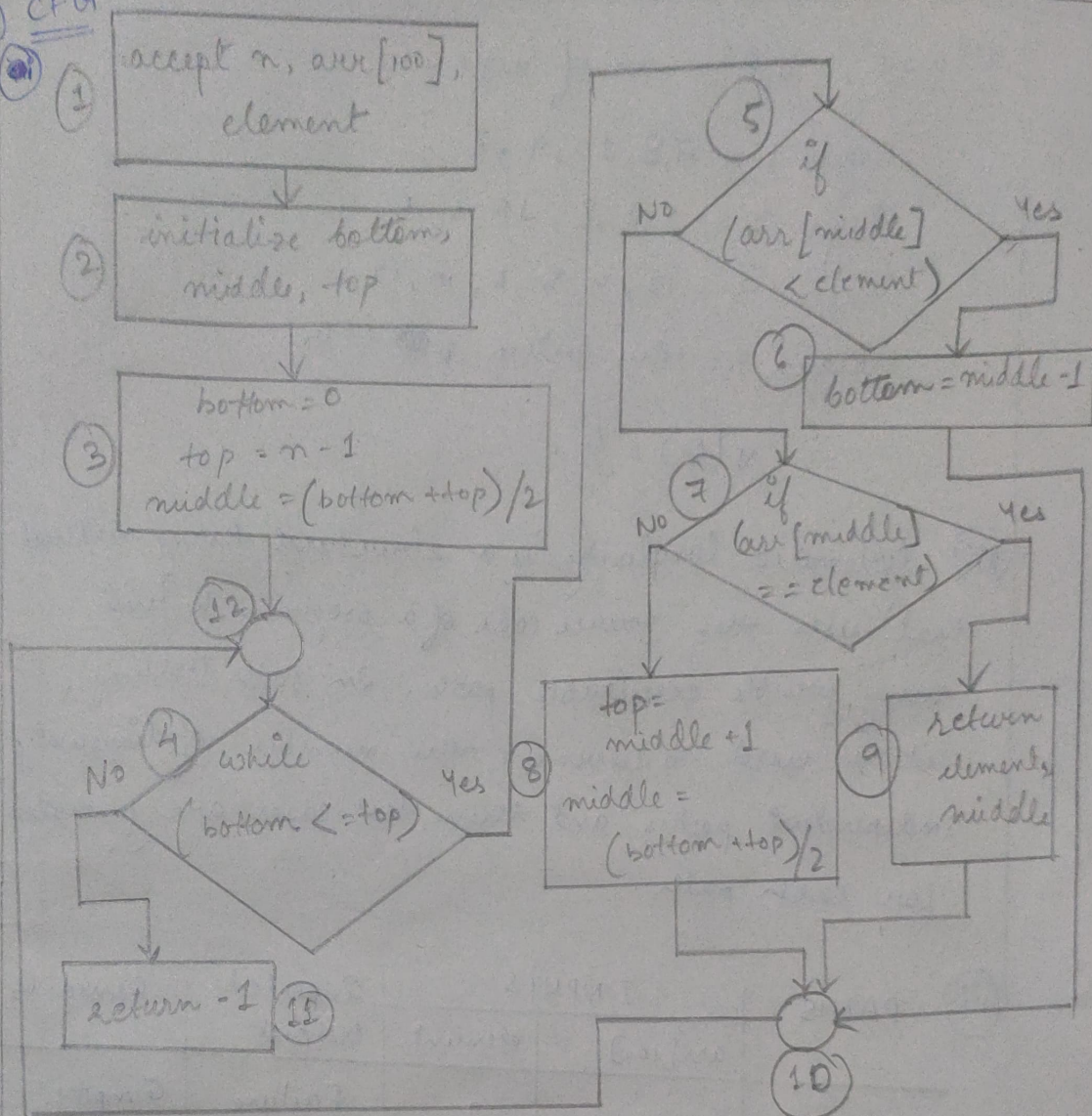


① CFM



Cyclomatic complexity :-

1st way :- $V(G) = e - n + 2P$

where, $e \rightarrow$ edges

$n \rightarrow$ nodes

$P \rightarrow$ connected components (For a single program, $P=1$)

Here, $e = 14$, $n = 12$, $P = 1$

$$\therefore V(G) = 14 - 12 + 2(1) \\ = 2 + 2 = 4$$

2nd way, $V(G) = \pi + 1$, where π is the no. of predicate nodes

Here, we have three conditions.

So, $\pi = 3 \therefore V(G) = 3 + 1 = 4$.

3rd way, $V(G) = \text{no. of regions}$

Region 1 = 7, 8, 10, 9, 7

Region 2 = 5, 7, 8, 10, 6, 5

Region 3 = 12, 4, 5, 6, 10, 12

Region 4 = the entire ~~P~~ CFG

$\therefore V(G) = 4$

(8.11) Cyclomatic Complexity is a structural testing method that uses the source code of a program to find every possible executable path. In Path Testing, it is used to determine the number of linearly independent paths and then test cases are generated for each path.

PATHS	INPUTS		Expected Output	Remarks
	arr[100]	element		
Path 1: 1-2-3-12-4-11	Empty	2	Failure	Empty list
Path 1: 1-2-3-12-4-11	[1, 2, 3, 4, 5]	6	Failure	Element not in arr[100]
Path 2: 1-2-3-12-4-5-6-10	[1, 2, 3, 4, 5]	4	Repeat and Success	Element in arr[100]
Path 3: 1-2-3-12-4-5-7-8-10	[1, 2, 3, 4, 5]	2	Repeat and Success	Element in arr[100]
Path 4: 1-2-3-12-4-5-7-9-10	[1, 2, 3, 4, 5]	3	Success	Element in arr[100]