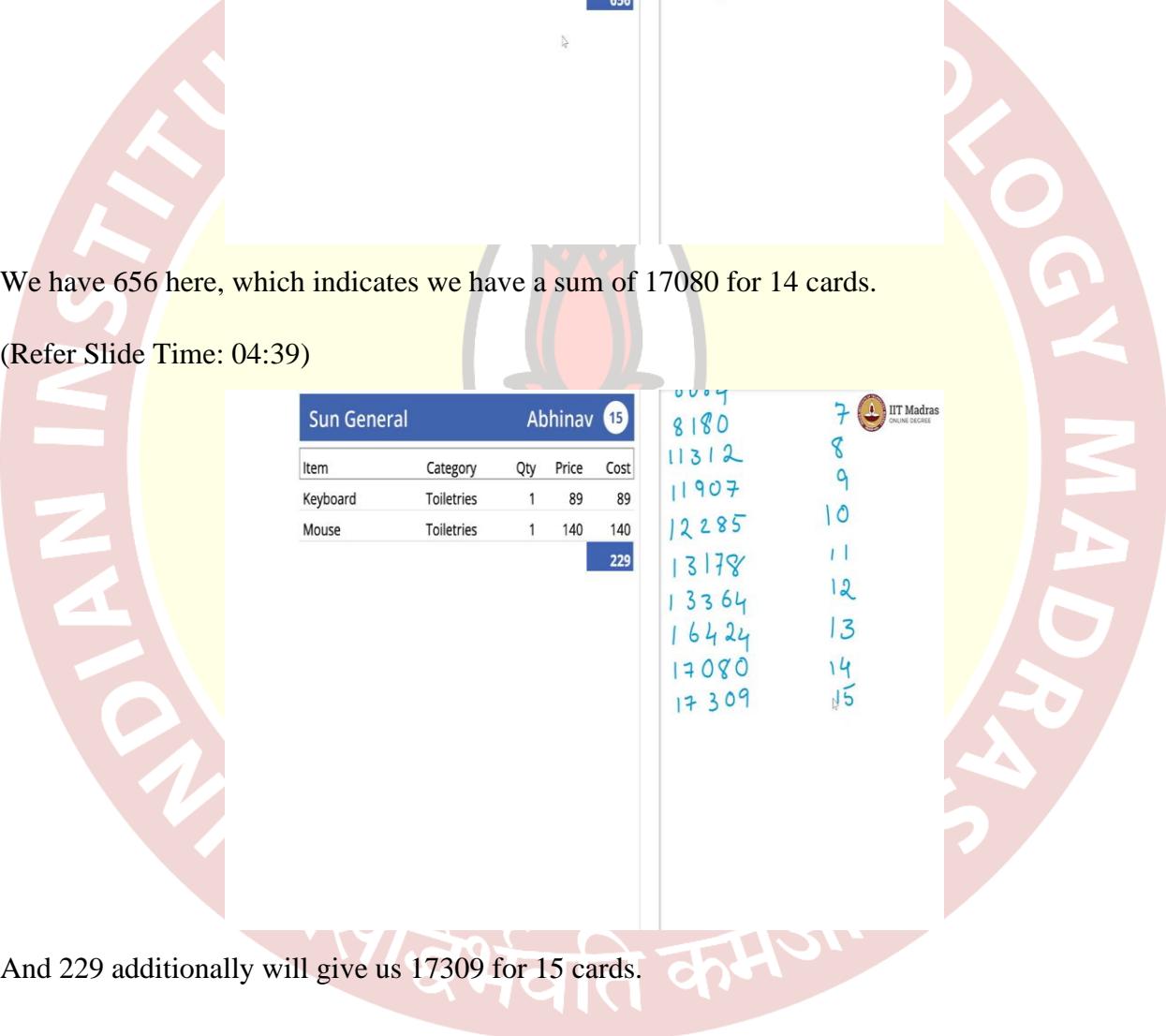
(Refer Slide Time: 04:10)

Big Bazaar		Abhinav 13		
Item	Category	Qty	Price	Cost
Shoes	Footwear/Apparel	1	2700	2700
Polish	Footwear/Apparel	1	120	120
Socks	Footwear/Apparel	2	120	240
			3060	

Sum	Count
8180	7
11312	8
11907	9
12285	10
13178	11
13364	12
16424	13

Now, we are at 3060 additionally that will give us 16424 for 13 cards. Going further.

(Refer Slide Time: 04:27)



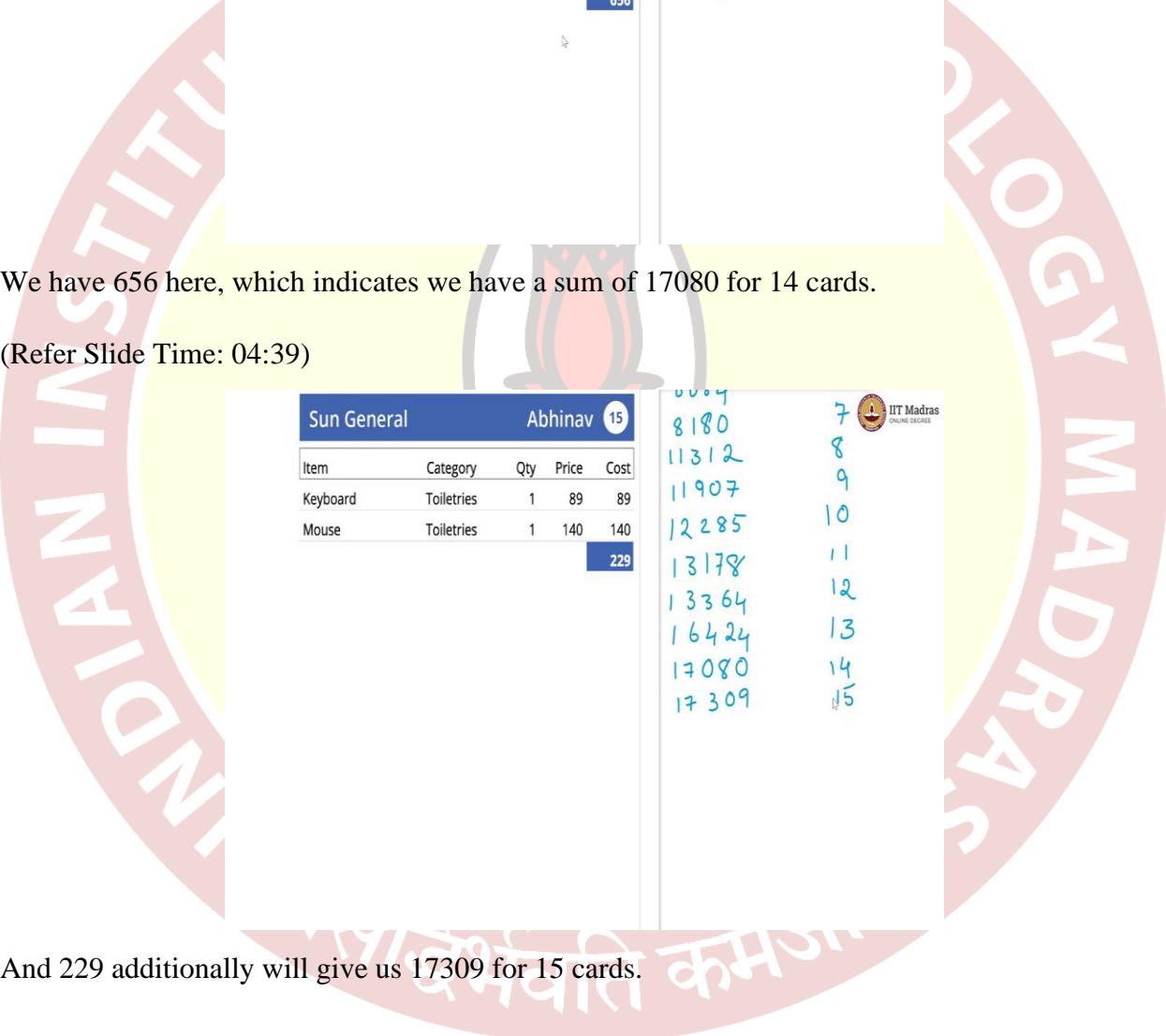
Sun General Vignesh 14

Item	Category	Qty	Price	Cost
Phone Charger	Utilities	1	230	230
Razor Blades	Grooming	1	12	12
Razor	Grooming	1	45	45
Shaving Lotion	Grooming	0.8	180	144
Earphones	Electronics	1	210	210
Pencils	Stationery	3	5	15
				656

0009
8180
11312
11907
12285
13178
13364
16424
17080
17309
7
8
9
10
11
12
13
14
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We have 656 here, which indicates we have a sum of 17080 for 14 cards.

(Refer Slide Time: 04:39)



Sun General Abhinav 15

Item	Category	Qty	Price	Cost
Keyboard	Toiletries	1	89	89
Mouse	Toiletries	1	140	140
				229

0009
8180
11312
11907
12285
13178
13364
16424
17080
17309
7
8
9
10
11
12
13
14
15
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And 229 additionally will give us 17309 for 15 cards.

(Refer Slide Time: 04:49)

Sun General		Advaith 16		
Item	Category	Qty	Price	Cost
Pencils	Stationery	2	5	10
Notebooks	Stationery	4	20	80
Geometry Box	Stationery	1	72	72
Graph Book	Stationery	1	25	25
			187	

0009	7
8180	8
11312	9
11907	10
12285	11
13178	12
13364	13
16424	14
17080	15
17309	16
17496	

Now, 187 more than is 17496 for 16 cards.

(Refer Slide Time: 04:59)

SV Stores		George 17		
Item	Category	Qty	Price	Cost
Cereal	Packed/Food	1	220	220
Milk	Dairy/Food	1	24	24
Cupcakes	Packed/Food	1	25	25
Chocolates	Packed/Food	1	10	10
			279	

0009	7
8180	8
11312	9
11907	10
12285	11
13178	12
13364	13
16424	14
17080	15
17309	16
17496	17
17775	

Plus 279 which is 17775 for 17 cards.

(Refer Slide Time: 05:10)

SV Stores		Ahmed		
Item	Category	Qty	Price	Cost
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Cupcakes	Packed/Food	2	25	50
Carrots	Vegetables/Food	1.5	50	75
Beans	Vegetables/Food	1	45	45
Onions	Vegetables/Food	0.5	98	49
Turmeric	Packed/Food	1	82	82
Ghee	Packed/Food	1	230	230
				603

0009	7
8180	8
11312	9
11907	10
12285	11
13178	12
13364	13
16424	14
17080	15
17309	16
17496	17
17775	18
18378	

Now, we have 603 next, which gives us 18378 for 18 cards.

(Refer Slide Time: 05:22)

SV Stores		Neeraja		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1	50	50
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Kajal	Cosmetics	1	180	180
Milk	Dairy/Food	3	24	72
				592

0009	7
8180	8
11312	9
11907	10
12285	11
13178	12
13364	13
16424	14
17080	15
17309	16
17496	17
17775	18
18378	19
18970	

Now, another 592 gives us 18970 for 19 cards. Going further.

(Refer Slide Time: 05:36)

SV Stores		Ahmed 20		
Item	Category	Qty	Price	Cost
Tomatoes	Vegetables/Food	2	40	80
Curd	Dairy/Food	2	32	64
Cupcakes	Packed/Food	3	25	75
Carrots	Vegetables/Food	0.5	50	25
Onions	Vegetables/Food	1	98	98
Handwash	Toiletries	1	139	139
Bananas	Fruits/Food	12	8	96
Eggs	Food	1	45	45
			622	

0009
8180
11312
11907
12285
13178
13364
16424
17080
17309
17496
17775
18378
18970
19592

7
8
9
10
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12
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14
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16
17
18
19
20



622 which in the sum will give us 19592 for 20 cards.

(Refer Slide Time: 05:48)

SV Stores		Akshaya 21		
Item	Category	Qty	Price	Cost
Curd	Dairy/Food	0.5	32	16
Butter	Dairy/Food	0.2	320	64
Milk	Dairy/Food	2	24	48
			128	

17496
17775
18378
18970
19592
19720

16
17
18
19
20
21



Now, we have 128 additionally that gives us 19720 for 21 cards.

(Refer Slide Time: 06:05)

Sun General		Suresh 22		
Item	Category	Qty	Price	Cost
Batteries	Utilities	2	14	28
Tomatoes	Vegetables/Food	1.5	80	120
Spinach	Vegetables/Food	1	15	15
Bananas	Fruits/Food	4	5	20
Mosquito coils	Household	1	24	24
Guava	Fruits/Food	0.4	120	48
Potato	Vegetables/Food	1.5	40	60
				315

17496
17775
18378
18970
19592
19720
20035
16 IIT Madras
17
18
19
20
21
22

Then we have 315 which is 20035 for 22 cards.

(Refer Slide Time: 06:17)

SV Stores		Julia 23		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1.5	50	75
Bananas	Fruits/Food	12	8	96
Curd	Dairy/Food	3	32	96
Milk	Dairy/Food	4	24	96
Cereal	Packed/Food	2	220	440
Maggi	Packed/Food	1	85	85
				888

17496
17775
18378
18970
19592
19720
20035
20923
16 IIT Madras
17
18
19
20
21
22
23

Then, 888 is 20923 for 23 cards.

(Refer Slide Time: 06:28)

SV Stores		Neeraja 24		
Item	Category	Qty	Price	Cost
Milk	Dairy/Food	3	24	72
Chips	Packed/Food	1	20	20
			92	

17496	16
17775	17
18378	18
18970	19
19592	20
19720	21
20035	22
20923	23
21015	24

Then a 92 gives us 21015 for 24 cards.

(Refer Slide Time: 06:37)

Sun General		Ahmed 25		
Item	Category	Qty	Price	Cost
Earphones	Electronics	1	210	210
Phone cover	Accessories	1	140	140
Dongle	Electronics	1	790	790
A4 sheets	Stationery	200	1	200
Ball Pens	Stationery	2	12	24
			1364	

17496	16
17775	17
18378	18
18970	19
19592	20
19720	21
20035	22
20923	23
21015	24
22379	25

Now, 1364 gives us 22379 for 25 cards.

(Refer Slide Time: 06:50)

SV Stores		Srivatsan 26		
Item	Category	Qty	Price	Cost
Beans	Vegetables/Food	1	45	45
Bread	Packed/Food	1	30	30
Onions	Vegetables/Food	0.5	98	49
Bananas	Fruits/Food	6	8	48
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	3	24	72
			276	

17496	16
17775	17
18378	18
18970	19
19592	20
19720	21
20035	22
20923	23
21015	24
22379	25
22655	26

Next we have a 276 giving us a sum of 22655 for 26 cards.

(Refer Slide Time: 07:01)

Sun General		Srivatsan 27		
Item	Category	Qty	Price	Cost
Broom	Household	1	70	70
Dustpan	Household	1	45	45
Floor Cleaner	Household	1	125	125
Tissue Paper	Household	2	50	100
			340	

17496	16
17775	17
18378	18
18970	19
19592	20
19720	21
20035	22
20923	23
21015	24
22379	25
22655	26
22995	27

And then an additional 340 which is 22995 for 27 card.

(Refer Slide Time: 07:12)

SV Stores		Vignesh 28		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Maggi	Packed/Food	1	85	85
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Air Freshener	Toiletries	2	70	140
			514	

19720	21
20035	IIT Madras ONLINE DEGREE
20923	22
21015	23
22379	24
22655	25
22995	26
23509	27
23615	28

Then we have 514 giving us 23509 for 28 cards.

(Refer Slide Time: 07:22)

SV Stores		Ahmed 29		
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Curd	Dairy/Food	2	32	64
Bananas	Fruits/Food	4	8	32
			106	

19720	IIT Madras ONLINE DEGREE
20035	22
20923	23
21015	24
22379	25
22655	26
22995	27
23509	28
23615	29

And then 23615 for 29 cards.

(Refer Slide Time: 07:28)

Big Bazaar		Radha		
Item	Category	Qty	Price	Cost
Broccoli	Vegetables/Food	0.5	120	60
Chicken Legs	Meat/Food	0.5	320	160
Basa Fish	Meat/Food	1	350	350
Lettuce	Vegetables/Food	0.8	150	120
Eggs	Meat/Food	12	9	108
			798	



$$\text{Average} = \frac{\text{Sum}}{\text{Count}}$$

$$= \frac{24413}{30}$$

$$\approx \frac{2441.3}{3}$$

$$\approx 813.77$$

And lastly we have this 798 which is giving us 24413 for 30 cards. So, this is our total sum and this is the total count. Now, we know average is a total sum by the total count which gives us 24413 divided by 30, this is equal to 2441.3 divided by 3, which then comes out to be roughly 813.77. So, this is roughly our average bill amount. Now, what we do is we look at the above average cards in the second iteration. And these for these we can go in any order, so we will go in reverse order now, 798 is not greater than 813.

(Refer Slide Time: 09:08)

SV Stores		Ahmed		
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Curd	Dairy/Food	2	32	64
Bananas	Fruits/Food	4	8	32
			106	



$$\approx 813.77$$

Above Average Bills:

106 is not greater than 813.

(Refer Slide Time: 09:11)

SV Stores		Vignesh 28		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Maggi	Packed/Food	1	85	85
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Air Freshener	Toiletries	2	70	140
		514		

3



~ 813.77

Above Average Bills:

514 is not.

(Refer Slide Time: 09:13)

Sun General		Srivatsan 27		
Item	Category	Qty	Price	Cost
Broom	Household	1	70	70
Dustpan	Household	1	45	45
Floor Cleaner	Household	1	125	125
Tissue Paper	Household	2	50	100
		340		

3



~ 813.77

Above Average Bills:

340 is not.

(Refer Slide Time: 09:14)

SV Stores		Srivatsan		
Item	Category	Qty	Price	Cost
Beans	Vegetables/Food	1	45	45
Bread	Packed/Food	1	30	30
Onions	Vegetables/Food	0.5	98	49
Bananas	Fruits/Food	6	8	48
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	3	24	72
		276		

3



~ 813.77

Above Average Bills:

276 is not.

(Refer Slide Time: 09:16)

Sun General		Ahmed		
Item	Category	Qty	Price	Cost
Earphones	Electronics	1	210	210
Phone cover	Accessories	1	140	140
Dongle	Electronics	1	790	790
A4 sheets	Stationery	200	1	200
Ball Pens	Stationery	2	12	24
		1364		

3



~ 813.77

Above Average Bills:

25,

1364, so our first bill here is 25, bill number 25 is above average expenditure.

(Refer Slide Time: 09:27)

SV Stores		Neeraja		
Item	Category	Qty	Price	Cost
Milk	Dairy/Food	3	24	72
Chips	Packed/Food	1	20	20
			92	

3



~ 813.77

Above Average Bills:

25,

92 is small.

(Refer Slide Time: 09:28)

SV Stores		Julia		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1.5	50	75
Bananas	Fruits/Food	12	8	96
Curd	Dairy/Food	3	32	96
Milk	Dairy/Food	4	24	96
Cereal	Packed/Food	2	220	440
Maggi	Packed/Food	1	85	85
			888	

3



~ 813.77

Above Average Bills:

25, 23,

888 is large, so 23 is also an above-average bill.

(Refer Slide Time: 09:35)

Sun General		Suresh		
Item	Category	Qty	Price	Cost
Batteries	Utilities	2	14	28
Tomatoes	Vegetables/Food	1.5	80	120
Spinach	Vegetables/Food	1	15	15
Bananas	Fruits/Food	4	5	20
Mosquito coils	Household	1	24	24
Guava	Fruits/Food	0.4	120	48
Potato	Vegetables/Food	1.5	40	60
				315

3



~ 813.77

Above Average Bills:

25, 23,

315 is small.

(Refer Slide Time: 09:36)

SV Stores		Akshaya		
Item	Category	Qty	Price	Cost
Curd	Dairy/Food	0.5	32	16
Butter	Dairy/Food	0.2	320	64
Milk	Dairy/Food	2	24	48
				128

3



~ 813.77

Above Average Bills:

25, 23,

128 is small.

(Refer Slide Time: 09:38)

SV Stores		Ahmed		
Item	Category	Qty	Price	Cost
Tomatoes	Vegetables/Food	2	40	80
Curd	Dairy/Food	2	32	64
Cupcakes	Packed/Food	3	25	75
Carrots	Vegetables/Food	0.5	50	25
Onions	Vegetables/Food	1	98	98
Handwash	Toiletries	1	139	139
Bananas	Fruits/Food	12	8	96
Eggs	Food	1	45	45
			622	

3



~ 813.77

Above Average Bills:

25, 23,

622 small.

(Refer Slide Time: 09:39)

SV Stores		Neeraja		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1	50	50
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Kajal	Cosmetics	1	180	180
Milk	Dairy/Food	3	24	72
			592	

3



~ 813.77

Above Average Bills:

25, 23,

592 small.

(Refer Slide Time: 09:41)

SV Stores		Ahmed			18
Item	Category	Qty	Price	Cost	
Tomatoes	Vegetables/Food	1	40	40	
Curd	Dairy/Food	1	32	32	
Cupcakes	Packed/Food	2	25	50	
Carrots	Vegetables/Food	1.5	50	75	
Beans	Vegetables/Food	1	45	45	
Onions	Vegetables/Food	0.5	98	49	
Turmeric	Packed/Food	1	82	82	
Ghee	Packed/Food	1	230	230	
					603

3



~ 813.77

Above Average Bills:

25, 23,

603 is small.

(Refer Slide Time: 09:43)

SV Stores		George			17
Item	Category	Qty	Price	Cost	
Cereal	Packed/Food	1	220	220	
Milk	Dairy/Food	1	24	24	
Cupcakes	Packed/Food	1	25	25	
Chocolates	Packed/Food	1	10	10	
					279

3



~ 813.77

Above Average Bills:

25, 23,

279 is small.

(Refer Slide Time: 09:44)

Sun General		Advaith 16		
Item	Category	Qty	Price	Cost
Pencils	Stationery	2	5	10
Notebooks	Stationery	4	20	80
Geometry Box	Stationery	1	72	72
Graph Book	Stationery	1	25	25

187

3



~ 813.77

Above Average Bills:

25, 23,

187 is small.

(Refer Slide Time: 09:45)

Sun General		Abhinav 15		
Item	Category	Qty	Price	Cost
Keyboard	Toiletries	1	89	89
Mouse	Toiletries	1	140	140

229

3



~ 813.77

Above Average Bills:

25, 23,

229 is small.

(Refer Slide Time: 09:47)

Sun General		Vignesh 14		
Item	Category	Qty	Price	Cost
Phone Charger	Utilities	1	230	230
Razor Blades	Grooming	1	12	12
Razor	Grooming	1	45	45
Shaving Lotion	Grooming	0.8	180	144
Earphones	Electronics	1	210	210
Pencils	Stationery	3	5	15
		656		

3



~ 813.77

Above Average Bills:

25, 23,

656 is small.

(Refer Slide Time: 09:48)

Big Bazaar		Abhinav 13		
Item	Category	Qty	Price	Cost
Shoes	Footwear/Apparel	1	2700	2700
Polish	Footwear/Apparel	1	120	120
Socks	Footwear/Apparel	2	120	240
		3060		

3



~ 813.77

Above Average Bills:

25, 23, 13

3060, so bill number 13 is also an above-average bill.

(Refer Slide Time: 09:57)

Sun General		Aparna 12		
Item	Category	Qty	Price	Cost
Mosquito Coil	Household	2	24	48
Bananas	Fruits/Food	6	5	30
Ball Pens	Stationery	4	12	48
Paper Clips	Stationery	1	60	60
				186

3



~ 813.77

Above Average Bills:

25, 23, 13

186 is small.

(Refer Slide Time: 09:59)

SV Stores		Abhinav 11		
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Cereal	Packed/Food	1	220	220
Bananas	Fruits/Food	6	8	48
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	2	24	48
Horlicks	Packed/Food	1	270	270
Plates	Household	4	45	180
Eggs	Food	1	45	45
				893

3



~ 813.77

Above Average Bills:

25, 23, 13, 11

893 is greater than the average, so the number 11 is an above average bill.

(Refer Slide Time: 10:07)

Sun General		Rajesh 10		
Item	Category	Qty	Price	Cost
Notebooks	Stationery	3	20	60
Apples	Fruits/Food	6	24	144
Pears	Fruits/Food	4	30	120
Chart Paper	Stationery	2	22	44
Ruler	Stationery	1	10	10

378

3



~ 813.77

Above Average Bills:

25, 23, 13, 11

378 is small.

(Refer Slide Time: 10:09)

Big Bazaar		Mohith 9		
Item	Category	Qty	Price	Cost
Lindt	Chocolate/Food	1	125	125
Socks	Footwear/Apparel	1	120	120
Spring Onions	Vegetables/Food	0.5	220	110
Lettuce	Vegetables/Food	0.6	150	90
Cookies	Snacks/Food	2	75	150

595

3



~ 813.77

Above Average Bills:

25, 23, 13, 11

595 is small.

(Refer Slide Time: 10:10)

Big Bazaar		Advaith		
Item	Category	Qty	Price	Cost
Trousers	Men/Apparel	2	950	1900
Basa Fish	Meat/Food	1	350	350
Boxers	Men/Apparel	4	160	640
Face Wash	Toiletries	1	72	72
Slippers	Footwear/Apparel	1	170	170



~ 813.77

Above Average Bills:

25, 23, 13, 11, 8,

3132 is large, so bill number 8 is also above average.

(Refer Slide Time: 10:17)

SV Stores		Akhil		
Item	Category	Qty	Price	Cost
Bread	Packed/Food	1	30	30
Biscuits	Packed/Food	3	22	66



~ 813.77

Above Average Bills:

25, 23, 13, 11, 8,

96 is small.

(Refer Slide Time: 10:18)

Sun General		Srivatsan			6
Item	Category	Qty	Price	Cost	
Batteries	Utilities	6	14	84	
USB Cable	Electronics	1	85	85	
Ball Pens	Stationery	5	12	60	
Onions	Vegetables/Food	1.25	100	125	

354



3

~ 813.77

Above Average Bills:
25, 23, 13, 11, 8,

354 is small.

(Refer Slide Time: 10:20)

Big Bazaar		Akshaya			5
Item	Category	Qty	Price	Cost	
Trousers	Women/Apparel	2	870	1740	
Shirts	Women/Apparel	1	1350	1350	
Detergent	Household	0.5	270	135	
Tee shirts	Women/Apparel	4	220	880	
Instant Noodles	Canned/Food	3	23	69	

4174



3

~ 813.77

Above Average Bills:
25, 23, 13, 11, 8,

5

And bill number 5, which is also the largest bill, is an above average bill.

(Refer Slide Time: 10:29)

SV Stores		Advaith		
Item	Category	Qty	Price	Cost
Milk	Dairy/Food	2	24	48
Bread	Packed/Food	1	30	30
Eggs	Food	1	45	45
				123

3



~ 813.77

Above Average Bills:

25, 23, 13, 11, 8,
5

Small.

(Refer Slide Time: 10:31)

SV Stores		Akshaya		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Onions	Vegetables/Food	1	98	98
Bananas	Fruits/Food	4	8	32
Milk	Dairy/Food	1	24	24
Biscuits	Packed/Food	2	22	44
Maggi	Packed/Food	1	85	85
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Cereal	Packed/Food	1	220	220
Handwash	Toiletries	1	139	139
Air freshener	Toiletries	2	70	140
				1341

3



~ 813.77

Above Average Bills:

25, 23, 13, 11, 8,
5, 3,

And 1341, so again 3 is also an above average bill.

(Refer Slide Time: 10:36)

Big Bazaar		Sudeep			2
Item	Category	Qty	Price	Cost	
Baked Beans	Canned/Food	1	125	125	
Chicken Wings	Meat/Food	0.5	600	300	
Cocoa powder	Canned/Food	1	160	160	
Capsicum	Vegetables/Food	0.8	180	144	
Tie	Apparel	2	390	780	
Clips	Household	0.5	32	16	
					1525

3



~ 813.77

Above Average Bills:

25, 23, 13, 11, 8,

5, 3, 2

1525 is also an above average bill, so 2 is also an above average bill.

(Refer Slide Time: 10:41)

SV Stores		Srivatsan			1
Item	Category	Qty	Price	Cost	
Carrots	Vegetables/Food	1.5	50	75	
Soap	Toiletries	4	32	128	
Tomatoes	Vegetables/Food	2	40	80	
Bananas	Vegetables/Food	8	8	64	
Socks	Footwear/Apparel	3	56	168	
Curd	Dairy/Food	0.5	32	16	
Milk	Dairy/Food	1.5	24	36	
					567

3



~ 813.77

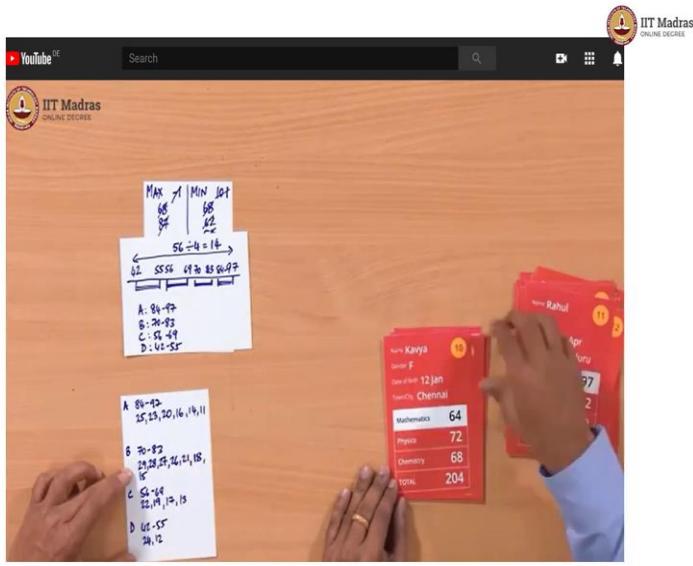
Above Average Bills:

25, 23, 13, 11, 8,

5, 3, 2

And 567 is small. So, in this way, we calculated the average in one iteration and then we found the above average bills in the second iteration.

(Refer Slide Time: 11:01)



Now, the next thing that the professors do in this lecture is they try to categorize the students according to their grades and for that for establishing the grades, they first find out the maximum score and the minimum score, this they do in one iteration where they go card by card and find the maximum and minimum.

You will observe that here these variables are initialized as maximum is minus 1, it is initialized to minus 1 this is because no score can be negative, so minus 1 is indeed lesser than any possible score. Similarly, the minimum should be initialized to a value which is greater than any possible score which is why they have chosen 101, because the scores are for out of 100, a 101 is not possible which is why it is a good value to initialize the minimum variable to.

Now, through the iteration they go through the cards and they find out which is the maximum score and which is the minimum score. Once they have found the maximum and minimum what they did is, they took this range and split it into 4 equal parts. And they assigned a grade to each part. Now, in the second iteration they go card by card and they categorize each card as belonging to one grade or the other, based on the marks. So, this way at the end of it all, we will have all the cards in each grade.

(Refer Slide Time: 13:14)

SV Stores		Srivatsan 1		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1.5	50	75
Soap	Toiletries	4	32	128
Tomatoes	Vegetables/Food	2	40	80
Bananas	Vegetables/Food	8	8	64
Socks	Footwear/Apparel	3	56	168
Curd	Dairy/Food	0.5	32	16
Milk	Dairy/Food	1.5	24	36

Max 10000000
Min 567

Now, we will do something similar with the shopping bill data card, what we will do is we will try to categorize these cards as low expenditure, medium expenditure, or high expenditure. For that again let us find out the maximum bill amount and the minimum bill amount. However, we need to be initializing these properly the maximum can be initialized to simply 0 or some negative value, because we know that a bill amount cannot be 0, it has to be greater than 0.

However, for minimum what can we do? What is a good value for minimum? Does ideal to take Infinity, but infinity might not be recognized number, so just to be safe I will start with a really large number like 10000000, so we are expecting that nobody is spending 10000000 rupees in one bill in any of these stores.

So, that is meaningful initial value for the minimization variable because we expect that whatever is the minimum value in these shopping bills it should be definitely less than 10000000. So, let us begin with our first card, our first card is 567 which is greater than max, so we update max to 567 and it is less than the minimum, so we update the minimum also to 567.

(Refer Slide Time: 15:04)

Big Bazaar		Sudeep			2
Item	Category	Qty	Price	Cost	
Baked Beans	Canned/Food	1	125	125	
Chicken Wings	Meat/Food	0.5	600	300	
Cocoa powder	Canned/Food	1	160	160	
Capsicum	Vegetables/Food	0.8	180	144	
Tie	Apparel	2	390	780	
Clips	Household	0.5	32	16	
				1525	1525

Max
10000000
567
1525

Min
567

IIT Madras
ONLINE DEGREE

Now, 1525 is greater than 567, so max gets updated to 1525, whereas min does not get updated, because 567 is smaller than 1525.

(Refer Slide Time: 15:22)

SV Stores		Akshaya			3
Item	Category	Qty	Price	Cost	
Face Wash	Toiletries	1	89	89	
Shampoo	Toiletries	1	140	140	
Onions	Vegetables/Food	1	98	98	
Bananas	Fruits/Food	4	8	32	
Milk	Dairy/Food	1	24	24	
Biscuits	Packed/Food	2	22	44	
Maggi	Packed/Food	1	85	85	
Horlicks	Packed/Food	1	270	270	
Chips	Packed/Food	1	20	20	
Chocolates	Packed/Food	4	10	40	
Cereal	Packed/Food	1	220	220	
Handwash	Toiletries	1	139	139	
Air freshener	Toiletries	2	70	140	
				1341	1341

Max
10000000
567
1525

Min
567

IIT Madras
ONLINE DEGREE

1341 is smaller than the max and larger than the min, so no updates.

(Refer Slide Time: 15:30)

SV Stores		Advaith			4
Item	Category	Qty	Price	Cost	
Milk	Dairy/Food	2	24	48	
Bread	Packed/Food	1	30	30	
Eggs	Food	1	45	45	
					123

Max 10000000
Min IIT Madras
IIT Madras
ONLINE DEGREE
567 567
1525 123
123

123 is smaller than max, so we are not updating max, but it is smaller than the min. Therefore, our new minimum is a 123.

(Refer Slide Time: 15:45)

Big Bazaar		Akshaya			5
Item	Category	Qty	Price	Cost	
Trousers	Women/Apparel	2	870	1740	
Shirts	Women/Apparel	1	1350	1350	
Detergent	Household	0.5	270	135	
Tee shirts	Women/Apparel	4	220	880	
Instant Noodles	Canned/Food	3	23	69	
					4174

Max 10000000
Min IIT Madras
IIT Madras
ONLINE DEGREE
567 567
1525 123
4174

4174 is large, so the max is now 4174, there is no update in the min because this is a very large number.

(Refer Slide Time: 15:56)

Sun General		Srivatsan			6
Item	Category	Qty	Price	Cost	
Batteries	Utilities	6	14	84	
USB Cable	Electronics	1	85	85	
Ball Pens	Stationery	5	12	60	
Onions	Vegetables/Food	1.25	100	125	
					354

Max	IIT Madras ONLINE DEGREE
8	10000000
567	567
1525	123
4174	

354 is smaller than the max and greater than the min, so no updates.

(Refer Slide Time: 16:03)

SV Stores		Akhil			7
Item	Category	Qty	Price	Cost	
Bread	Packed/Food	1	30	30	
Biscuits	Packed/Food	3	22	66	
					96

Max	IIT Madras ONLINE DEGREE
8	10000000
567	567
1525	123
4174	96

96 smaller than the max, but it is also smaller than the min, therefore the minimum needs to be updated 96.

(Refer Slide Time: 16:15)

Big Bazaar		Advaith		
Item	Category	Qty	Price	Cost
Trousers	Men/Apparel	2	950	1900
Basa Fish	Meat/Food	1	350	350
Boxers	Men/Apparel	4	160	640
Face Wash	Toiletries	1	72	72
Slippers	Footwear/Apparel	1	170	170

<u>Max</u>	<u>Min</u>
8	+0000000
567	567
1525	123
4174	96

3132 leads to no updates, it is smaller than the max and greater than the min.

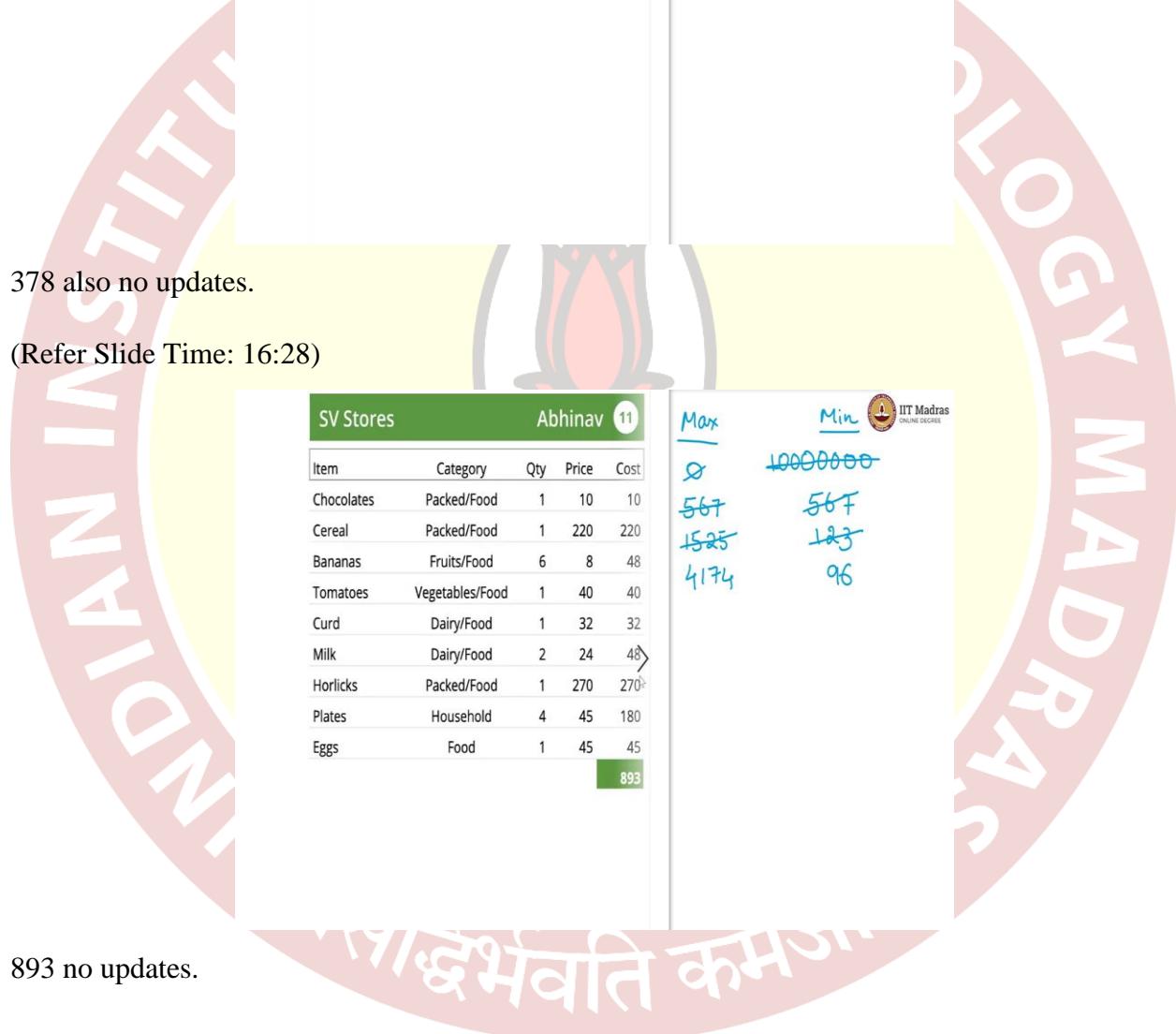
(Refer Slide Time: 16:22)

Big Bazaar		Mohith		
Item	Category	Qty	Price	Cost
Lindt	Chocolate/Food	1	125	125
Socks	Footwear/Apparel	1	120	120
Spring Onions	Vegetables/Food	0.5	220	110
Lettuce	Vegetables/Food	0.6	150	90
Cookies	Snacks/Food	2	75	150

Max Min  IIT Madras
ONLINE DEGREE

595 is the same case.

(Refer Slide Time: 16:25)



Sun General Rajesh 10

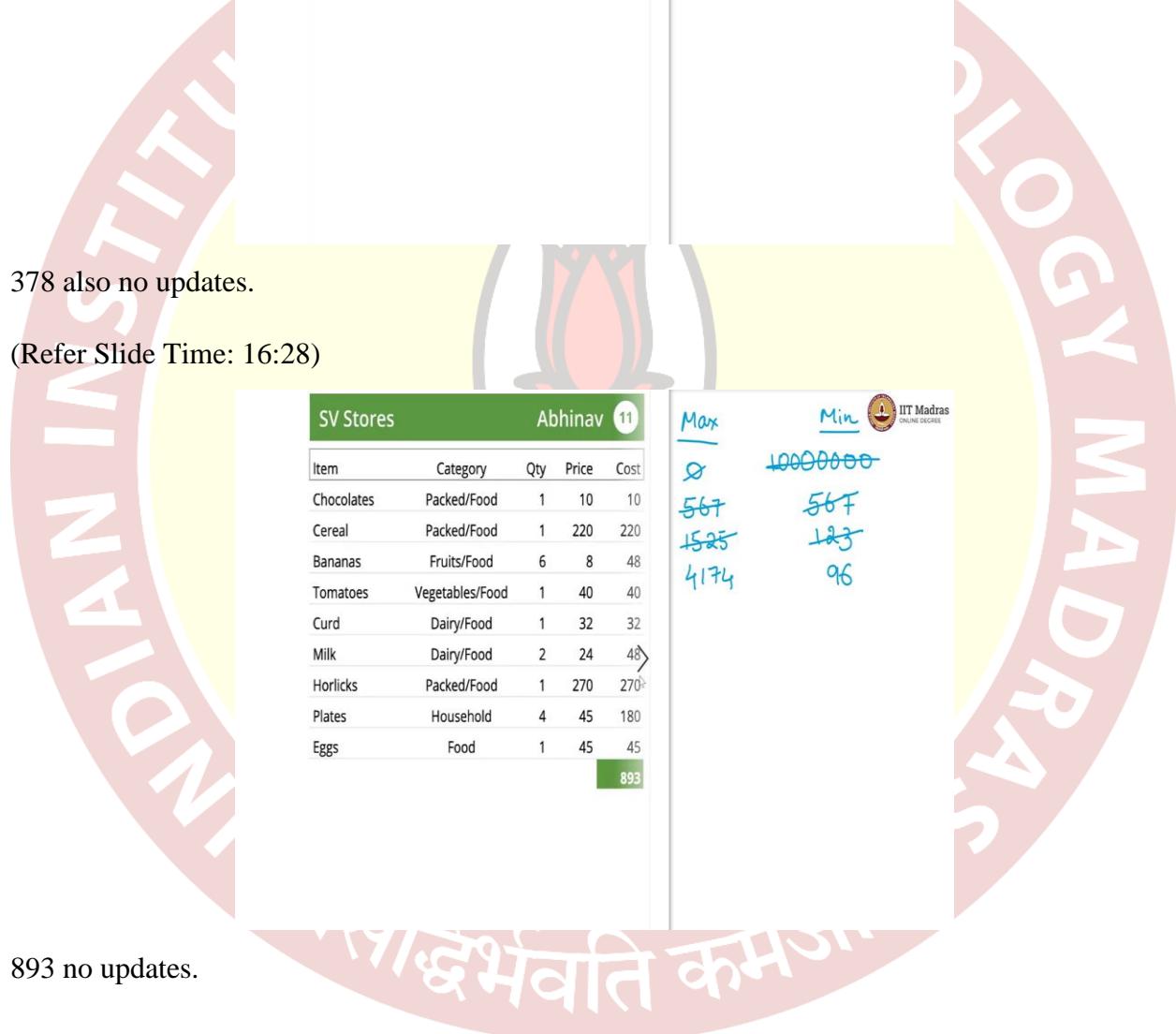
Item	Category	Qty	Price	Cost
Notebooks	Stationery	3	20	60
Apples	Fruits/Food	6	24	144
Pears	Fruits/Food	4	30	120
Chart Paper	Stationery	2	22	44
Ruler	Stationery	1	10	10

Max 10000000
Min 567 123 96

378

378 also no updates.

(Refer Slide Time: 16:28)



SV Stores Abhinav 11

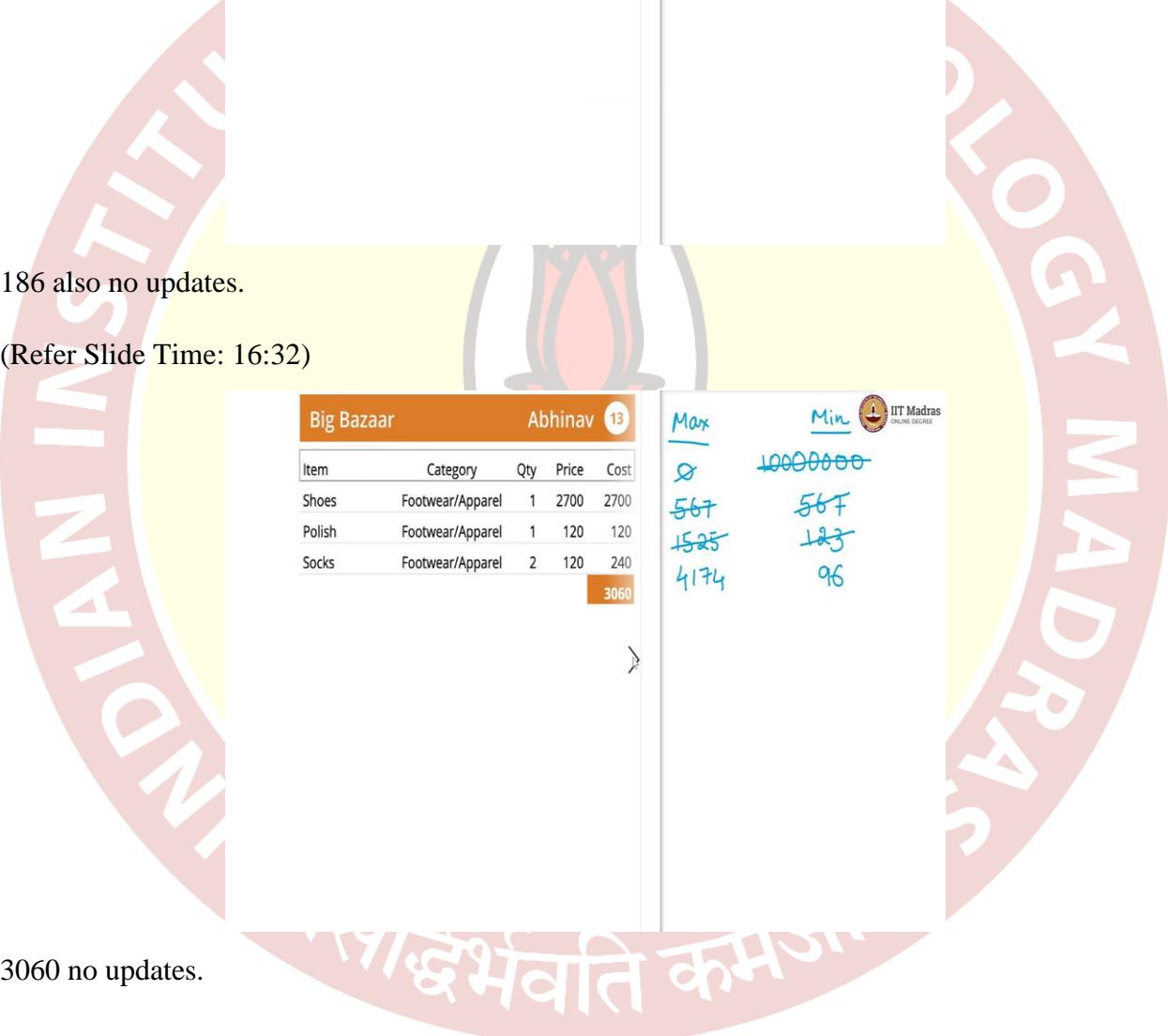
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Cereal	Packed/Food	1	220	220
Bananas	Fruits/Food	6	8	48
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	2	24	48
Horlicks	Packed/Food	1	270	270
Plates	Household	4	45	180
Eggs	Food	1	45	45

Max 10000000
Min 567 123 96

893

893 no updates.

(Refer Slide Time: 16:30)



Sun General Aparna 12

Item	Category	Qty	Price	Cost
Mosquito Coil	Household	2	24	48
Bananas	Fruits/Food	6	5	30
Ball Pens	Stationery	4	12	48
Paper Clips	Stationery	1	60	60

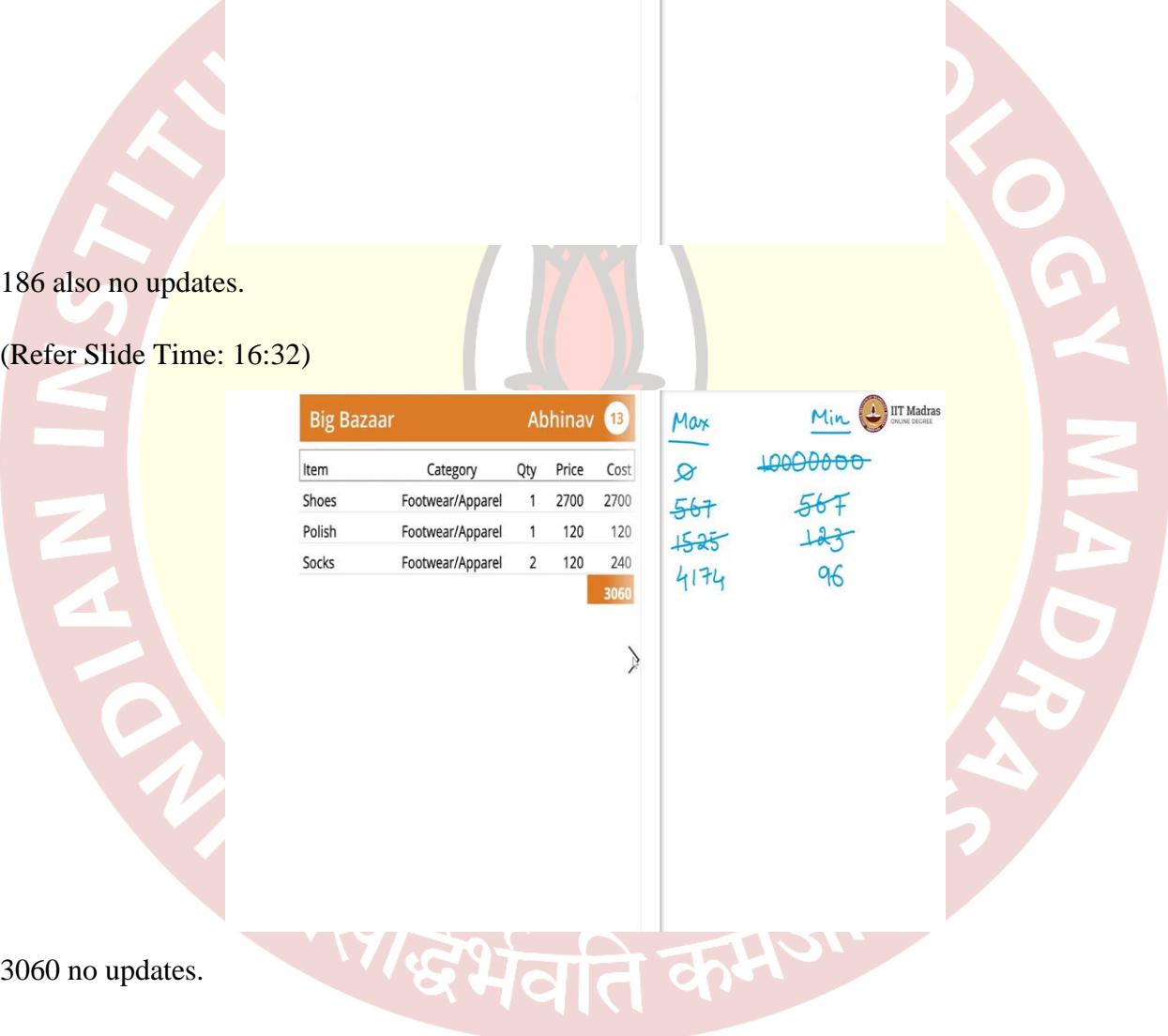
186

Max 10000000
567 56F
1525 123
4174 96

Min IIT Madras
ONLINE DEGREE

186 also no updates.

(Refer Slide Time: 16:32)



Big Bazaar Abhinav 13

Item	Category	Qty	Price	Cost
Shoes	Footwear/Apparel	1	2700	2700
Polish	Footwear/Apparel	1	120	120
Socks	Footwear/Apparel	2	120	240

3060

Max 10000000
567 56F
1525 123
4174 96

Min IIT Madras
ONLINE DEGREE

3060 no updates.

(Refer Slide Time: 16:35)

Sun General Vignesh 14

Item	Category	Qty	Price	Cost
Phone Charger	Utilities	1	230	230
Razor Blades	Grooming	1	12	12
Razor	Grooming	1	45	45
Shaving Lotion	Grooming	0.8	180	144
Earphones	Electronics	1	210	210
Pencils	Stationery	3	5	15
				656

Max 10000000
567 567
1525 123
4174 96

IIT Madras
ONLINE DEGREE

656 no updates.

(Refer Slide Time: 16:37)

Sun General Abhinav 15

Item	Category	Qty	Price	Cost
Keyboard	Toiletries	1	89	89
Mouse	Toiletries	1	140	140
				229

Max 10000000
567 567
1525 123
4174 96

IIT Madras
ONLINE DEGREE

229 no updates.

(Refer Slide Time: 16:38)

Sun General		Advaith			16
Item	Category	Qty	Price	Cost	
Pencils	Stationery	2	5	10	
Notebooks	Stationery	4	20	80	
Geometry Box	Stationery	1	72	72	
Graph Book	Stationery	1	25	25	

<u>Max</u>	<u>Min</u>
8	10000000
567	567
1525	123
4174	96

187 is also less than the max and greater than the min.

(Refer Slide Time: 16:44)

SV Stores		George		
Item	Category	Qty	Price	Cost
Cereal	Packed/Food	1	220	220
Milk	Dairy/Food	1	24	24
Cupcakes	Packed/Food	1	25	25
Chocolates	Packed/Food	1	10	10

<u>Max</u>	<u>Min</u>
0	10000000
567	567
1525	123
4174	96

279 the same thing.

(Refer Slide Time: 16:46)



SV Stores		Ahmed			18
Item	Category	Qty	Price	Cost	
Tomatoes	Vegetables/Food	1	40	40	
Curd	Dairy/Food	1	32	32	
Cupcakes	Packed/Food	2	25	50	
Carrots	Vegetables/Food	1.5	50	75	
Beans	Vegetables/Food	1	45	45	
Onions	Vegetables/Food	0.5	98	49	
Turmeric	Packed/Food	1	82	82	
Ghee	Packed/Food	1	230	230	
					603

Max 10000000
Min 567 567
123 123
96 96

603 same thing.

(Refer Slide Time: 16:48)

SV Stores		Neeraja			19
Item	Category	Qty	Price	Cost	
Carrots	Vegetables/Food	1	50	50	
Horlicks	Packed/Food	1	270	270	
Chips	Packed/Food	1	20	20	
Kajal	Cosmetics	1	180	180	
Milk	Dairy/Food	3	24	72	
					592

Max 10000000
Min 567 567
123 123
96 96

592 also the same thing.

(Refer Slide Time: 16:51)

SV Stores		Ahmed			20
Item	Category	Qty	Price	Cost	
Tomatoes	Vegetables/Food	2	40	80	
Curd	Dairy/Food	2	32	64	
Cupcakes	Packed/Food	3	25	75	
Carrots	Vegetables/Food	0.5	50	25	
Onions	Vegetables/Food	1	98	98	
Handwash	Toiletries	1	139	139	
Bananas	Fruits/Food	12	8	96	
Eggs	Food	1	45	45	
					622

Max _____
_____ 567
1525
4174

Min _____
10000000
567
123
96

622 the same thing.

(Refer Slide Time: 16:53)

SV Stores		Akshaya			21
Item	Category	Qty	Price	Cost	
Curd	Dairy/Food	0.5	32	16	
Butter	Dairy/Food	0.2	320	64	
Milk	Dairy/Food	2	24	48	
					128

Max _____
_____ 567
1525
4174

Min _____
10000000
567
123
96

128 the same thing.

(Refer Slide Time: 16:55)

Sun General		Suresh			22
Item	Category	Qty	Price	Cost	
Batteries	Utilities	2	14	28	
Tomatoes	Vegetables/Food	1.5	80	120	
Spinach	Vegetables/Food	1	15	15	
Bananas	Fruits/Food	4	5	20	
Mosquito coils	Household	1	24	24	
Guava	Fruits/Food	0.4	120	48	
Potato	Vegetables/Food	1.5	40	60	
					315

Max
Ø
567
1525
4174
10000000
56F
123
96

315 the same thing.

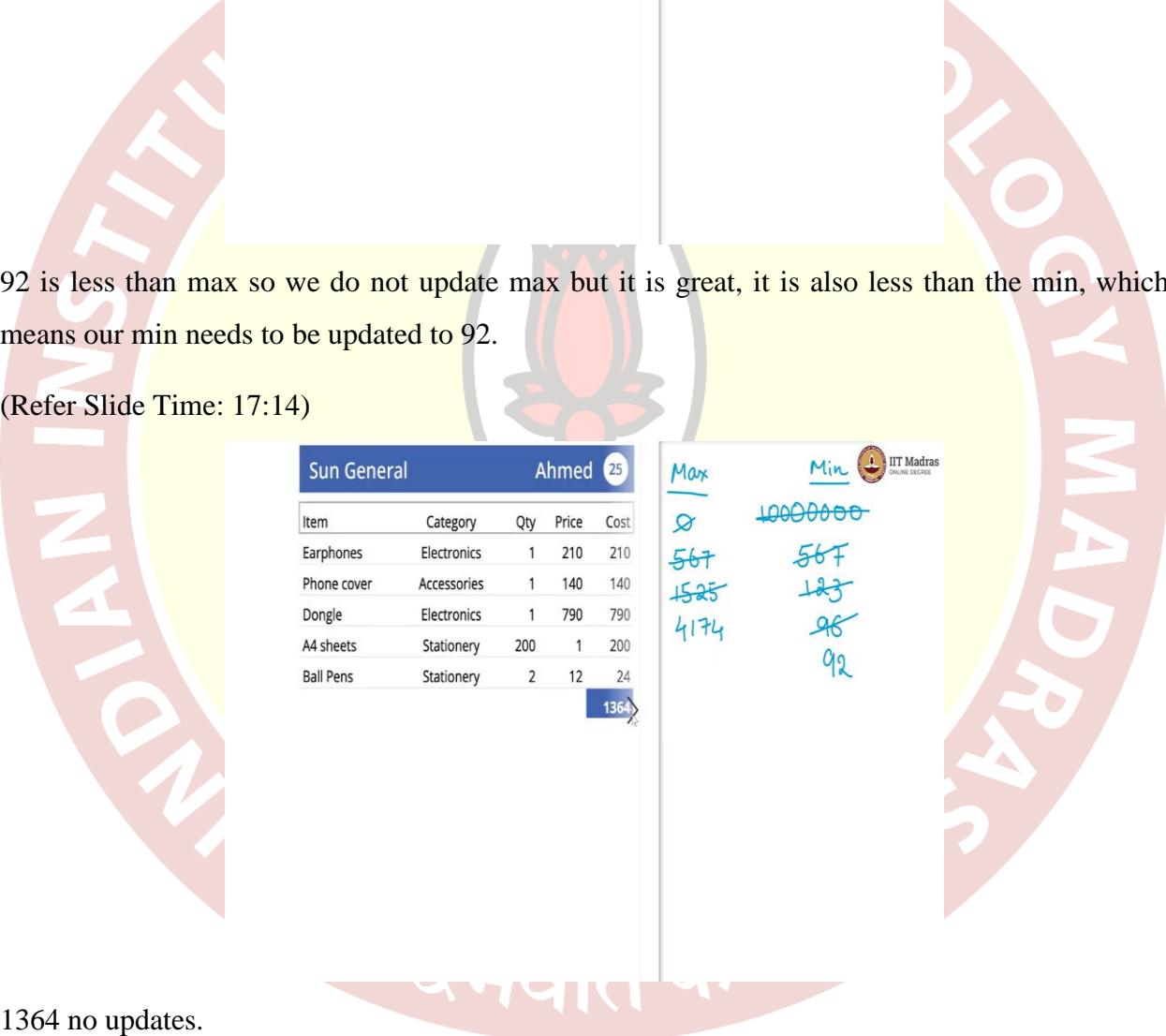
(Refer Slide Time: 16:57)

SV Stores		Julia			23
Item	Category	Qty	Price	Cost	
Carrots	Vegetables/Food	1.5	50	75	
Bananas	Fruits/Food	12	8	96	
Curd	Dairy/Food	3	32	96	
Milk	Dairy/Food	4	24	96	
Cereal	Packed/Food	2	220	440	
Maggi	Packed/Food	1	85	85	
					888

Max
Ø
567
1525
4174
10000000
56F
123
96

888 is also less than the max and greater than the min.

(Refer Slide Time: 17:02)



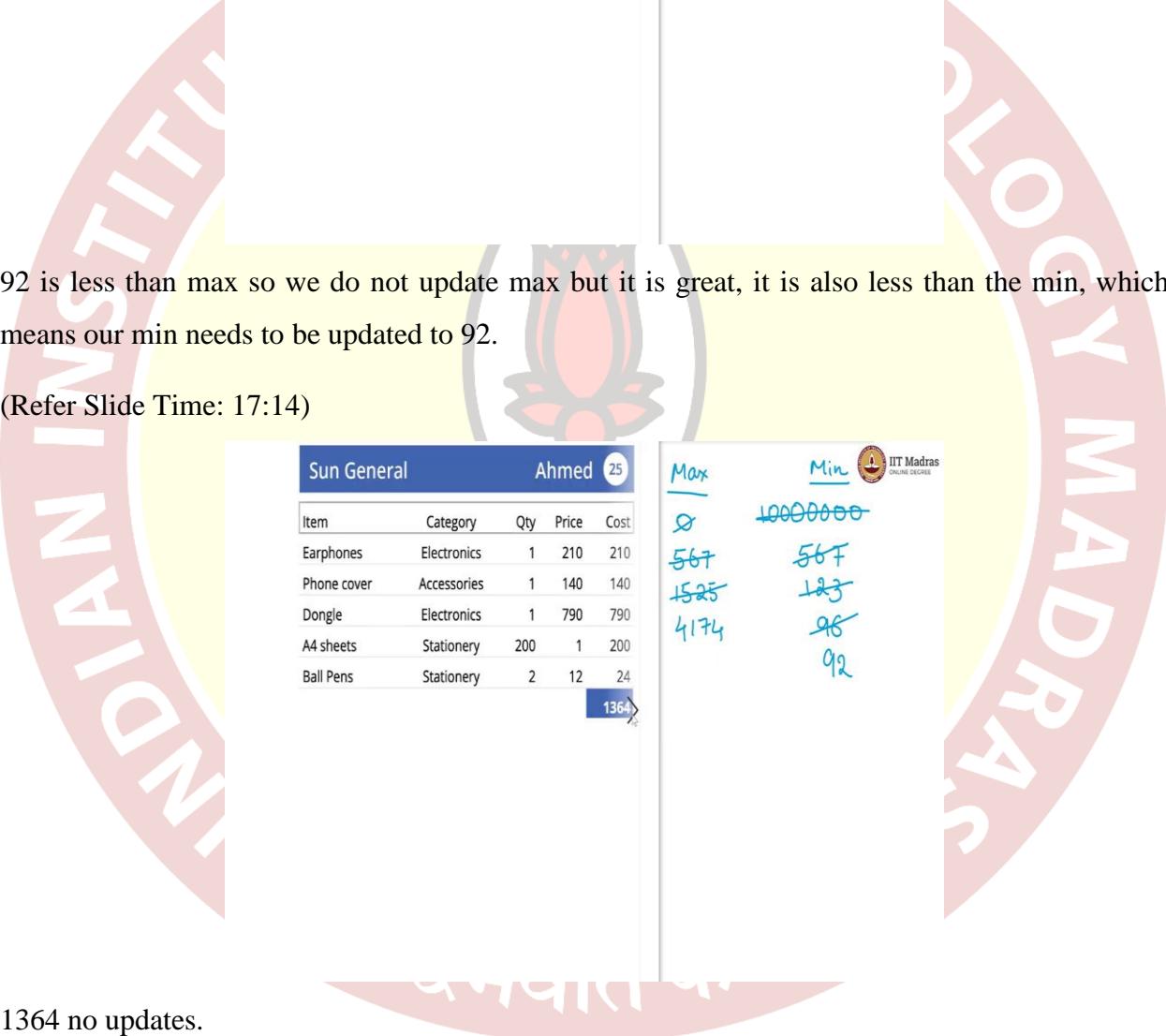
SV Stores Neeraja 24

Item	Category	Qty	Price	Cost
Milk	Dairy/Food	3	24	72
Chips	Packed/Food	1	20	20
				92

Max Min
∞ 10000000
567 567
1525 123
4174 98
 92

92 is less than max so we do not update max but it is great, it is also less than the min, which means our min needs to be updated to 92.

(Refer Slide Time: 17:14)



Sun General Ahmed 25

Item	Category	Qty	Price	Cost
Earphones	Electronics	1	210	210
Phone cover	Accessories	1	140	140
Dongle	Electronics	1	790	790
A4 sheets	Stationery	200	1	200
Ball Pens	Stationery	2	12	24
				1364

Max Min
∞ 10000000
567 567
1525 123
4174 98
 92

1364 no updates.

(Refer Slide Time: 17:17)

SV Stores Srivatsan 26

Item	Category	Qty	Price	Cost
Beans	Vegetables/Food	1	45	45
Bread	Packed/Food	1	30	30
Onions	Vegetables/Food	0.5	98	49
Bananas	Fruits/Food	6	8	48
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	3	24	72

Max 10000000
Min 56F 123 98 92

276

276 no updates.

(Refer Slide Time: 17:19)

Sun General Srivatsan 27

Item	Category	Qty	Price	Cost
Broom	Household	1	70	70
Dustpan	Household	1	45	45
Floor Cleaner	Household	1	125	125
Tissue Paper	Household	2	50	100

Max 10000000
Min 56F 123 98 92

340

340 no updates.

(Refer Slide Time: 17:20)

SV Stores Vignesh 28

Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Maggi	Packed/Food	1	85	85
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Air Freshener	Toiletries	2	70	140
				514

Max 10000000
Min 567 123 98 92

514 no updates.

(Refer Slide Time: 17:22)

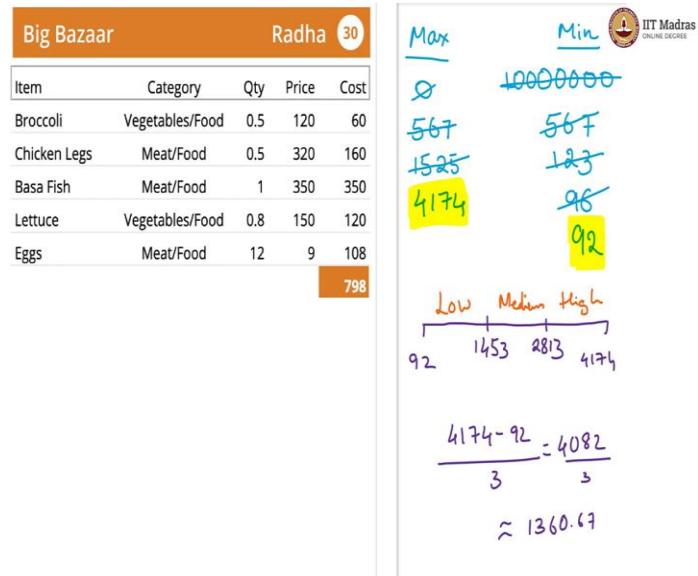
SV Stores Ahmed 29

Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Curd	Dairy/Food	2	32	64
Bananas	Fruits/Food	4	8	32
				106

Max 10000000
Min 567 123 98 92

106 no updates.

(Refer Slide Time: 17:25)



798 no updates, so we are now sure that this is the maximum and this is the minimum, now in order to create our grades of shopping that is what is low, what is medium and what is high, let us again represent these values in this way and now let us try to cut this range into 3 equal pieces. So, what we get is each piece should be 4174 minus 92 divided by 3, this is what each piece is size should be and this comes out to be 4082 divided by 3, which is roughly equal to 1360.67, so we can say this quantity here, this is about 1453, whereas this quantity is about 2813. So, these are our grades, this is low, this is medium and this high bill amount. Now, let us try to find these bills.

(Refer Slide Time: 19:08)

Big Bazaar		Radha			30
Item	Category	Qty	Price	Cost	
Broccoli	Vegetables/Food	0.5	120	60	
Chicken Legs	Meat/Food	0.5	320	160	
Basa Fish	Meat/Food	1	350	350	
Lettuce	Vegetables/Food	0.8	150	120	
Eggs	Meat/Food	12	9	108	
					798

IIT Madras
ONLINE DEGREE

30

Medium [1454 to 2813]

High [2814 to 4174]

The categories are low is from 92 to 1453 rupees and medium would then be 1454 to 2813 and lastly the high bill amounts would be from 2814 to 4174, which is the largest bill value. Now, we again iterate through the cards and we start putting these cards into their respective categories. Now, 798 is clearly low, therefore bill number 30 is in this category.

(Refer Slide Time: 20:02)

SV Stores		Ahmed			29
Item	Category	Qty	Price	Cost	
Chocolates	Packed/Food	1	10	10	
Curd	Dairy/Food	2	32	64	
Bananas	Fruits/Food	4	8	32	
					106

IIT Madras
ONLINE DEGREE

30, 29,

Medium [1454 to 2813]

High [2814 to 4174]

106 is also low, so 29 is also low bill amount.

(Refer Slide Time: 20:07)

SV Stores		Vignesh 28		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Maggi	Packed/Food	1	85	85
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Air Freshener	Toiletries	2	70	140
				514

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28

Medium [1454 to 2813]

High [2814 to 4174]

So is 28.

(Refer Slide Time: 20:12)

Sun General		Srivatsan 27		
Item	Category	Qty	Price	Cost
Broom	Household	1	70	70
Dustpan	Household	1	45	45
Floor Cleaner	Household	1	125	125
Tissue Paper	Household	2	50	100
				340

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27,

Medium [1454 to 2813]

High [2814 to 4174]

And 27.

(Refer Slide Time: 20:17)

SV Stores		Srivatsan 26		
Item	Category	Qty	Price	Cost
Beans	Vegetables/Food	1	45	45
Bread	Packed/Food	1	30	30
Onions	Vegetables/Food	0.5	98	49
Bananas	Fruits/Food	6	8	48
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	3	24	72
			276	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26

Medium [1454 to 2813]

High [2814 to 4174]

And 26, so lot of these cards are actually low bill amounts.

(Refer Slide Time: 20:25)

Sun General		Ahmed 25		
Item	Category	Qty	Price	Cost
Earphones	Electronics	1	210	210
Phone cover	Accessories	1	140	140
Dongle	Electronics	1	790	790
A4 sheets	Stationery	200	1	200
Ball Pens	Stationery	2	12	24
			1364	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25,

Medium [1454 to 2813]

High [2814 to 4174]

1364 is also low, so 25 is also here.

(Refer Slide Time: 20:33)

SV Stores		Neeraja 24		
Item	Category	Qty	Price	Cost
Milk	Dairy/Food	3	24	72
Chips	Packed/Food	1	20	20
			92	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24,

Medium [1454 to 2813]

High [2814 to 4174]

92 is really low, so card number 24 is also here.

(Refer Slide Time: 20:40)

SV Stores		Julia 23		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1.5	50	75
Bananas	Fruits/Food	12	8	96
Curd	Dairy/Food	3	32	96
Milk	Dairy/Food	4	24	96
Cereal	Packed/Food	2	220	440
Maggi	Packed/Food	1	85	85
			888	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23,

Medium [1454 to 2813]

High [2814 to 4174]

888 it is the same thing, card number 23.

(Refer Slide Time: 20:46)

Sun General		Suresh 22		
Item	Category	Qty	Price	Cost
Batteries	Utilities	2	14	28
Tomatoes	Vegetables/Food	1.5	80	120
Spinach	Vegetables/Food	1	15	15
Bananas	Fruits/Food	4	5	20
Mosquito coils	Household	1	24	24
Guava	Fruits/Food	0.4	120	48
Potato	Vegetables/Food	1.5	40	60
			315	

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22,

Medium [1454 to 2813]

High [2814 to 4174]

And also card number 22 because 315 is small.

(Refer Slide Time: 20:51)

SV Stores		Akshaya 21		
Item	Category	Qty	Price	Cost
Curd	Dairy/Food	0.5	32	16
Butter	Dairy/Food	0.2	320	64
Milk	Dairy/Food	2	24	48
			128	

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,

Medium [1454 to 2813]

High [2814 to 4174]

128 is also small, so card number 21 is the same case.

(Refer Slide Time: 20:57)

SV Stores		Ahmed 20		
Item	Category	Qty	Price	Cost
Tomatoes	Vegetables/Food	2	40	80
Curd	Dairy/Food	2	32	64
Cupcakes	Packed/Food	3	25	75
Carrots	Vegetables/Food	0.5	50	25
Onions	Vegetables/Food	1	98	98
Handwash	Toiletries	1	139	139
Bananas	Fruits/Food	12	8	96
Eggs	Food	1	45	45

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20,

Medium [1454 to 2813]

High [2814 to 4174]

622 is also the same case.

(Refer Slide Time: 21:00)

SV Stores		Neeraja 19		
Item	Category	Qty	Price	Cost
Carrots	Vegetables/Food	1	50	50
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Kajal	Cosmetics	1	180	180
Milk	Dairy/Food	3	24	72

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19,

Medium [1454 to 2813]

High [2814 to 4174]

592 is also the same case, so card number 19.

(Refer Slide Time: 21:04)

SV Stores		Ahmed 18		
Item	Category	Qty	Price	Cost
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Cupcakes	Packed/Food	2	25	50
Carrots	Vegetables/Food	1.5	50	75
Beans	Vegetables/Food	1	45	45
Onions	Vegetables/Food	0.5	98	49
Turmeric	Packed/Food	1	82	82
Ghee	Packed/Food	1	230	230
			603	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18,

Medium [1454 to 2813]

High [2814 to 4174]

And card number 18 is also the same boat.

(Refer Slide Time: 21:10)

SV Stores		George 17		
Item	Category	Qty	Price	Cost
Cereal	Packed/Food	1	220	220
Milk	Dairy/Food	1	24	24
Cupcakes	Packed/Food	1	25	25
Chocolates	Packed/Food	1	10	10
			279	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17,

Medium [1454 to 2813]

High [2814 to 4174]

So is card number 17.

(Refer Slide Time: 21:14)

Sun General		Advaith 16		
Item	Category	Qty	Price	Cost
Pencils	Stationery	2	5	10
Notebooks	Stationery	4	20	80
Geometry Box	Stationery	1	72	72
Graph Book	Stationery	1	25	25
			187	

Low [92 to 1453]

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16,

Medium [1454 to 2813]

High [2814 to 4174]

And card number 16.

(Refer Slide Time: 21:19)

Sun General		Abhinav 15		
Item	Category	Qty	Price	Cost
Keyboard	Toiletries	1	89	89
Mouse	Toiletries	1	140	140
			229	

Low [92 to 1453]

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15

Medium [1454 to 2813]

High [2814 to 4174]

And card number 15.

(Refer Slide Time: 21:25)

Sun General		Vignesh 14		
Item	Category	Qty	Price	Cost
Phone Charger	Utilities	1	230	230
Razor Blades	Grooming	1	12	12
Razor	Grooming	1	45	45
Shaving Lotion	Grooming	0.8	180	144
Earphones	Electronics	1	210	210
Pencils	Stationery	3	5	15
			656	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14,

Medium [1454 to 2813]

High [2814 to 4174]

And card number 14.

(Refer Slide Time: 21:29)

Big Bazaar		Abhinav 13		
Item	Category	Qty	Price	Cost
Shoes	Footwear/Apparel	1	2700	2700
Polish	Footwear/Apparel	1	120	120
Socks	Footwear/Apparel	2	120	240
			3060	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14,

Medium [1454 to 2813]

High [2814 to 4174]

13,

And we now have one high card which is card number 13.

(Refer Slide Time: 21:39)

Sun General		Aparna 12		
Item	Category	Qty	Price	Cost
Mosquito Coil	Household	2	24	48
Bananas	Fruits/Food	6	5	30
Ball Pens	Stationery	4	12	48
Paper Clips	Stationery	1	60	60
			186	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12,

Medium [1454 to 2813]

And now we are back to a low card 12.

(Refer Slide Time: 21:45)

SV Stores		Abhinav 11		
Item	Category	Qty	Price	Cost
Chocolates	Packed/Food	1	10	10
Cereal	Packed/Food	1	220	220
Bananas	Fruits/Food	6	8	48
Tomatoes	Vegetables/Food	1	40	40
Curd	Dairy/Food	1	32	32
Milk	Dairy/Food	2	24	48
Horlicks	Packed/Food	1	270	270
Plates	Household	4	45	180
Eggs	Food	1	45	45
			893	

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11,

Medium [1454 to 2813]

And 11.

(Refer Slide Time: 21:50)

Sun General		Rajesh 10		
Item	Category	Qty	Price	Cost
Notebooks	Stationery	3	20	60
Apples	Fruits/Food	6	24	144
Pears	Fruits/Food	4	30	120
Chart Paper	Stationery	2	22	44
Ruler	Stationery	1	10	10

378

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10,

Medium [1454 to 2813]

High [2814 to 4174]

13,

And 10.

(Refer Slide Time: 21:56)

Big Bazaar		Mohith 9		
Item	Category	Qty	Price	Cost
Lindt	Chocolate/Food	1	125	125
Socks	Footwear/Apparel	1	120	120
Spring Onions	Vegetables/Food	0.5	220	110
Lettuce	Vegetables/Food	0.6	150	90
Cookies	Snacks/Food	2	75	150

595

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10, 9

Medium [1454 to 2813]

High [2814 to 4174]

13,

And 9.

(Refer Slide Time: 22:00)

Big Bazaar		Advaith		
Item	Category	Qty	Price	Cost
Trousers	Men/Apparel	2	950	1900
Basa Fish	Meat/Food	1	350	350
Boxers	Men/Apparel	4	160	640
Face Wash	Toiletries	1	72	72
Slippers	Footwear/Apparel	1	170	170

3132



Low [92 to 1453]

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15
14, 12, 11, 10, 9

Medium [1454 to 2813]

High [2814 to 4174]

13, 8

Now, we have a high card again, this is 8.

(Refer Slide Time: 22:06)

SV Stores		Akhil		
Item	Category	Qty	Price	Cost
Bread	Packed/Food	1	30	30
Biscuits	Packed/Food	3	22	66

96



Low [92 to 1453]

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15
14, 12, 11, 10, 9, 7

Medium [1454 to 2813]

High [2814 to 4174]

13, 8

Then again small 7.

(Refer slide Time: 22:11)

Sun General		Srivatsan		
Item	Category	Qty	Price	Cost
Batteries	Utilities	6	14	84
USB Cable	Electronics	1	85	85
Ball Pens	Stationery	5	12	60
Onions	Vegetables/Food	1.25	100	125

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15
14, 12, 11, 10, 9, 7, 6

Medium [1454 to 2813]

High [2814 to 4174]
13, 8

And 6.

(Refer Slide Time: 22:17)

Big Bazaar		Akshaya		
Item	Category	Qty	Price	Cost
Trousers	Women/Apparel	2	870	1740
Shirts	Women/Apparel	1	1350	1350
Detergent	Household	0.5	270	135
Tee shirts	Women/Apparel	4	220	880
Instant Noodles	Canned/Food	3	23	69

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15
14, 12, 11, 10, 9, 7, 6

Medium [1454 to 2813]

High [2814 to 4174]
13, 8, 5

5 is very large, just the highest bill amount in fact.

(Refer Slide Time: 22:22)

SV Stores		Advaith		
Item	Category	Qty	Price	Cost
Milk	Dairy/Food	2	24	48
Bread	Packed/Food	1	30	30
Eggs	Food	1	45	45

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10, 9, 7, 6, 4

Medium [1454 to 2813]

High [2814 to 4174]
13, 8, 5

Now, we have 4 here.

(Refer Slide Time: 22:27)

SV Stores		Akshaya		
Item	Category	Qty	Price	Cost
Face Wash	Toiletries	1	89	89
Shampoo	Toiletries	1	140	140
Onions	Vegetables/Food	1	98	98
Bananas	Fruits/Food	4	8	32
Milk	Dairy/Food	1	24	24
Biscuits	Packed/Food	2	22	44
Maggi	Packed/Food	1	85	85
Horlicks	Packed/Food	1	270	270
Chips	Packed/Food	1	20	20
Chocolates	Packed/Food	4	10	40
Cereal	Packed/Food	1	220	220
Handwash	Toiletries	1	139	139
Air freshener	Toiletries	2	70	140

IIT Madras
ONLINE DEGREE

Low [92 to 1453]
30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10, 9, 7, 6, 4, 3

Medium [1454 to 2813]

High [2814 to 4174]
13, 8, 5

3 also falls in the small.

(Refer Slide Time: 22:34)

Big Bazaar		Sudeep			2
Item	Category	Qty	Price	Cost	
Baked Beans	Canned/Food	1	125	125	
Chicken Wings	Meat/Food	0.5	600	300	
Cocoa powder	Canned/Food	1	160	160	
Capsicum	Vegetables/Food	0.8	180	144	
Tie	Apparel	2	390	780	
Clips	Household	0.5	32	16	
					1525

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10, 9, 7, 6, 4, 3
Medium [1454 to 2813]

2

High [2814 to 4174]
13, 8, 5

2 alone is probably the only medium card.

(Refer Slide Time: 22:41)

SV Stores		Srivatsan			1
Item	Category	Qty	Price	Cost	
Carrots	Vegetables/Food	1.5	50	75	
Soap	Toiletries	4	32	128	
Tomatoes	Vegetables/Food	2	40	80	
Bananas	Vegetables/Food	8	8	64	
Socks	Footwear/Apparel	3	56	168	
Curd	Dairy/Food	0.5	32	16	
Milk	Dairy/Food	1.5	24	36	
					567

Low [92 to 1453] IIT Madras
ONLINE DEGREE

30, 29, 28, 27, 26,
25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15,
14, 12, 11, 10, 9, 7, 6, 4, 3
Medium [1454 to 2813]

2

High [2814 to 4174]
13, 8, 5

And then we have 1 in the low cards. So, this way we have only 3 high bill amounts and only 1 medium bill amount and the remaining 26 are all low amounts. Thank you.