

M T W T F S S
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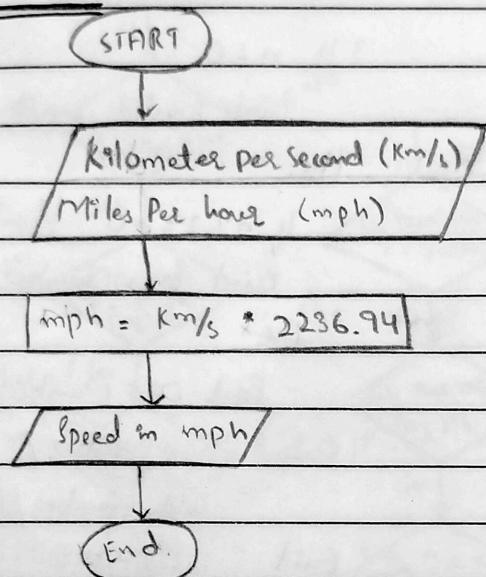
Date 15 Sep 2024

WAMINA NORMAN
(24K-0010)

PF Assignment : OF IFs AND LOOPS.

Problem : 01: Miles per hour to Kilometer per seconds.

Flowchart:



Pseudocodes:

1. START
2. Input Kilometer per Second (km/s)
Miles per hour (mph);
3. Conversion: mph = Km/s * 2236.94
4. Output Speed in mph
5. Exit.

IPO Chart:

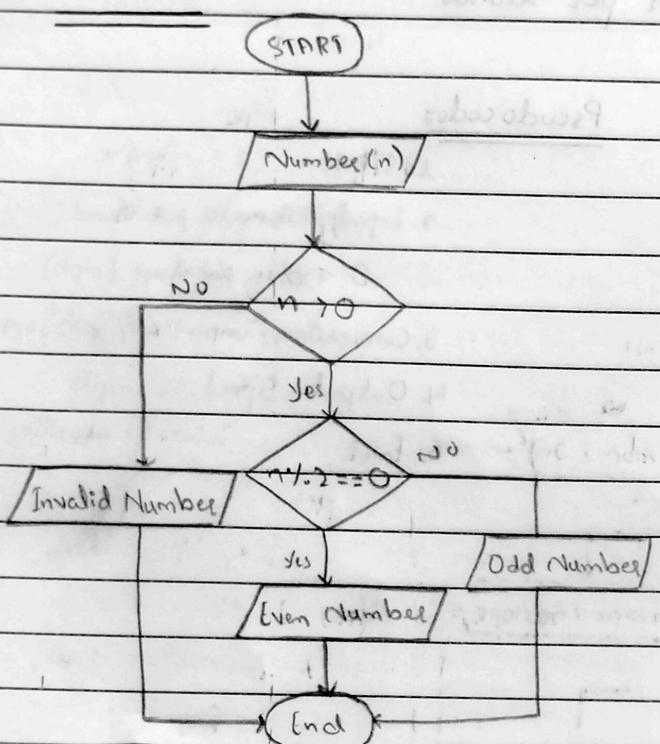
INPUT	PROCESS	MODULE REFERENCE	Output
Enter			
Kilometer per Second (km/s)	Speed in Km/s	Read	
Miles per hour (mph)	Speed in mph	Read	Speed in Miles per hour
	Conversion: Speed in mph	Process	
	mph = Km/s * 2236	Calc	
	Print Speed in mph	Print	
End		Speed converted	

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Problem : 02: Even or Odd:

Flowchart:



Pseudocode:

1. START
2. Input Number n
3. If $n \leq 0$:
 Print Invalid Input
4. Else:
 If $n \% 2 == 0$:
 Print Even Number
- Else:
 Print Odd Number;
5. Output Even Number / Odd Number
6. End.

IPO Chart:

Input	Process	Module Reference	Output
Enter Number(n)	Number (n)	Read	Even Number /
	If $n \leq 0$	calc.	Odd Number
	Invalid Input	Error	
	Else; If $n \% 2 == 0$	calc.	
	Even Number	Output	
	Else; Odd Number	Output	
	Print Output	Print	
	End.	Even/odd found	

Imperial Notes

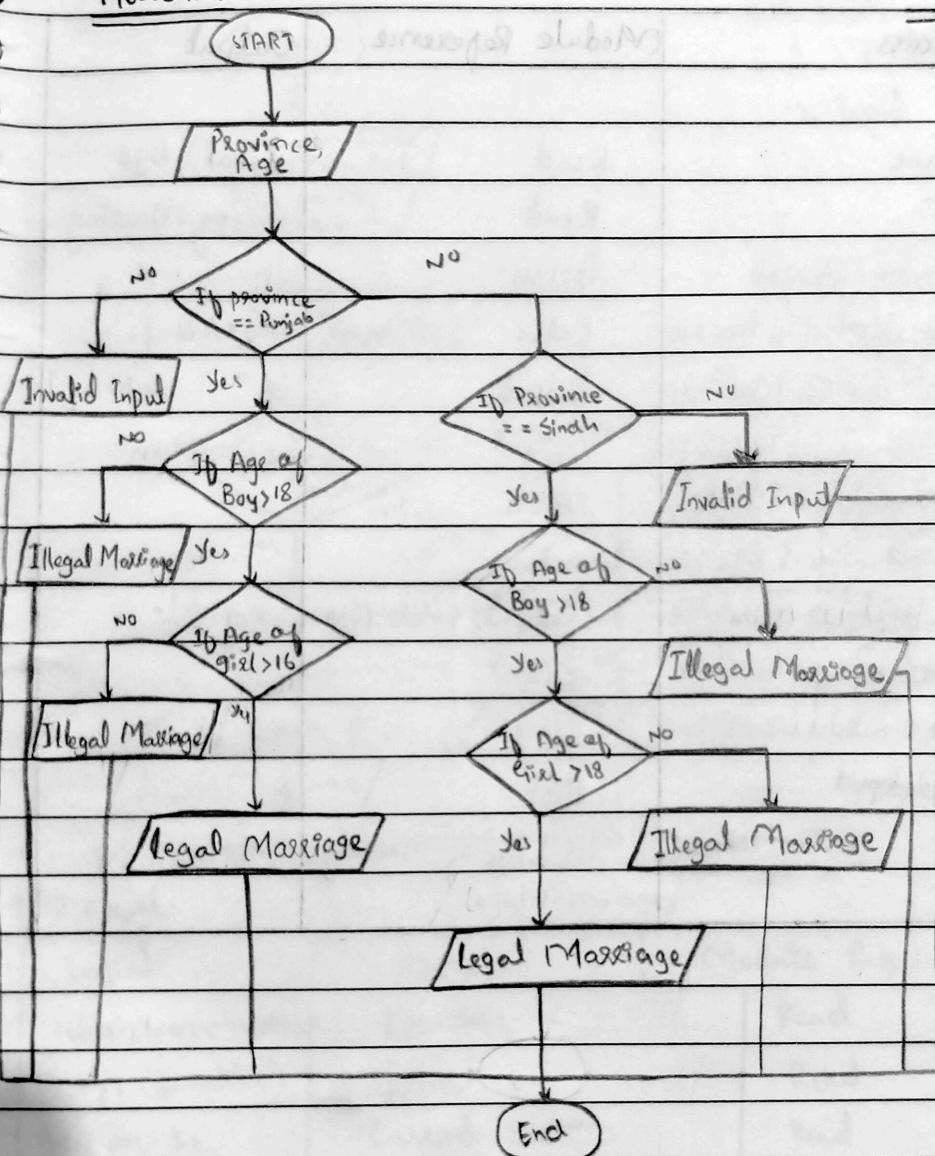
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Problem: 03: Legal Age of Marriage In Pakistan:

Flowchart:



Pseudo code:

1. START

2. Input Province

Age

3. If Province = Punjab

If Boy Age > 18

If Girl Age > 18

Print Legal For Marriage
Else;

Illegal For Marriage
Else;

If Province == Sindh

If Boy Age > 18

If Girl Age > 18

Print Legal For Marriage

Else;

Illegal For Marriage

Else;

Illegal For Marriage

Else;

Invalid Input

4. Output legal age for Marriage

5. Exit

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IPO chart:

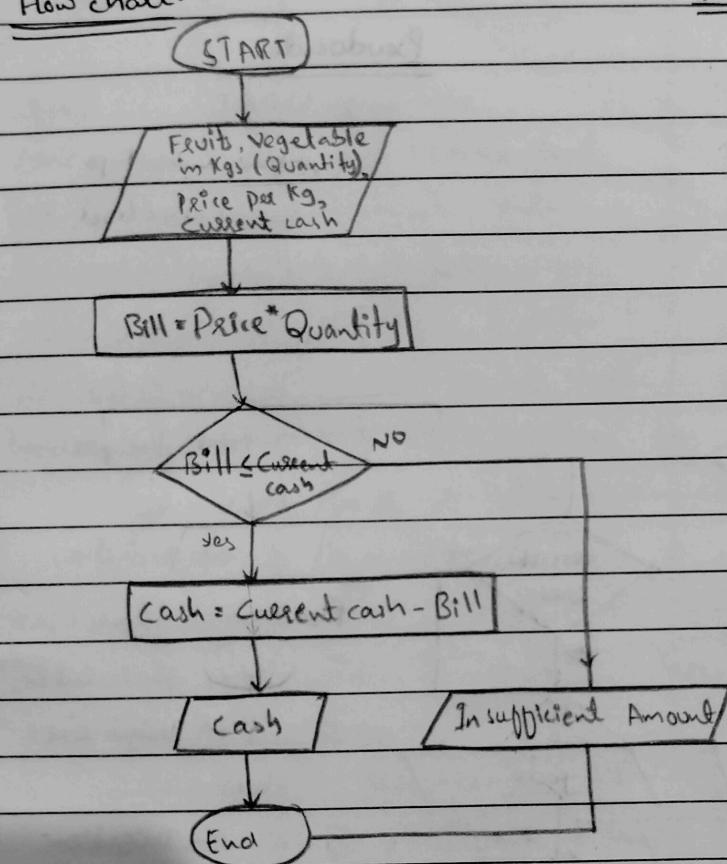
Input	Process	Module Reference	Output
Enter: Province	Read		legal Age
Province, Age	Read		of Marriage
Age	If Province == Punjab If Boy Age > 18 and Girl Age > 18 Print Legal For Marriage Else; Print Illegal For Marriage	Process Calc: Output	
	Else; If Province == Sindh If Boy Age > 18 and Girl Age > 18 Print Legal For Marriage Else; Print Illegal For Marriage	Process Calc: Output	
	Else; Print Invalid Input.	Error	
	Print Output	Print	
	End	legal Age of Marriage	

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Problem: 04: Grocery Assistance/ Calculator.

Flow chart:



Pseudocode:

1. START
2. Input Fruit, vegetable in kgs (Quantity)
Price per kg.
Current cash.
3. Bill = Price * Quantity
4. If Bill > Current cash
Print insufficient amount

Else;

Cash = current cash - Bill

5. Output cash

6. Exit.

IPO chart:

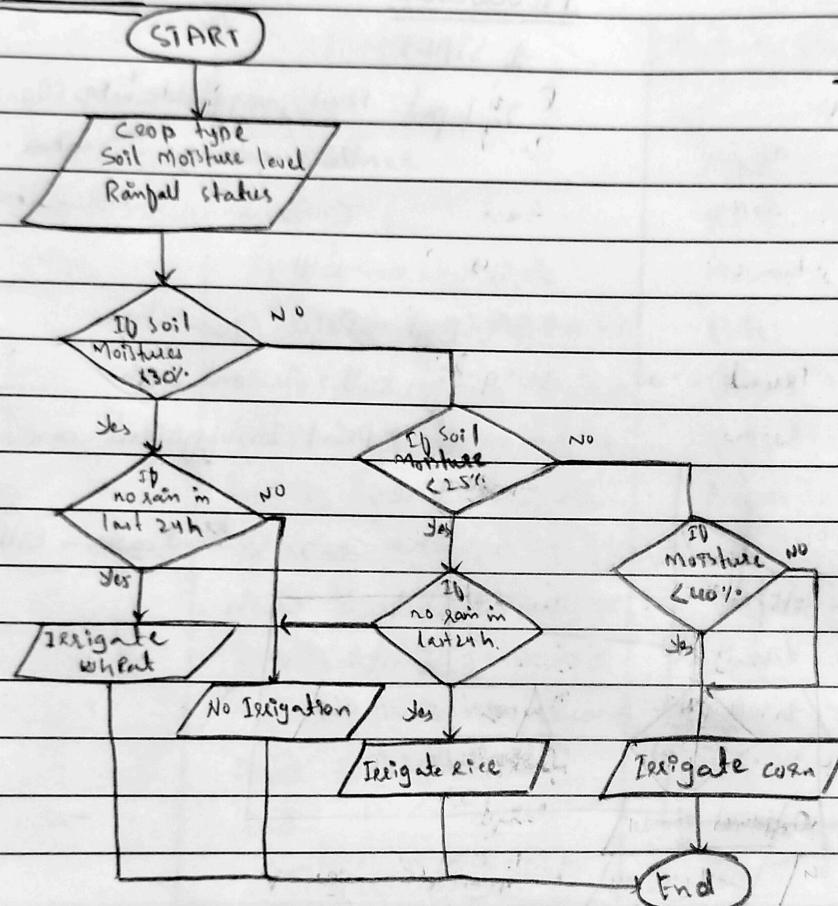
Input	Process	Module Reference	Output
Fruits, vegetables in kgs (Quantity), Price per kg, Current cash.	Quantity Price Current cash Bill = Price * Quantity	Read Read Read Calc:	
	If Bill > Current cash: Insufficient amount Else; cash = current cash - Bill	Error Calc:	cash
	Output cash	Output	
	End	Grocery Assistant	

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Problem : 05 : Crop Management:

Flowchart:



Pseudocodes:

1. START
2. Input Crop type
Soil Moisture level,
Rainfall Status
3. If Soil Moisture < 30%
If no rain in last 24h
Print Irrigate wheat
- Else;
No Irrigation
- Else If Soil moisture < 25%.
If no rain in last 24
Print Irrigate rice
- Else;
No Irrigation
- Else; Moisture < 40%.
Print Irrigate corn
4. Output Irrigation/NoIrrigation.
5. Exit

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IPO chart:

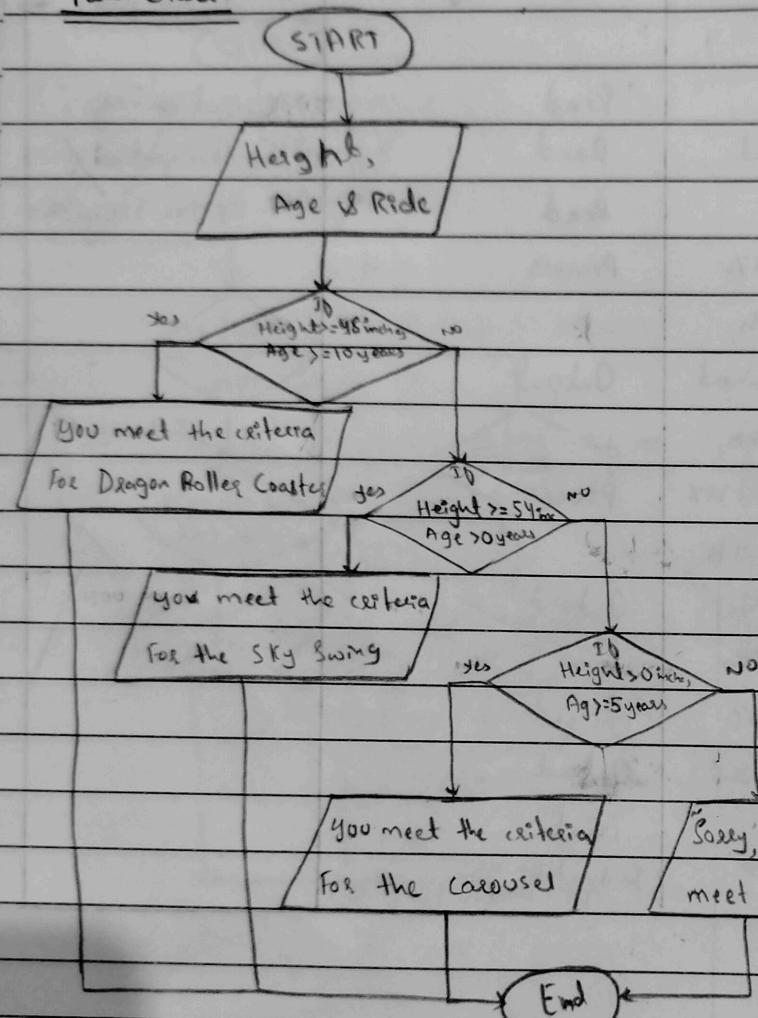
Input	Process	Module Reference	Output
Enter: Crop type, Soil moisture level, Rainfall status.	Crop type Soil moisture level. Rainfall status.	Read Read Read	Initiation of Irrigation/ No Irrigation
Rainfall status	If Soil moisture < 30%. If no rain in last 24h.	Process Process	
	Print: Irrigate wheat Else: No Irrigation.	Output	
	Else If: soil moisture < 25%. If no rain in last 24h	Process	
	Print Irrigate rice. Else: No Irrigation	Output	
	Else: Moisture < 40%.	Process	
	Print Irrigate corn	Output	
	Print Output	Print	
	End.		Initiation of Irrigation/no Irrigation

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Problem: 06. Amusement park Ride eligibility.

Flow chart:



Pseudocode:

```

1. START
2. Input Height
   Age
   Ride
3. If; Height ≥ 48 inches
   & & Age ≥ 10 years
   Print: You meet the criteria,
   for the Dragon Roller coaster
   Else If; Height ≥ 54 inches
   & & Age > 0
   Print: You meet the criteria,
   for the Sky swing.
   Else If; Height > 0 inches
   & & Age ≥ 5 years
   Print: You meet the criteria
   for the carousel.
Else:
   Print: Sorry, you don't
   meet the criteria.
  
```

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IPO chart:

Input	Process	Module Reference	Output
Enter Height	Height	Read	
Age	Age	Read	meet the criteria
Ride	Ride	Read	don't meet the exit
	If Height \geq 48 inches And Age \geq 10 years	Process	
	Print: you meet the criteria	Output	
	For the Dragon Roller coaster		
	Else If Height \geq 54 inches And Age $>$ 0	Process	
	Print: you meet the criteria	Output	
	For the Sky Swing		
	Else If Height > 0 inches Age \geq 5 years	Process	
	Print: you meet the criteria	Output	
	For the carousel.		
	Else:		
	Print Sorry, you don't meet the criteria.	Output	
	Print Output	Print	
	End.	eligibility checked	

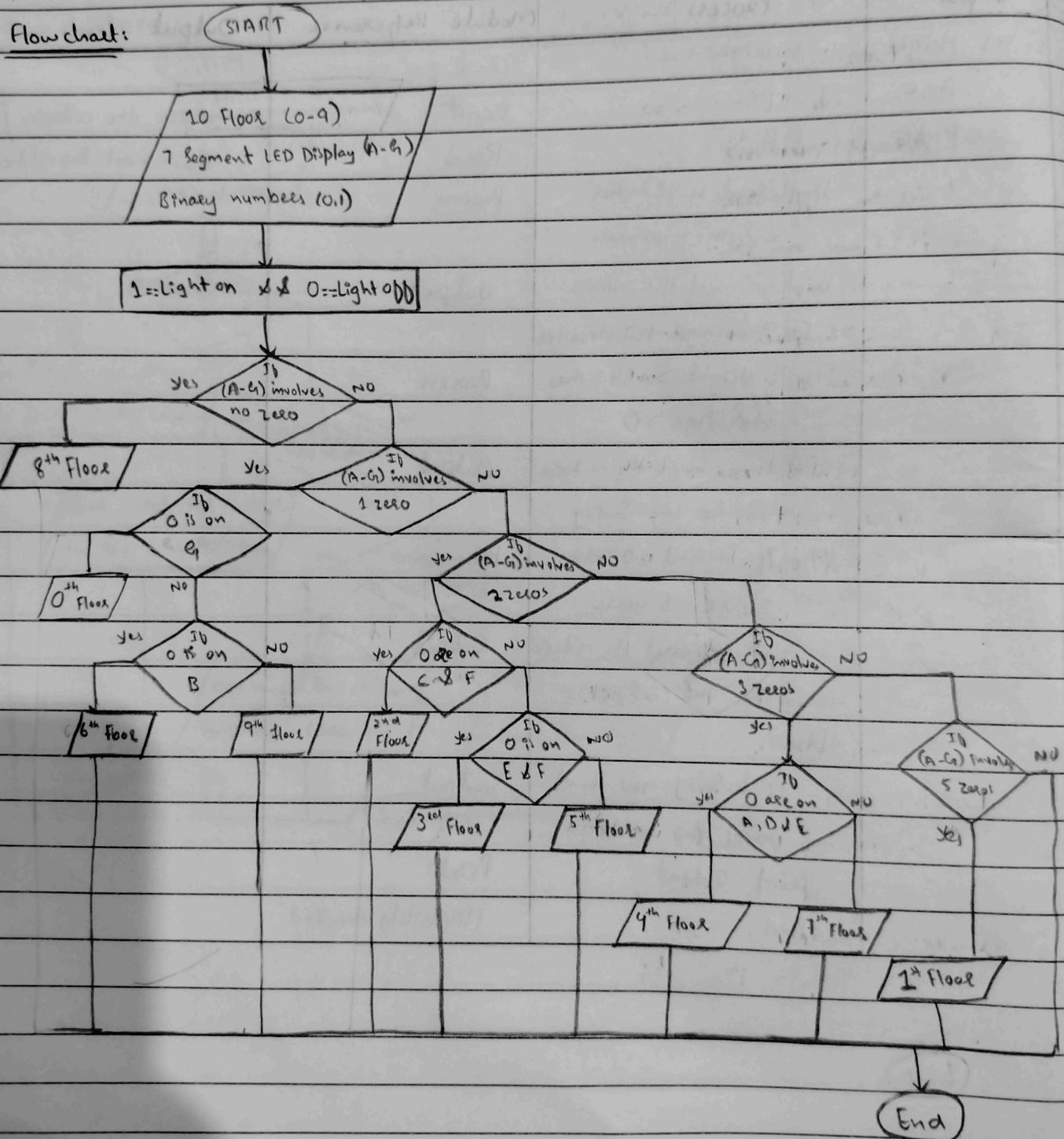
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Problem. 07: Which floor?

Flowchart:



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Pseudocode:

1. START

2. Input 10 floors (0-9)

7 Segments LED Display (A-G)

Binary Number (1,0):

3. 1 := light on, 0 := light off

4. If (A-G) involves no zero

Print 8th Floor

Else If: (A-G) involves 1 zero.

If 0 is on G, Print 0th Floor

Else;

If 0 is on B, Print 6th Floor

Else; Print 9th floor

Else If: (A-G) involves 2 zeros

If 0 is one C&F, Print 2nd Floor.

Else;

If 0 is on E&F, Print 3rd Floor

Else; Print 5th Floor

Else If: (A-G) involves 3 Zeros

If 0 is on A,D&E, Print 4th Floor

Else; Print 7th Floor

Else; (A-G) involves 5 zeros

Print 1st Floor;

5. Print Floors;

6. Exit

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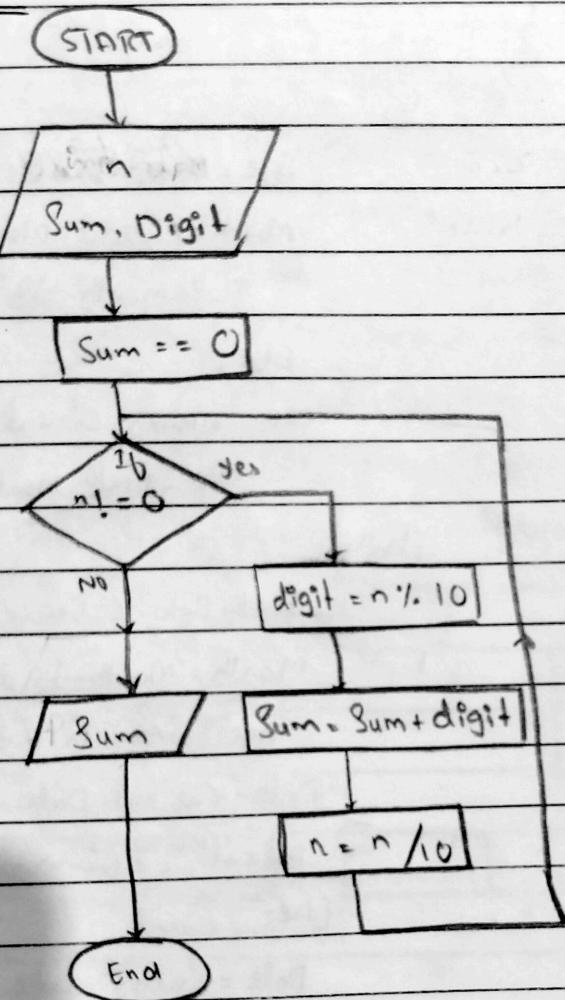
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IPO chart:

Input	Process	Module Reference	Output
Enter	10 Floors (0-9)	Read	Floors Identified
10 Floors (0-9)	LED Display (A-G)	Read	
7 Segments	Num (0, 1)	Read	
LED Display (A-G)	1 = lights on 0 = lights off		
Binary Numbers (0, 1)	If (A-G) involves no zero Else If (A-G) involves 1 zero Else If (A-G) involves 2 zeros Else If (A-G) involves 3 zeros Else If (A-G) involves 4 zeros Else If (A-G) involves 5 zeros	Process	
	Print 8th Floor,	Output	
	If 0 is on G; Print 0th Floor, Else; If 0 is on B, Print 6th Floor, Else; Print 9th Floor,	Output	
	Else If 0 is on C & F, Print 2nd Floor, Else; If 0 is on E & F, Print 3rd Floor, Else; Print 5th Floor,	Output	
	Else If 0 is on A & E, Print 4th Floor, Else; Print 7th Floor	Output	
	Print 1st Floor	Output	
	Print floors	Print	
	End		Floors Identified

Problem 08: Digit Sum

Flowchart:



Pseudocode:

1. START

2. Input 'n'

3. Set Sum = 0

4. check $n \neq 0$

5. digit = Sum + digit

6. $n = n / 10$

7. If $n = 0$

In to the top

Else;

Print Sum

8. Print Sum

9. Exit

IPO chart:

Input	Process	Module Reference	Output
Enter ;	n	Read	Sum,
n	Set sum = 0		
Sum	check $n \neq 0$	loop	
Digit	then digit = $n \% 10$	process	
	Sum = Sum + digit	process	
	$n = n / 10$		
	Print Sum	Print	
	END.	Sum	Imperial N

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Problems 09: Exact Age in days, months, and years From DOB:

~~Flowchart Pseudocode:~~

1. START

2. Input Birthyear, Birthmonth, Birthday

Current year, Current month, Current day;

Age

Age = Age - 1 88

3. If BirthMonth & current != 1 ≤ M ≤ 12

Print: Invalid Output

Month = Current Month -

Birth month +12

Else If:

year % 400 == 0 || year % 4 == 0 & year % 100

Print Feb has 29 Days

Else:

Month = Current month

- Birth Month;

Else:

Feb has 28 Days

If Else:

If Birth Date < Current date

Else If:

Month == 1 ≤ Month ≤ 30

Month = Month - 1 88

Months are April, June, September
and November.

Age = Age - 1 88

Date = Current Date - Birth

Date + (Month days
< eleven months);

Else:

Month == 1 ≤ Month ≤ 31

If Else:

Date = Current date

Months are January, March, May

- Birth date

July, August, October and December

4. Age = Years, Months, Dates

Else If:

Birth year < Current year

5. Output Age

Print: year = Current year - Birth year

6. Exit.

Else:

Print: Invalid Input

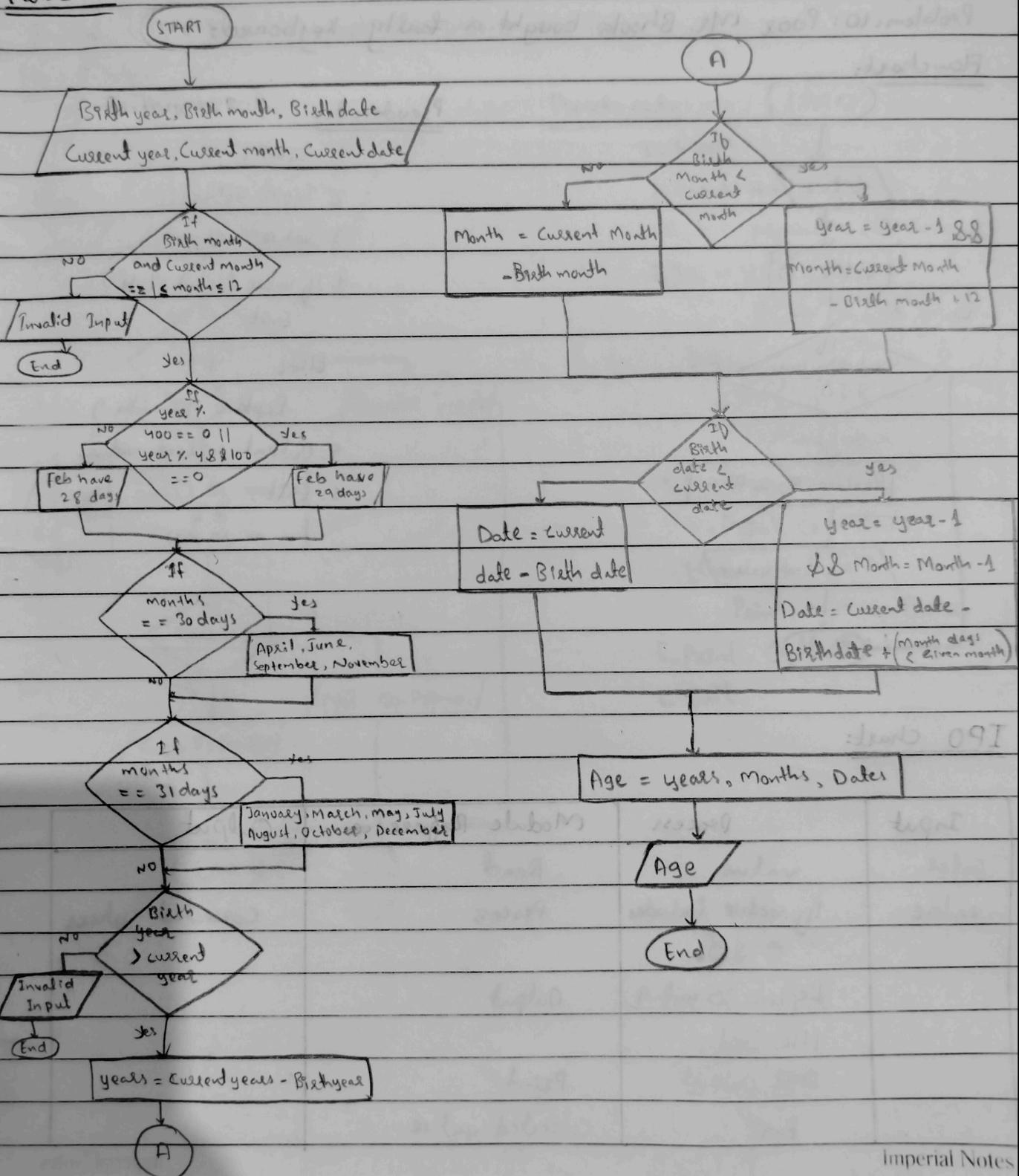
Else If:

Birth Month < Current Month.

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Flowchart:



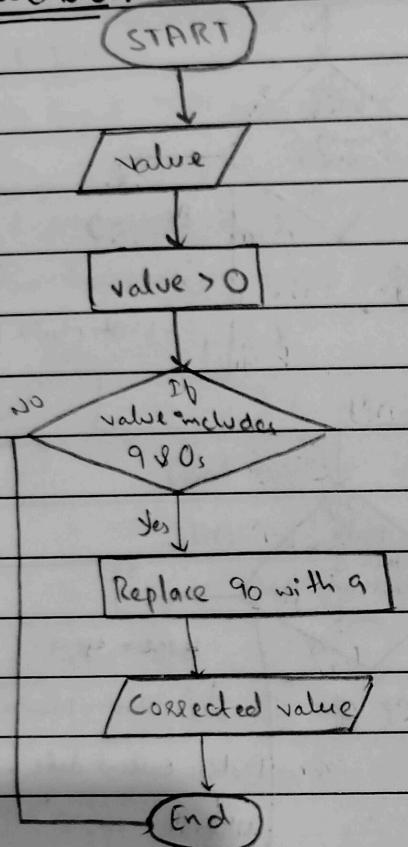
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Date 15 Sep 23

Problem 10: Poor Mr. Bhoola bought a faulty Keyboard:

Flowchart:



Pseudocode:

1. START
2. Input value
3. value > 0
4. If value doesn't 9 & 0s
 Exit.

Else:

- Replace 90 with 9
5. Output correct values
6. Exit.

IPO chart:

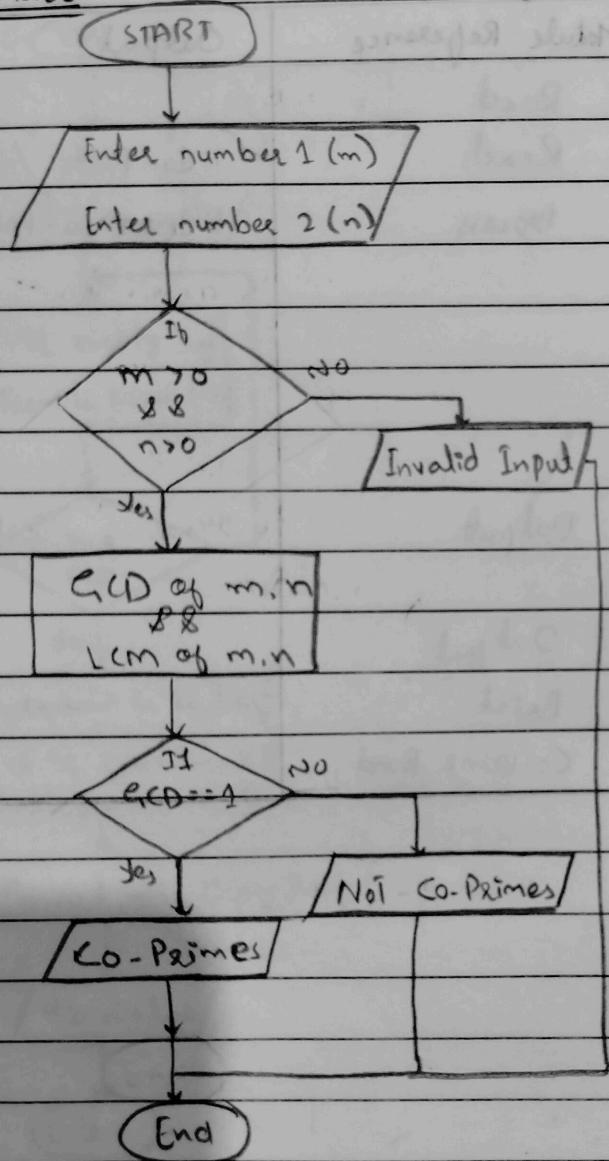
Input	Process	Module Reference	Output
Enter value	value	Read	
value	If value includes 9 & 0s	Process	Corrected values
	Replace 90 with 9	Output	
	Else: Exit		
	Print Output	Print	
	End	Collected value	

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Date 11 Sep 2024

Problem : 11 : No not Optimus prime its coprime..

Flowchart:



Pseudo code:

1- START

2- Input Number 1 (m)

Number 2 (n),

3- If $m, n \neq 0$

Print Invalid Input

Else,

GCD of m,n

LCM of m,n

4- If GCD == 1

Print: Co-Primes,

Else:

Print: Not Co-Primes

5- Print: Output

6- End.

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IPO chart:

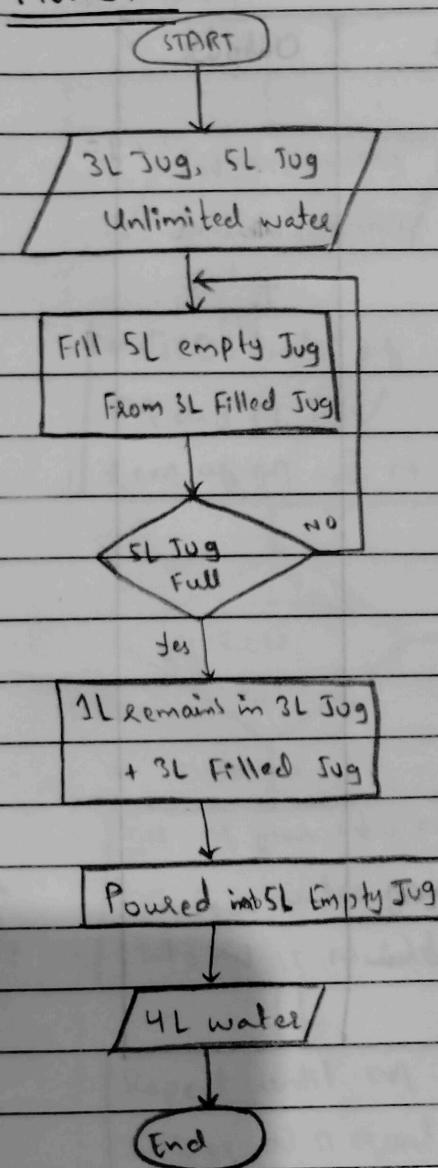
Input	Process	Module Reference	Output
Enter m & n	Read	Co-Prime / Not Co-Prime	Flowchart
Number 1(m)	Read		
Number 2(n)	Process		
	Print Invalid Input		
	Else, End of m & n		
	LCM of m & n		
	IF gcd == 1		
	Print: Co-Primes	Output	
	Else:		
	Print: Not Co-Primes	Output	
	Print Output	Print	
End	Co-Prime Found		

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Problem : 12 : Defuse the bomb... Quick!

Flowchart:



Pseudocode:

1. START
2. Input 3L Jug, 5L Jug
Unlimited water,
3. Fill 5L empty from 3L Filled Jug.
4. If 5L Jug isn't full:
 Repeat:
 Else:
 Take 1L remains in 3L Jug
5. 1L remains in 3L Jug + 3L Filled Jug
6. Poured into 5L Empty Jug
7. Output 4L water
8. Exit

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IPO charts:

Input	Process	Module Reference	Output
Enter;	3L Jug	Read	
3L Jug	5L Jug	Read	
5L Jug	Fill 5L Jug from	Process	4L water.
Unlimited water	3L Jug		
	If 5L Jug isn't full	loop	
	Repeat the process		
	Else;		
	Take remaining 1L		
	water in 3L Jug,		
	Take another 3L		
	filled Jug and		
	Pour both in 5L		
	Empty Jug.	Output	
	Print output	Print	
	End.	Bombs can be defused now	

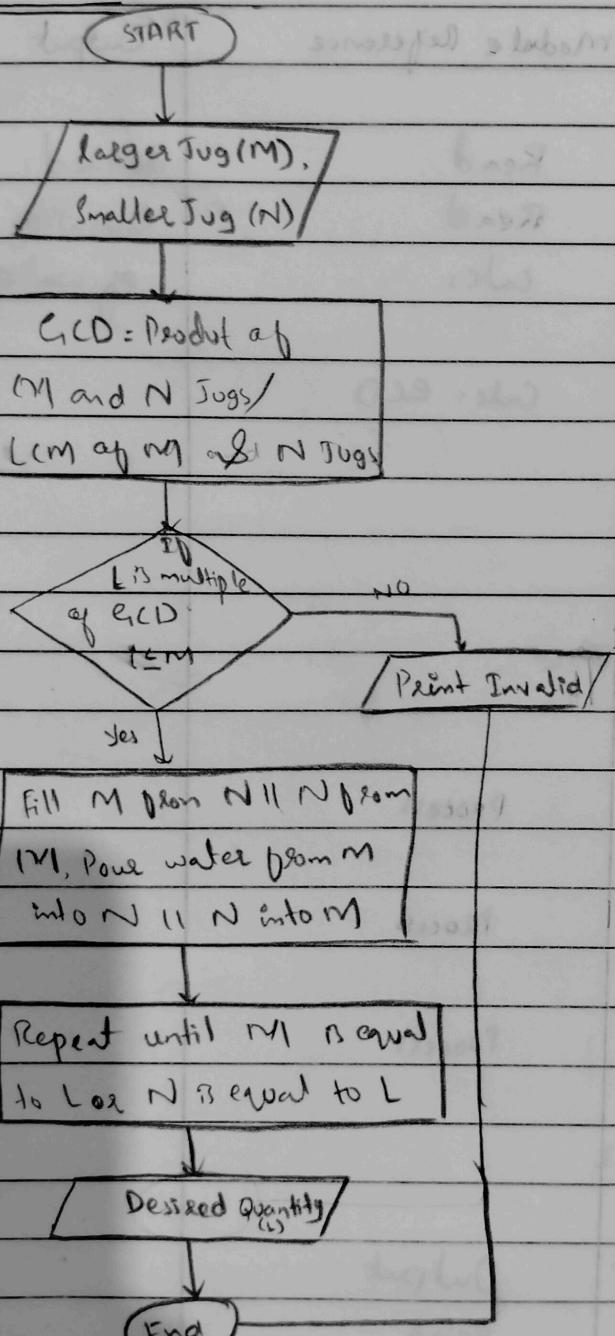
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Problem 13: The general $N-M$ size die hard jug problem.

Flowchart:



Pseudocode:

1. START

2. Input. M (larger Jug)

N (Smaller Jug)

3. Calculate GCD of M

& N Jugs

4. GCD = Product of M & N /

L.C.M of M & N

5. If L is the multiple of GCD

$L \leq M$

Then:

Fill M From N || N From M
Pour water from M into N
|| N into M

Repeat until $M = L$ || $N = L$

Else:

Print Invalid Input

6. Output desired quantity

7. Exit

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IPO Charts: ~~making pup bone sets M-n blossom set & vocabulary~~
~~handwriting~~

Input	Process	Module Reference	Output
Enter, M (larger Jug)	M	Read	desired
N (smaller Jug)	N	Read	Quantity
desired quantity (L)	Calculate ECD of M & N Jugs $ECD = \text{Product of}$ M & N Jugs/ LCM of M & N Jugs If L is the multiple of ECD . $L \leq M$ then, Fill M from N $\uparrow N$ from M Pour water from M to N $\uparrow N$ to M Repeat process until M becomes equal to L $\uparrow N$ becomes equal to L Else	Process	of water
	Print Invalid Amount	Process	
	Print Output	Process	
	End	Output	desired Quantity