Let's solve it
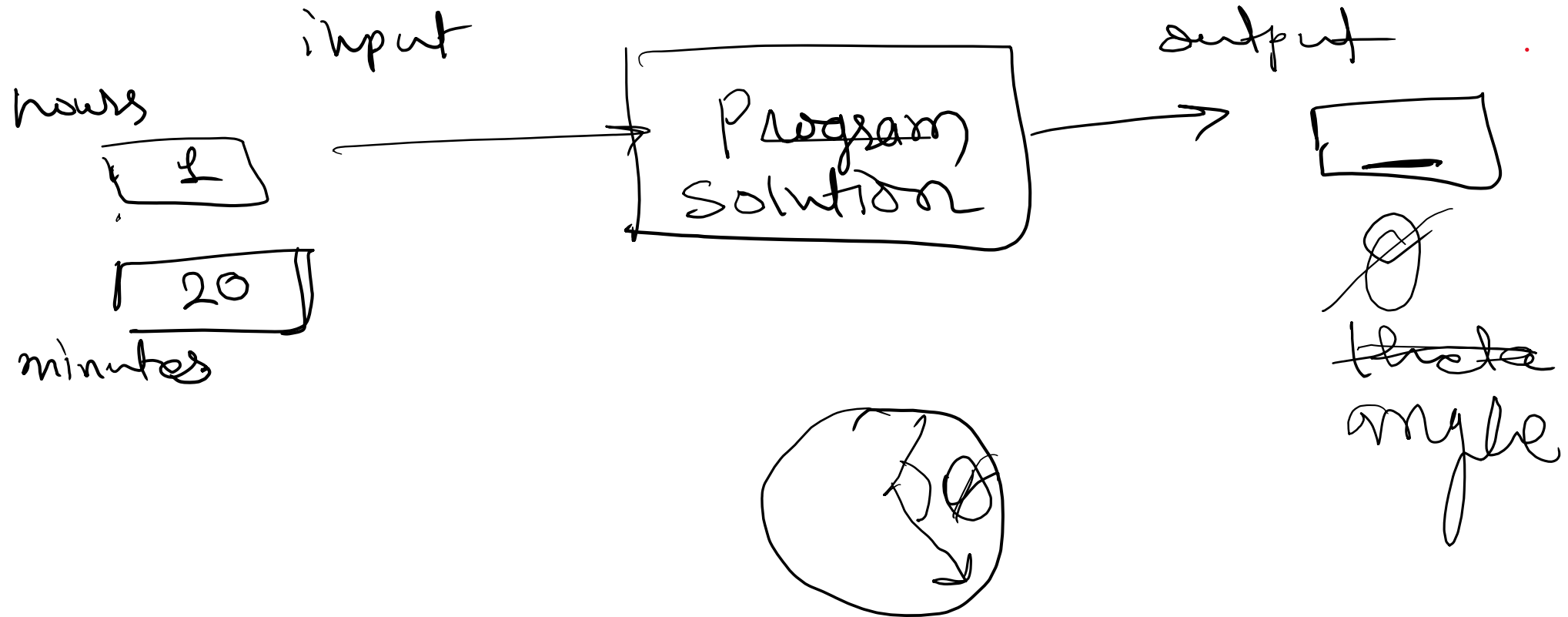
Problem Statement :

Inner Given hours & minutes find out
angle between hour hand & minute hand

input

hours

$t = 1$

20

minutes

Program
Solution

output

~~theta~~
angle

Variables:

✓ It is a memory to hold data

✓ It is going to have a name

✓ Anytime in your computer program, you give name to things is called identifier.

✓ data can be changed

✓ Type of data to store in this memory.

✓ capacity

Number Systems:

	Base	Digits
Decimal	10	0 — 9
Binary	2	0 & 1
Octal	8	0 — 7
Hexadecimal	16	0 — 9, A — F

Interpretation
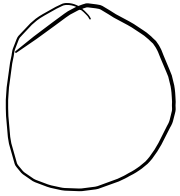
○   —— zero

           —— 2011

           ——→ circle

Ascii

Ascii Value	Characters
000	Null
1	
036	$
048	0
057	9
065	A
090	Z

96	`
097	a
122	z
127	DEL

Decimal Number Systems

memory

1

0 ⟵ Bit

7	6	5	4	3	2	1	0
1	1	1	1	1	1	1	1
1	2	3	4	5	6	7	8

1 Byte = 8 bits

1   2^7

2^1 2^0 ⟵---- 7   0

B1 B2

1	0
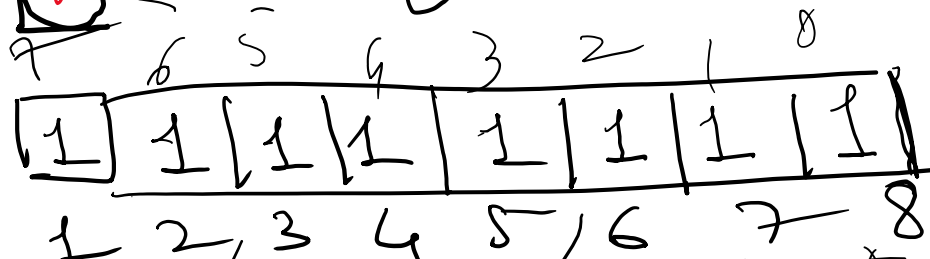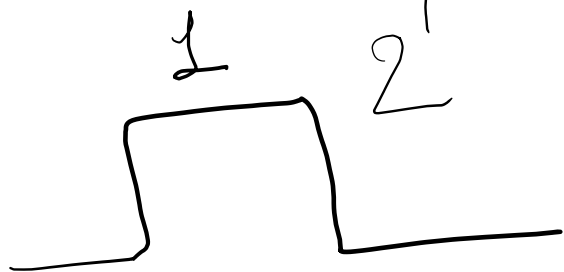
2^1 2^0

$1*2 + 0*2^0$

$= 2 + 0 = 2$

$2^7 + \ldots + (4 \times 1) + (2 \times 1) + 1$

$= 128 + 64 + 32 + \ldots + 1 = 255$

Decimal to Binary

2	97_{10}	1
2	48	0
2	24	0
2	12	0
2	6	0
2	3	1
	1	

$(1 1 0 0 0 0 1)_2$

$2^6 \ 2^5 \ 2^4 \ 2^3 \ 2^2 \ 2^1 \ 2^0$

$64 \ 32 \ \ldots \ + 1$

$\Rightarrow 97$

(0110001) memory content can be interpreted as $(97)_{10}$ as well as $(a)_{Ascii}$.