

Lecture 19

11 Feb, 2023

Lecture18 | 09 Feb 2023

10 Feb 2022 - Extra Impromptu Session

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Homework:

1. Design a flowchart to bring icecream to your home. (Open ended problem, feel free to consider your possibilities - till they comfortably fit on paper).
2. Flowchart to add even nos & print as 'sum' & multiply oddnos & print as 'mul'.

Assume you get the if in a list.

eg: $[2, 4, 1, 7, 6, 30]$

Even = $2, 4, 6, 30 \rightarrow 2+4+6+30 = 42$

Odd = $1, 7 \rightarrow 1 \times 7 = 7$

Print sum = 42 mul = 7

Algorithm to find name in a phonebook.

Binary Search

Search = 30

$mid = \frac{l+h}{2}$

① $\frac{0+9}{2} = 4$

② $\frac{0+4}{2} = 2$

0 1 2 3 4 5 6 7 8 9

10 20 30 40 50 60 70 80 90 100

Stop

should be the crudest way of searching for the required element 20 b

Search = 100

$mid = \frac{l+h}{2}$

① $\frac{0+9}{2} = 4$ ④ $\frac{7+9}{2} = 8$
 ② $\frac{4+9}{2} = \frac{13}{2} = 6$ ⑤ $\frac{8+9}{2} = 8$
 ③ $\frac{6+9}{2} = \frac{15}{2} = 7$ ⑥ $\frac{9+9}{2} = 9$

l h mid

0 1 2 3 4 5 6 7 8 9

10	20	30	40	50	60	70	80	90	100
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Stop

should be the crudest way of searching for the required element 20 b

Search = 51

$mid = \frac{l+h}{2}$

① $\frac{0+9}{2} = 4$ ③ $\frac{4+6}{2} = 5$ ⑤ $\frac{5+5}{2} = 5$
 ② $\frac{4+9}{2} = \frac{13}{2} = 6$ ④ $\frac{4+5}{2} = 4$

l h mid

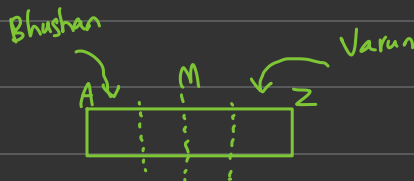
0 1 2 3 4 5 6 7 8 9

10	20	30	40	50	60	70	80	90	100
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\therefore l, h are same as mid, & still the element is not found, we can conclude that 51 doesn't exist in the array.

should be the crudest way of searching for the required element 20 b

1. Pick up phone book
2. Open to middle of phone book
3. Look at page
4. If person is on page
 call person
 else if person is earlier in the book



Open to middle of left half of book

Go back to line 3

else if person is later in book

Open to middle of right half of book

Go back to Line 3

else

Quit

Search = 'F'
recall person

40s. Call him 😊

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

mid mid

Homework: Compulsory
Complete all 10 levels!

[https://learn.newtonschool.co/
block-games/duck-ball](https://learn.newtonschool.co/block-games/duck-ball)

Story of evolution of programming:

1950 - programs were written in machine language i.e. binary.

↓
use punch cards
&
programming panels

https://www.youtube.com/watch?v=Wchru8alhaE&ab_channel=PeekabookKidz

High Level Language

C, C++, Java, Pascal, Python



Compiler



Low Level Language

Machine/Assembly Language

OO & Visual Language



Fortran, C, Pascal



HLL



Assembly LL



Machine Lang.



Hardware



- How many programming languages hv been created so far?
→ around 9000

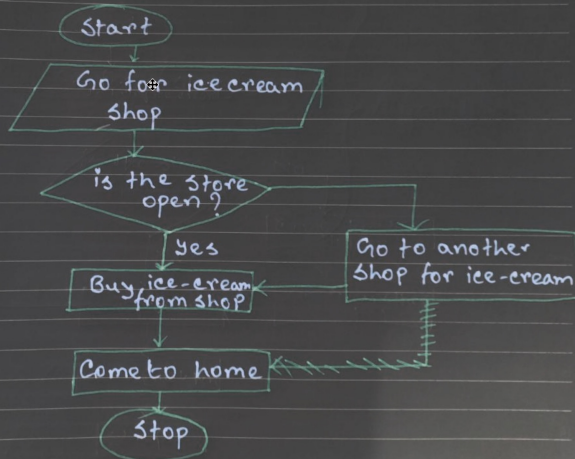
Java → Full Stack Developer

(most demanded language,
has huge applications)

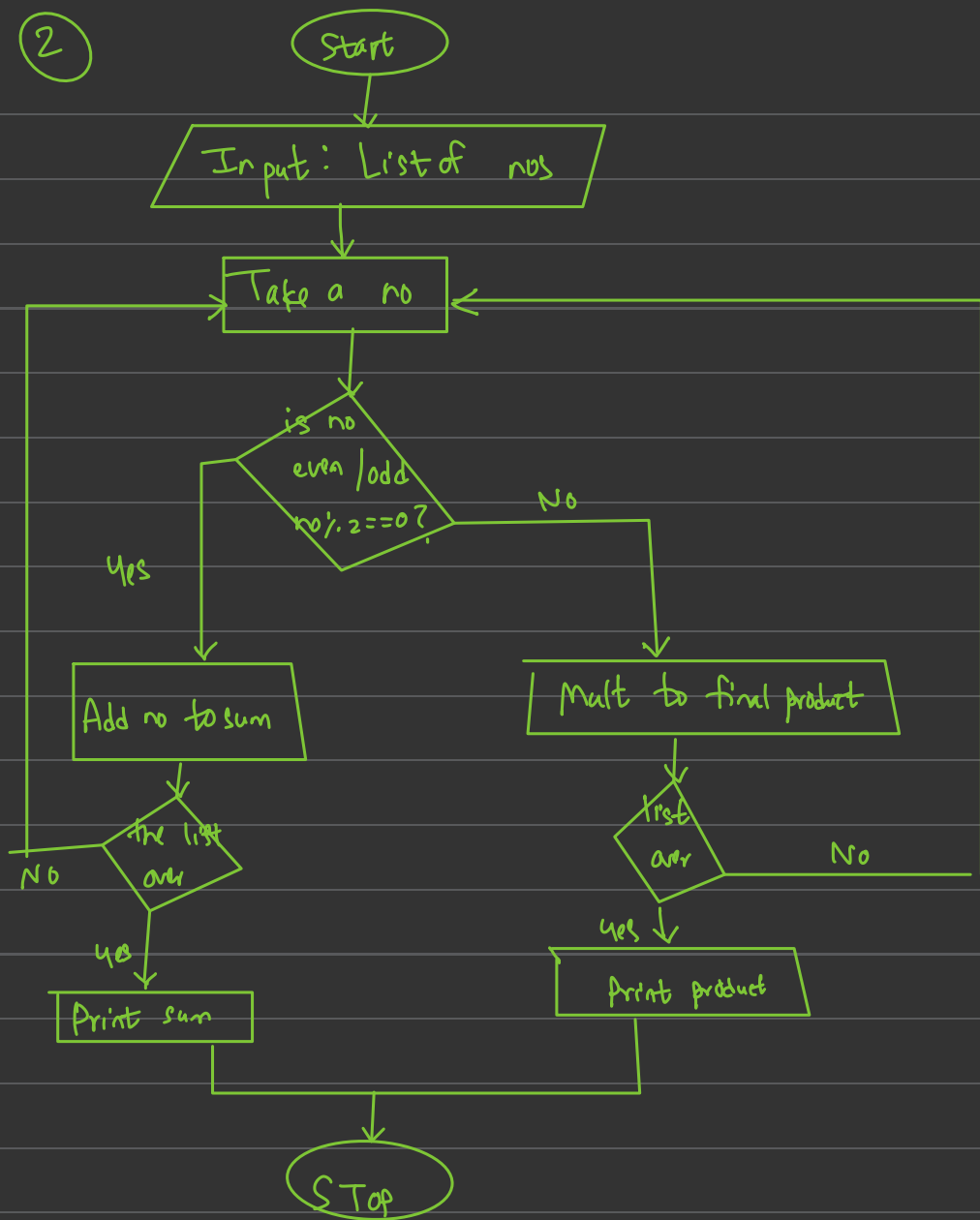
Homework Solution:

① Design a flowchart to bring ice cream to your home.

Ans:



2



X