

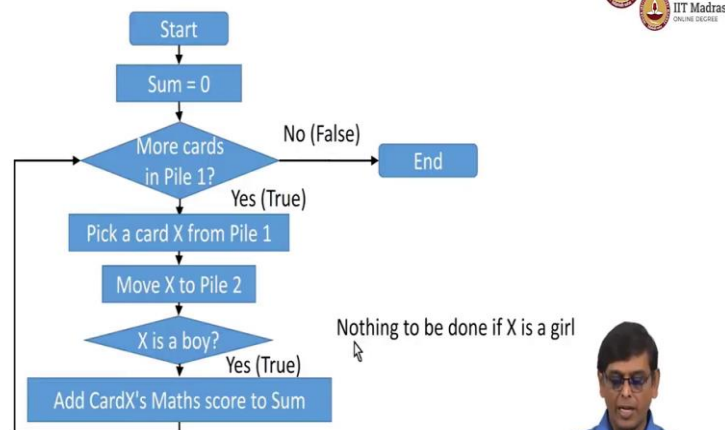


IIT Madras

ONLINE DEGREE

Computational Thinking
Prof. Madhavan Mukund
Department of Computer Science
Chennai Mathematical Institute
Indian Institute of Technology, Madras
Tutorial for Lecture 5
Flowchart All Food and No Food

(Refer Slide Time: 00:14)



Hello CT students, you must have already seen the lecture by Professor GV on a flowchart for doing sum with filtering. In this tutorial we will look at another flowchart.


(Refer Slide Time: 00:27)

The screenshot shows a web application interface. At the top, there's a header 'Big Bazaar' and a user profile 'Akshaya' with a '5' badge. Below the header is a table with columns: Item, Category, Qty, Price, and Cost. The table contains the following data:

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

Below the table, there are two green counters: 'AllFoodCount' with a value of '1' and 'NoFoodCount' with a value of '0'. The 'Instant Noodles' row is highlighted in orange.

(Refer Slide Time: 00:28)



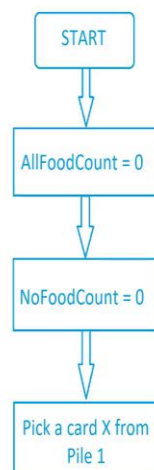
Sun General		Vignesh 14		
Item	Category	Qty	Price	Cost
Phone Charger	Utilities	1	230	230
Razor Blades	Grooming	1	12	12
Razor	Grooming	1	45	45
Shaving Lotion	Grooming	0.8	180	144
Earphones	Electronics	1	210	210
Pencils	Stationery	3	5	15
				656

AllFoodCount 1

NoFoodCount 0

Which is again a tutorial task that we had seen earlier where we find the number of shopping bills, where all purchases are food and the number of shopping bills where all purchases are not food.

(Refer Slide Time: 00:45)



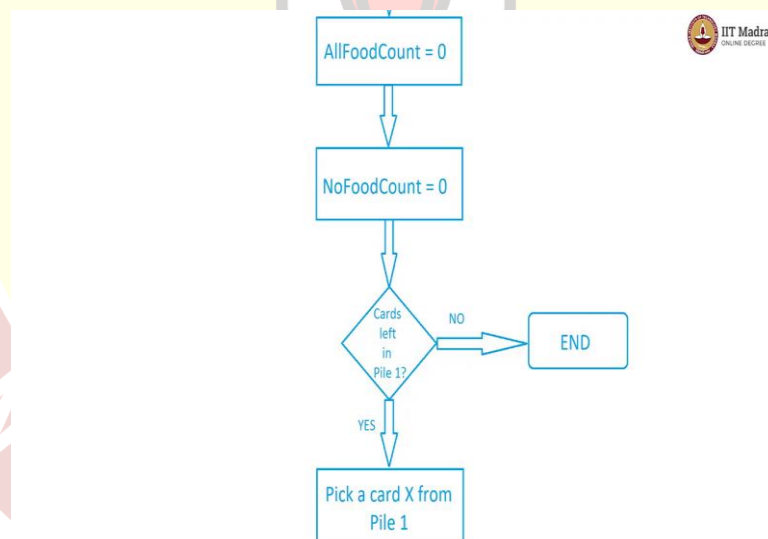
So, we will try to put down a flowchart for this. Of course, we start with the start and what is the first thing we did in this task? We set up the two variables we declared the two variables one was all food count and the other was no food count. And we initialize them to 0 both of them to 0.

So, this is the all food count variable we declare it and we initialize it to 0; after this we will now declare the no food count variable and initialize it to 0. Now that we have both our variables defined and initialized to 0; we start looking at the pile of cards card by card.

So, we pick a card now that is what we should be doing next. So, we pick a card from pile 1; what do we do with this card we go through it and then we put it in a different pile. So, there will be another pile 2 and here this is picking the card from pile 1.

However, there is one thing we need to consider here; because it's a flowchart we are writing what is pile 1 does not have any more cards? This could happen during the course of the execution of this particular algorithm. So, what we should consider is in case pile 1 is empty, then we cannot be picking a card. So, we introduce a decision box here we take an if block here which comes as a diamond.

(Refer Slide Time: 02:27)



So, here we are checking if there are any cards left in pile 1; and if there are cards left then we pick a card. We should also consider the situation where there are no more cards left; in which case we would end this algorithm. So, now we have also set down the end condition, we can go and look at what to do after we pick a card from pile 1. So, what we do when we pick a card from pile 1? Is that we check whether every purchase on it is food that is the first check we do.

(Refer Slide Time: 03:12)



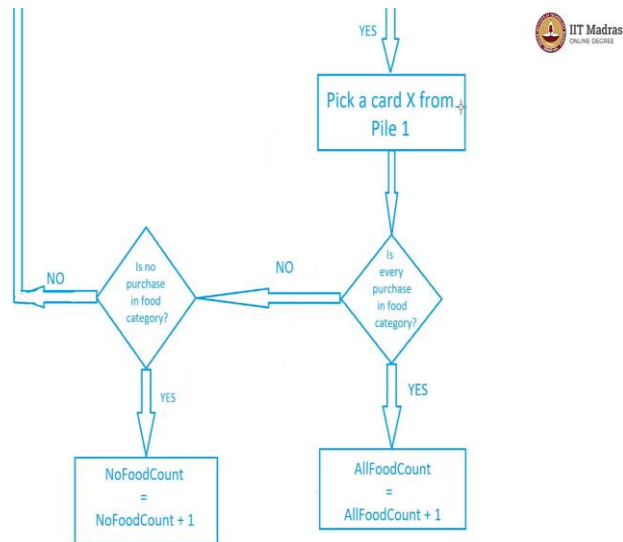
So, now we put this decision block we again have to consider the yes case and the no case.

(Refer Slide Time: 03:21)



So, if it is true, if every purchase is in the food category we increment the all food count variable by 1.

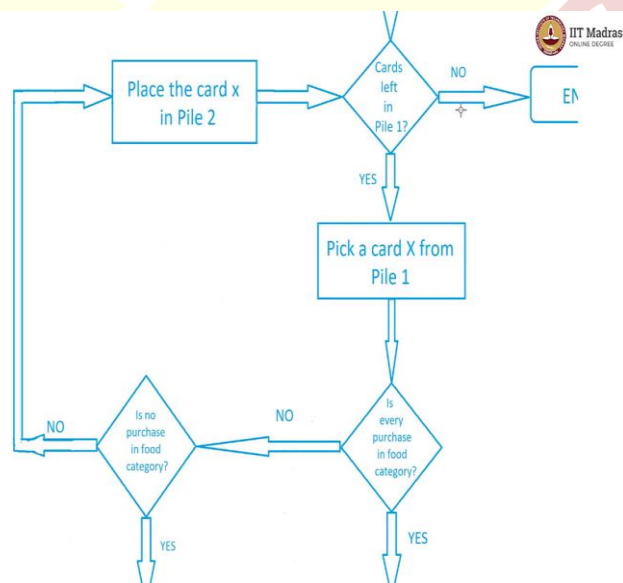
(Refer Slide Time: 03:32)



And in case that is not true, if every purchase is not in the food category then what we do next is to check for the no food count variable, which is to check if no purchase is in the food category. So, in this way we are now checking if there is no purchase in the food category if there is no purchase in the food category then we should increment no food count by 1. So, that is what we are doing here.

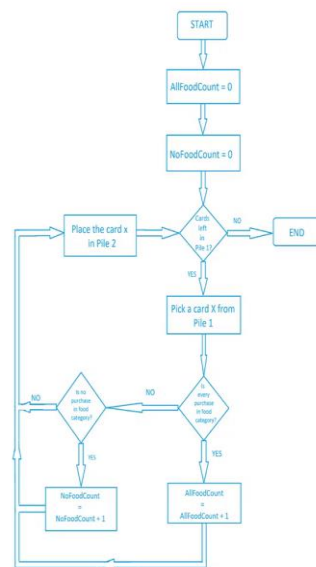
But in case it is no if the answer is no to those diamond box then we go on to put away that card in pile 2; and then again check if there are any cards left in pile 1 and continue.

(Refer Slide Time: 04:18)



So, this is what we are seeing here. If the answer is no, we put this card x in pile 2; and then we go on to check for the next card in pile 1.

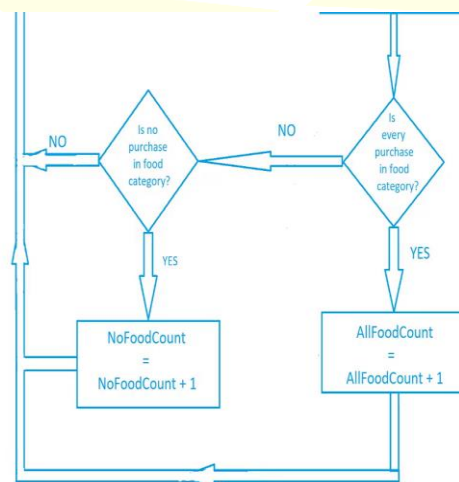
(Refer Slide Time: 04:30)



So, as of now the whole flowchart looks like this, going further we also see that once the no food count is incremented then also we do the same thing which is to put that card in pile 2 and then check for more cards in pile 1.

So, from no food count being incremented also we follow this same path. So, this is what it will look like.

(Refer Slide Time: 04:55)



And the whole flowchart looks like this at the moment. Further if all food count was incremented we do not need to check for the no food count any longer. So, after all food count is incremented also, we have to go to the same path which is to put that card in pile 2 and look for a new card in pile 1.

So, the arrow from the incrementing of all food count variable also goes along the same path looking like this; which makes our final flowchart look like this. This is the final flowchart for this task.

Thank you.

