ADAMAS UNIVERSITY

ASSIGNMENT'S TOPIC

(FLOWCHART & ALGORITHM)

GUIDED BY :- ABHINANDAN GHOSH

NAME :- Sibsankar Maity

ROLL NO.:- UG/04/BTCSE/2025/098

REG NO. :- AU/2025/000107

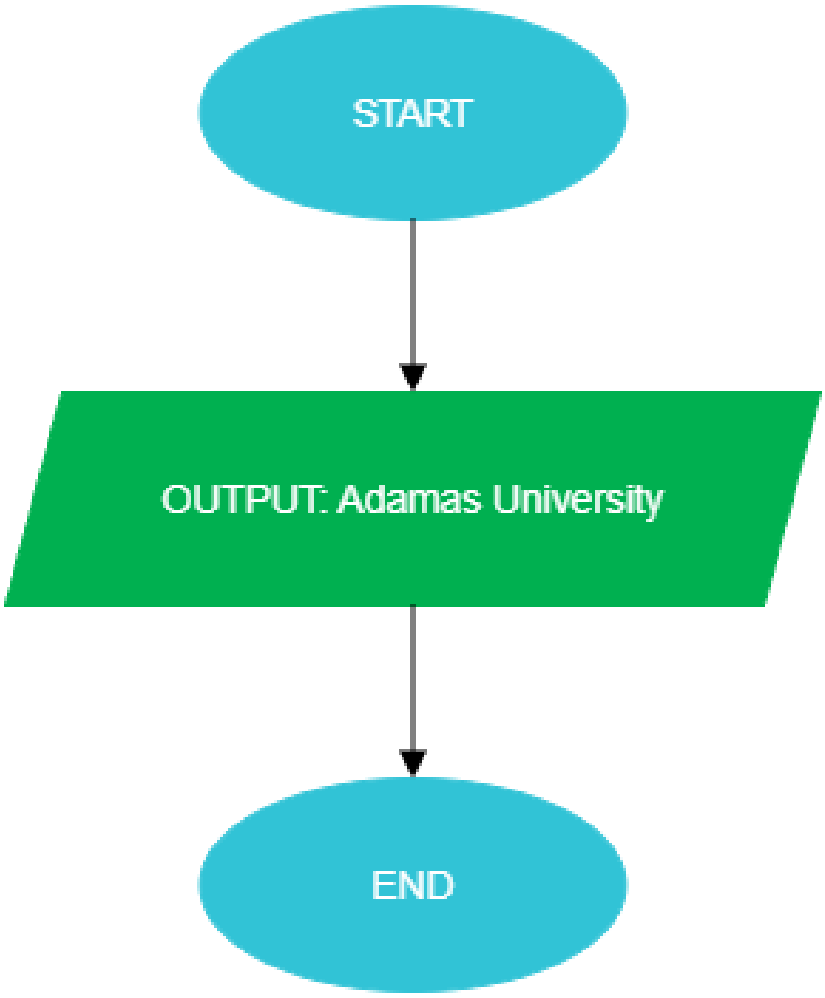
SUBJECT :- INTRODUCTION TO PROGRAMMING

SUBJECT CODE :- CSE11001

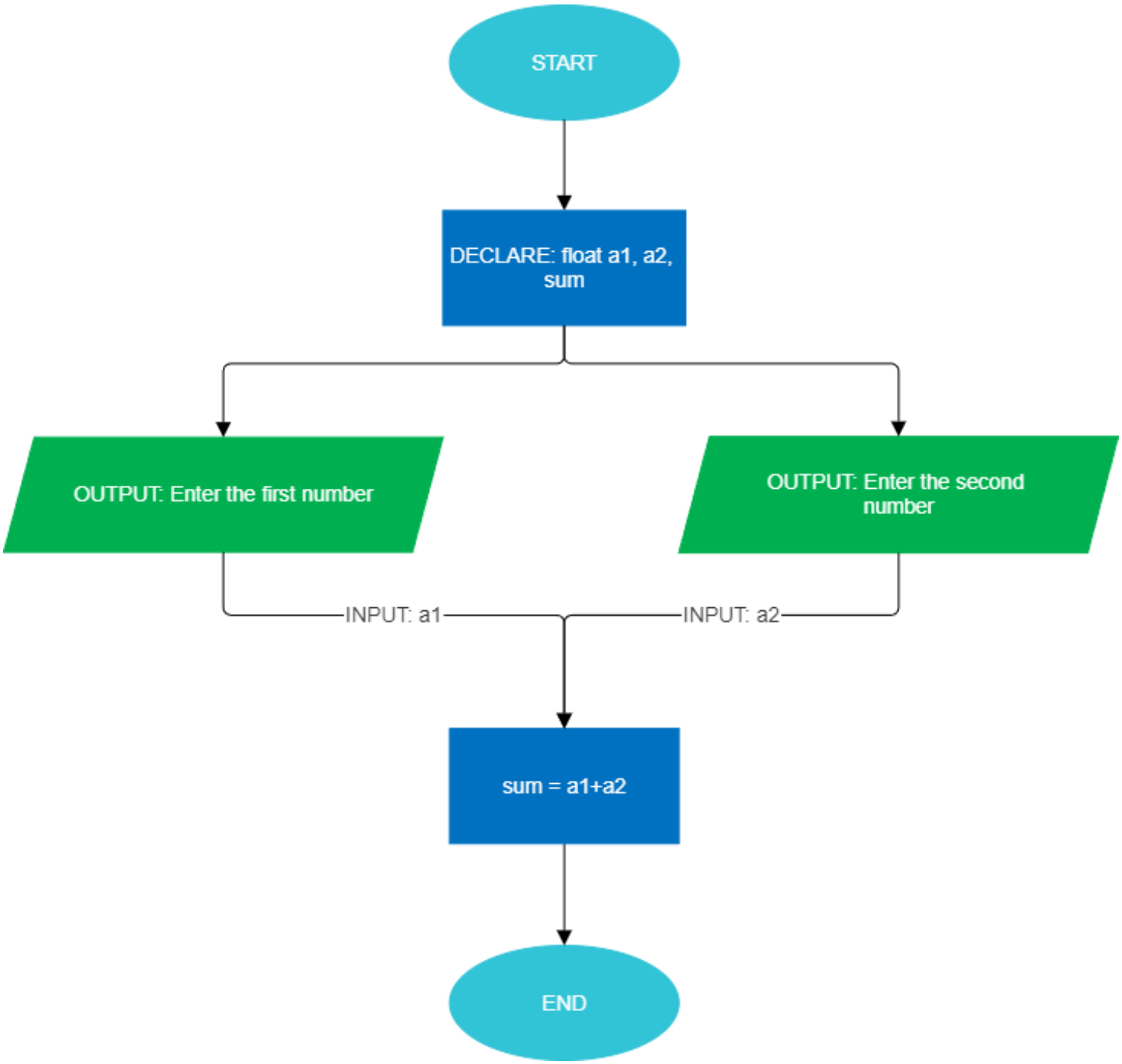
PROGRAM:- B.TECH (CORE)

SEC :- B

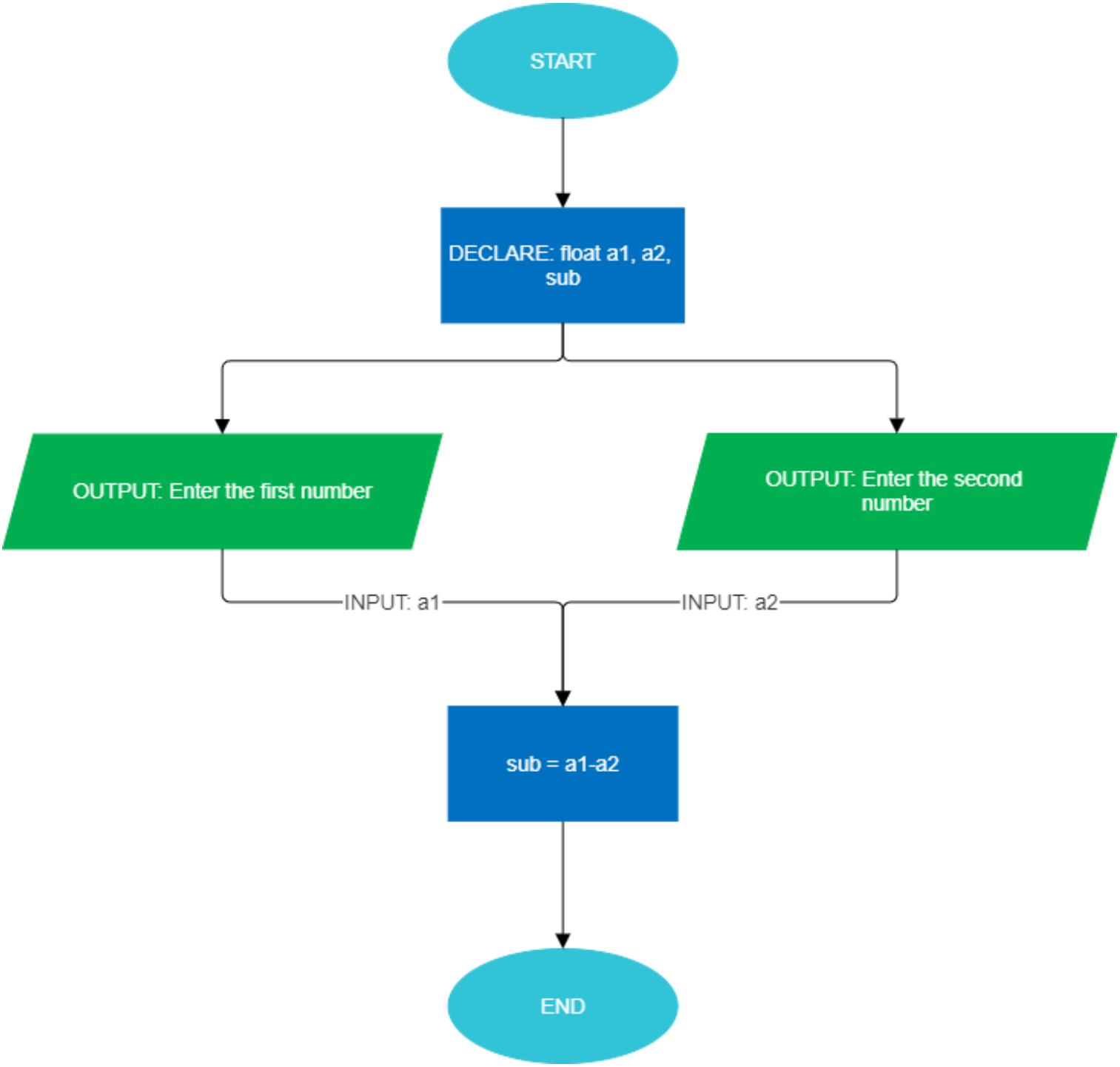
1. WAP in C to print Adamas University.



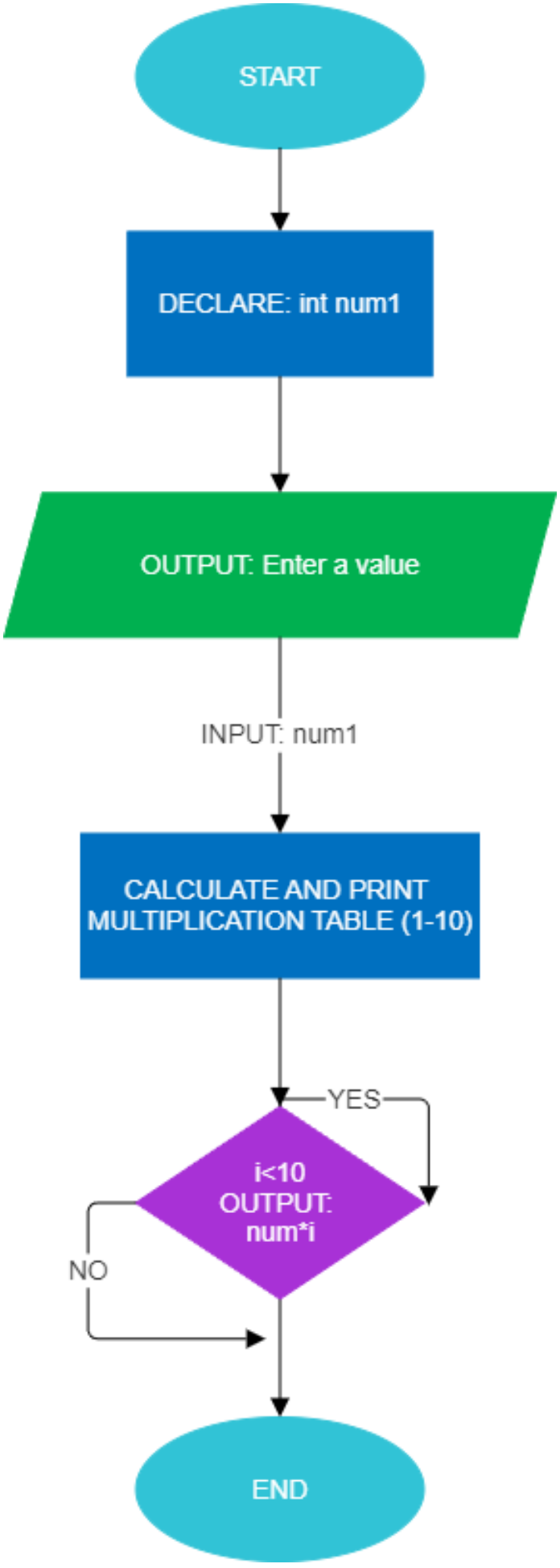
2. WAP in C to add two float numbers that have been given by the user.



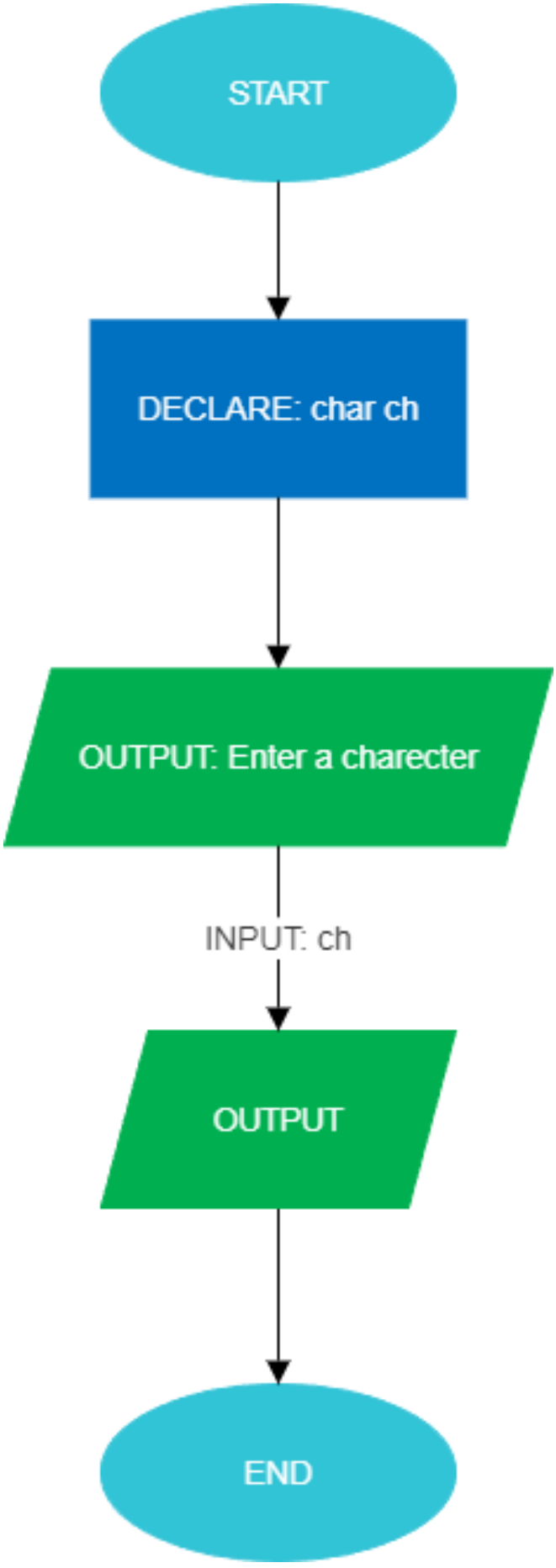
3. WAP in C to substract two float numbers that have been given by the user .



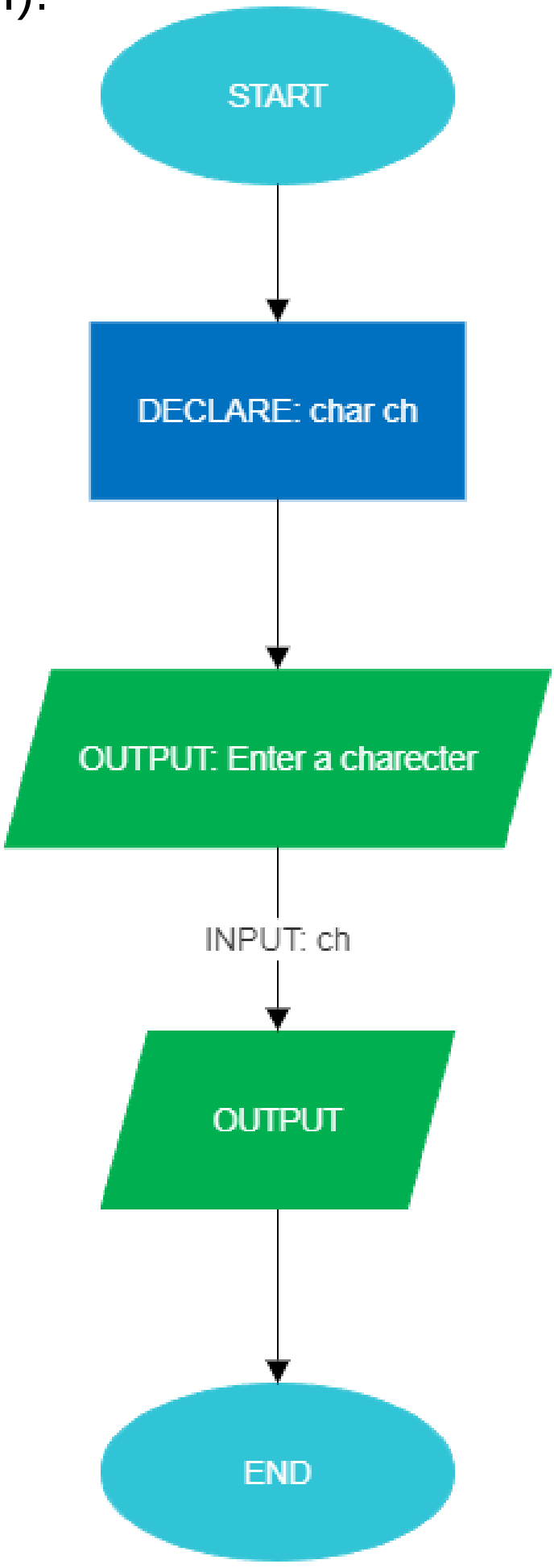
4. WAP in C to print the multiplication table without using loop.



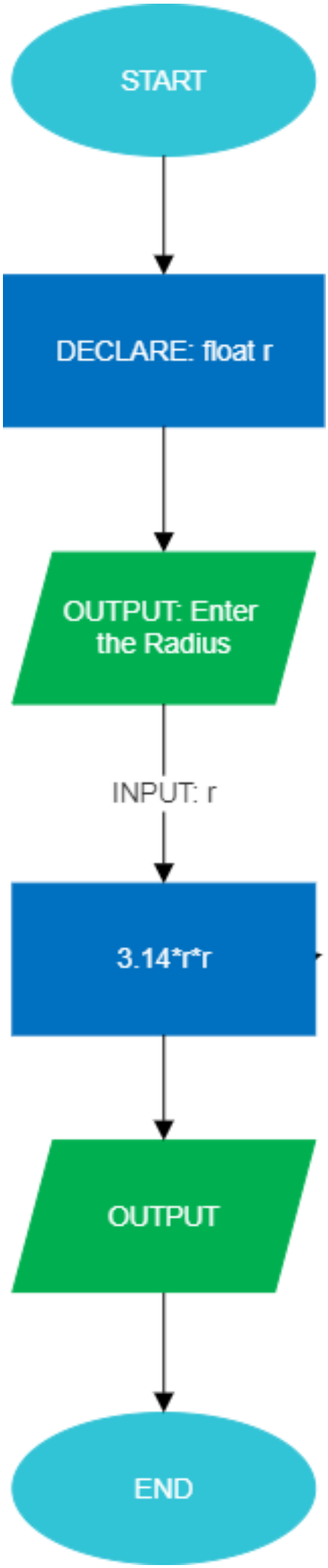
5. WAP in C to find out the ASCII value of a character taken from the user.



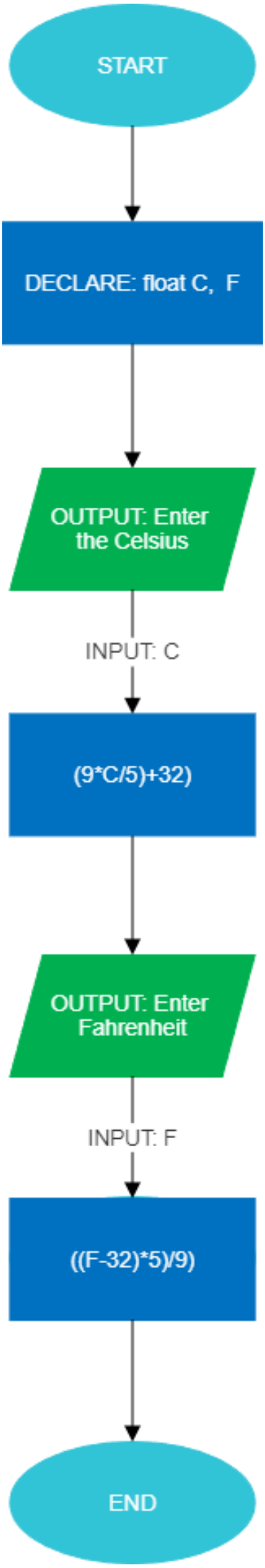
6. WAP in C to calculate the Simple Interest (S.I).



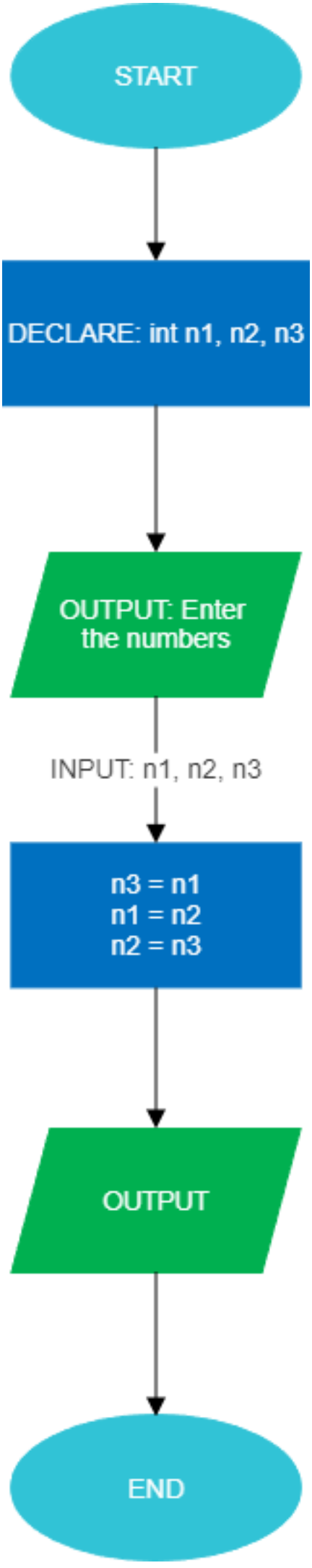
7. WAP in C to calculate the area of the circle.



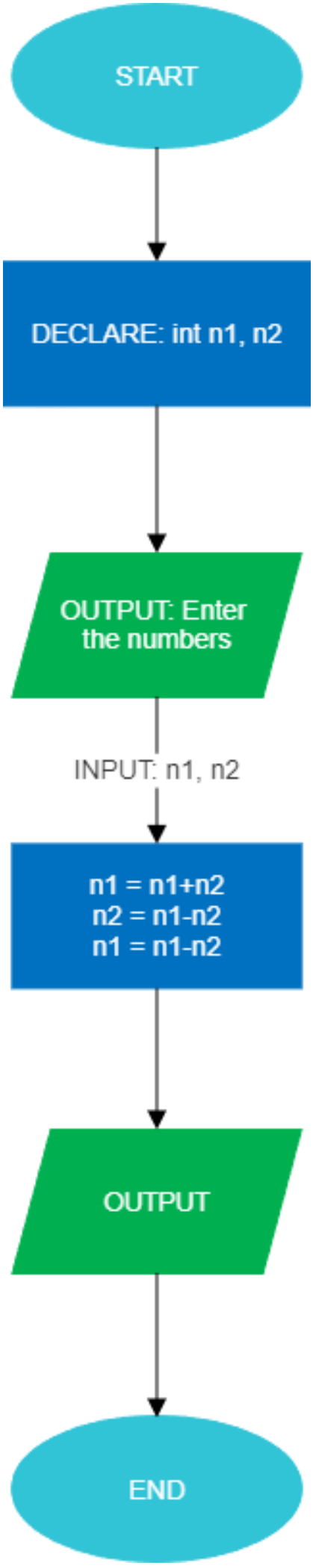
8. WAP in C which will connect °F to °C and vice-versa.



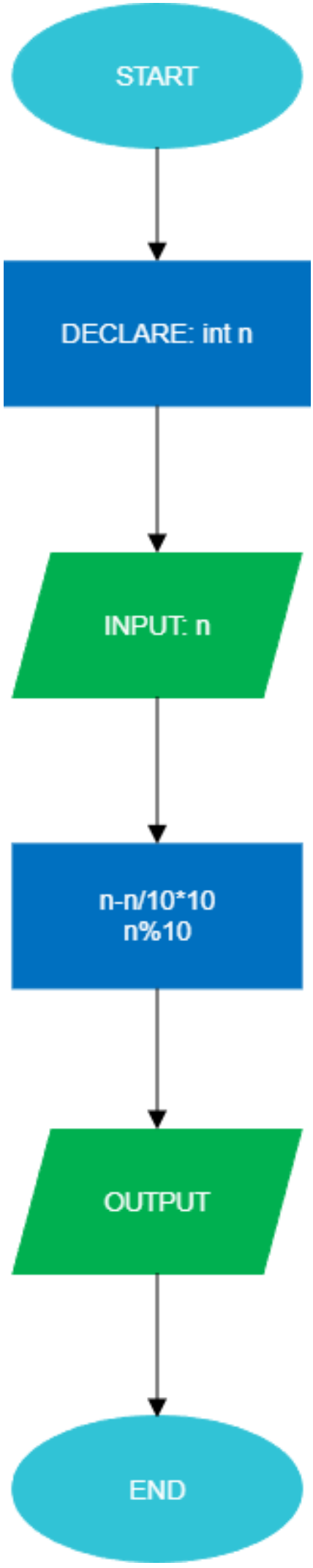
9. WACP to swap 2 numbers using a 3rd variable.



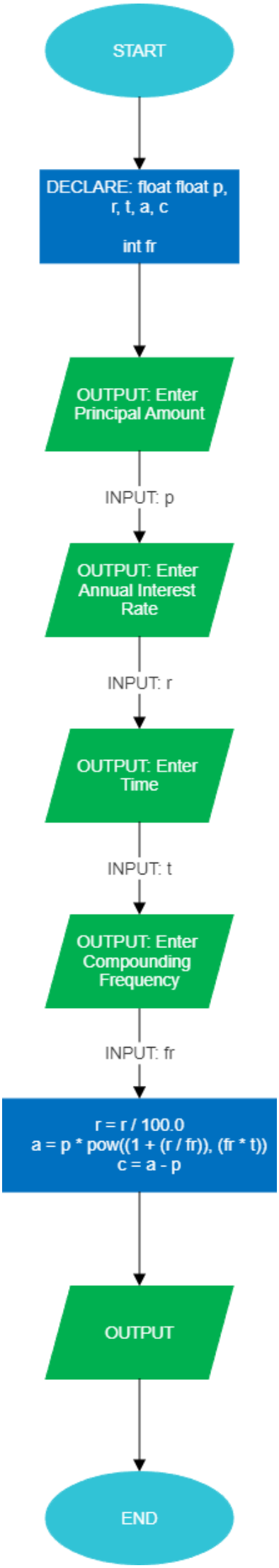
10. WACP to swap 2 numbers without using 3rd variable.



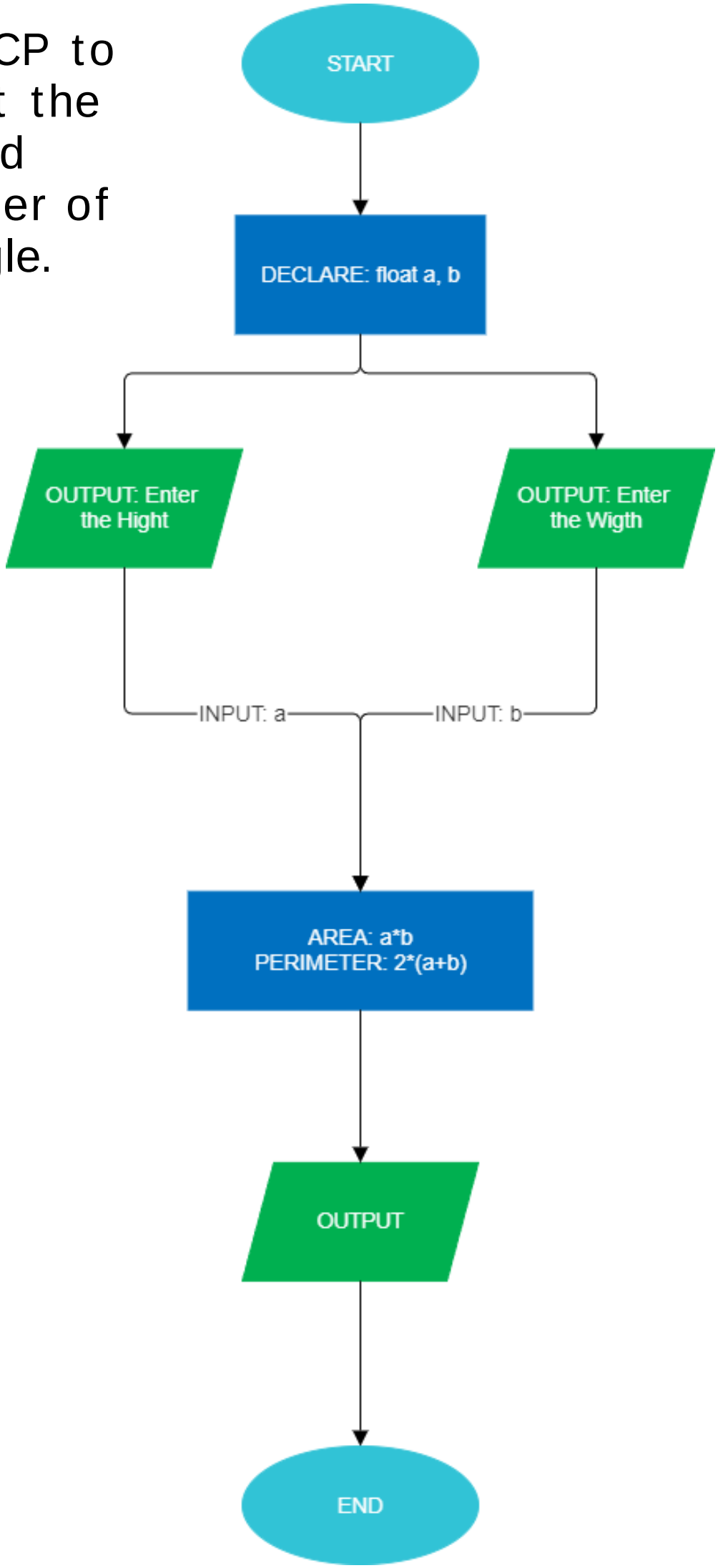
11. WACP to find the last digit of an integer using modulus operator and without using operator.



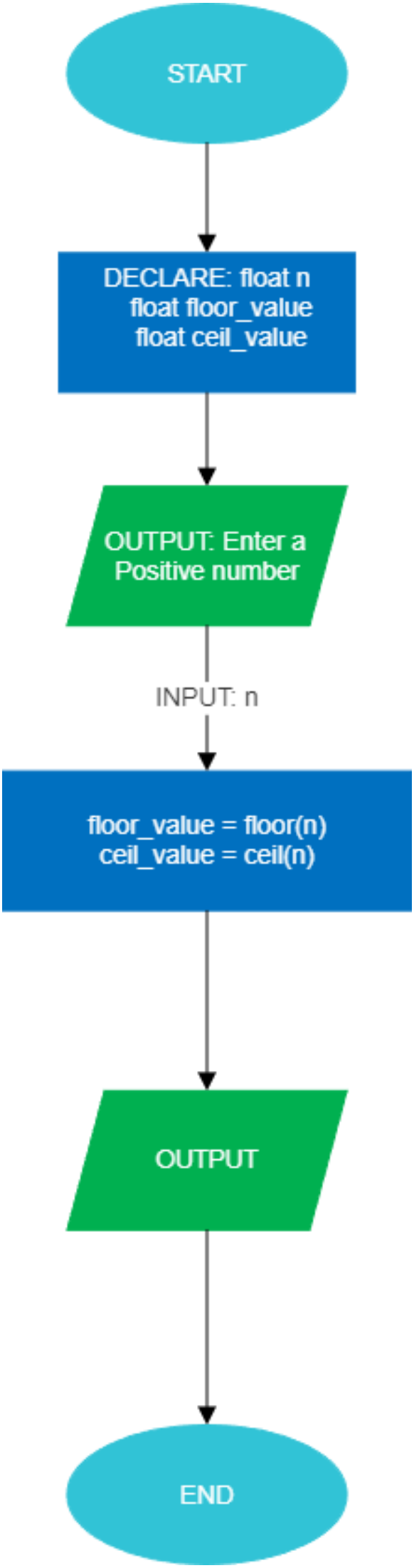
12. WACP to calculate the Compound Interest (C.I).



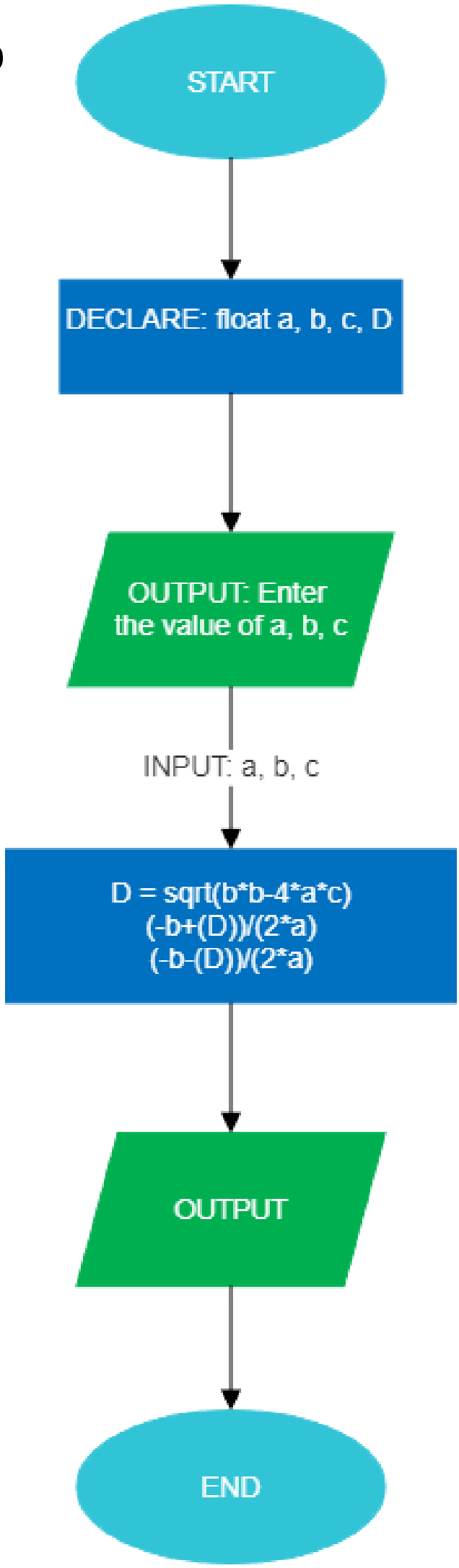
13. WACP to find out the area and perimeter of rectangle.



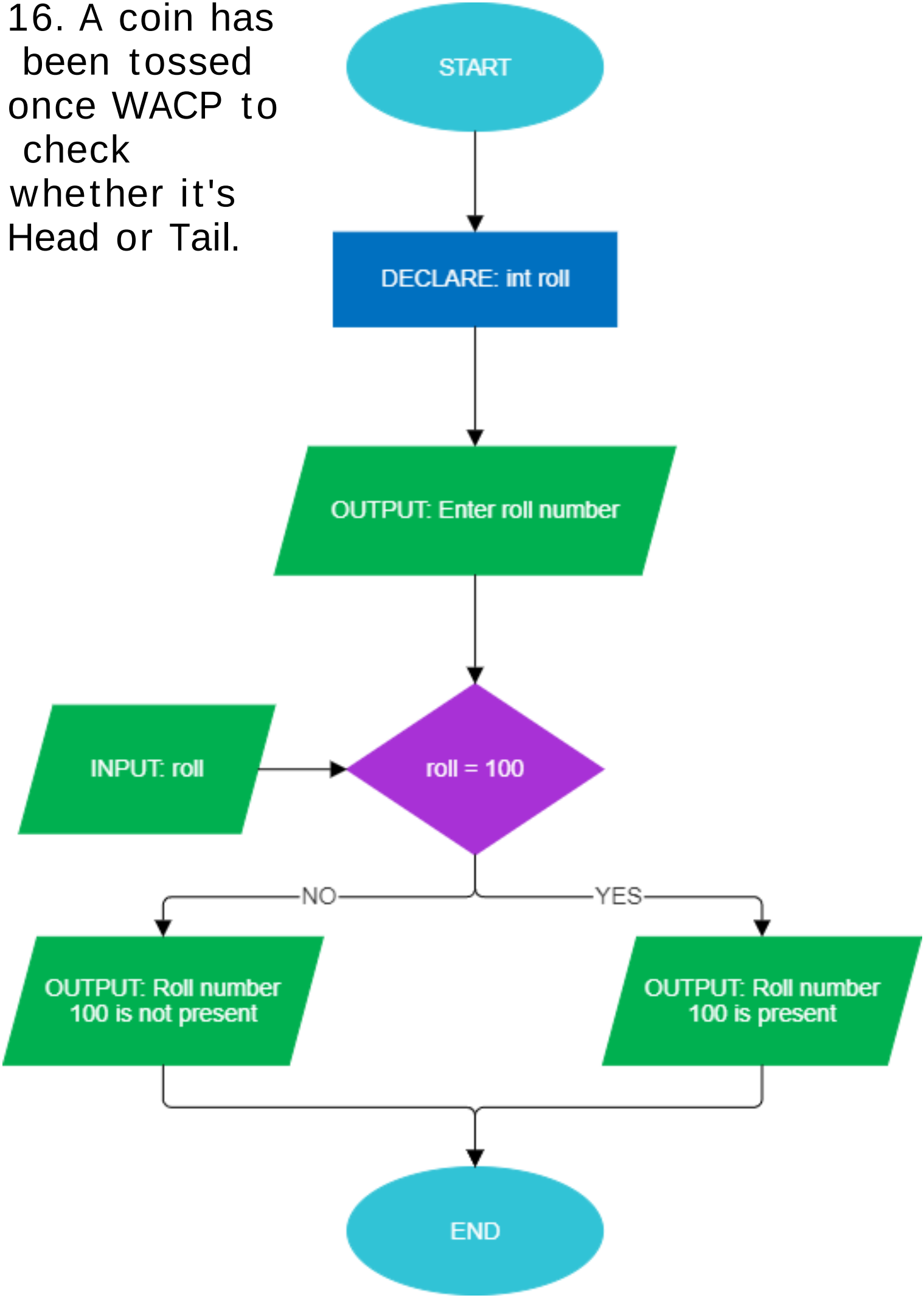
14. WACP to print the floor and ceiling value of a positive and negative number.



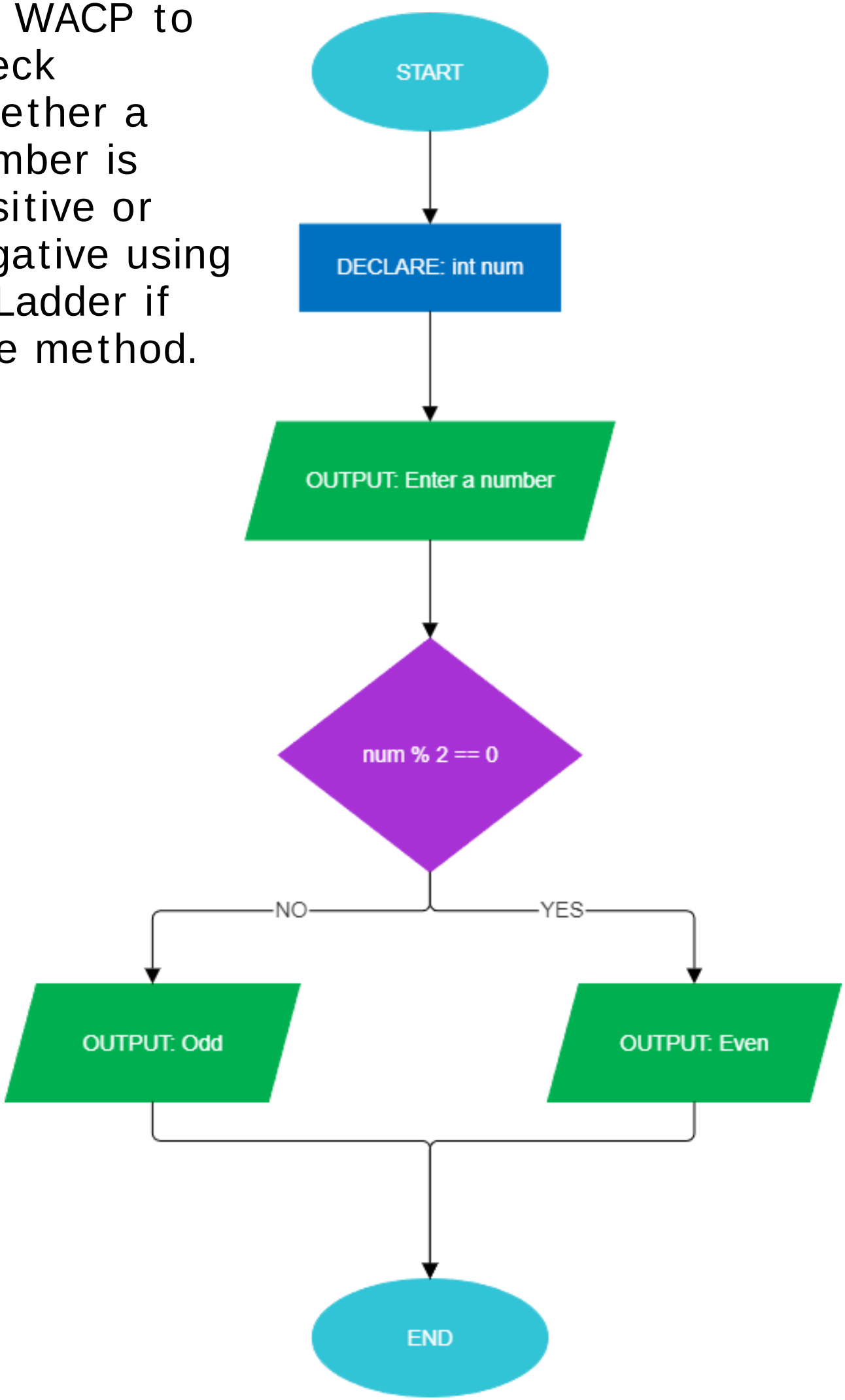
15. WACP to find out the roots of an quadratic equation.



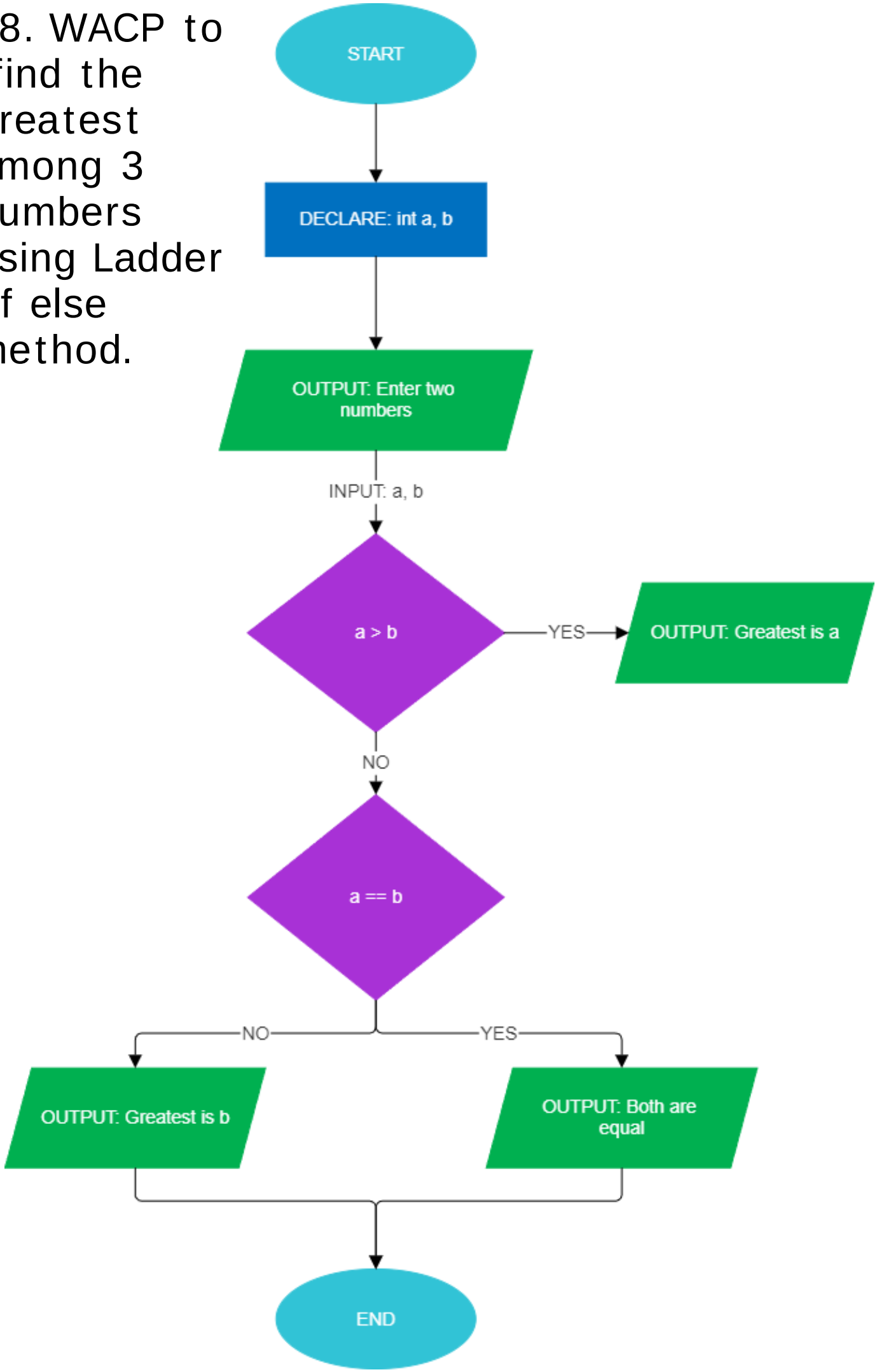
16. A coin has been tossed once WACP to check whether it's Head or Tail.



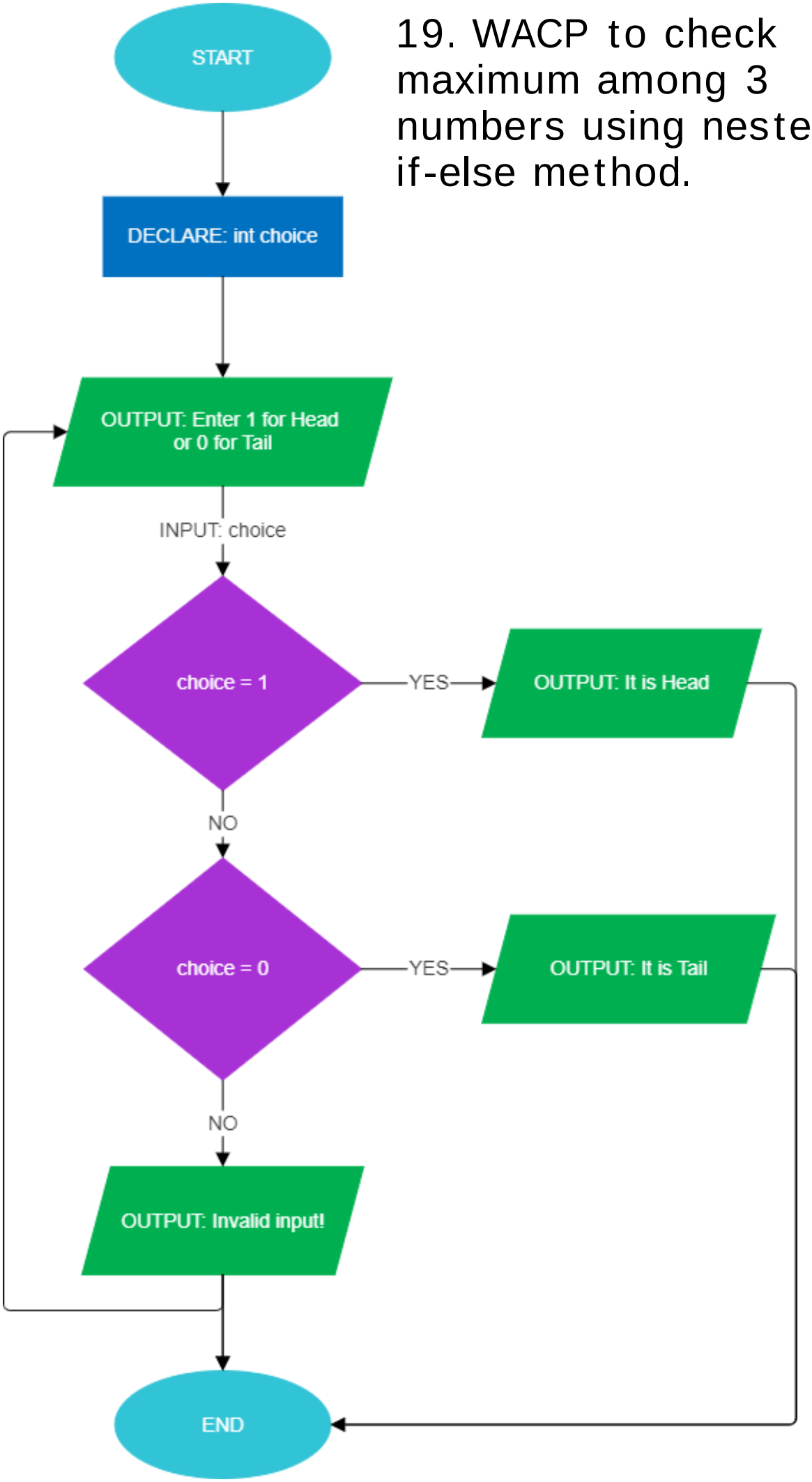
17. WACP to check whether a number is positive or negative using a Ladder if else method.



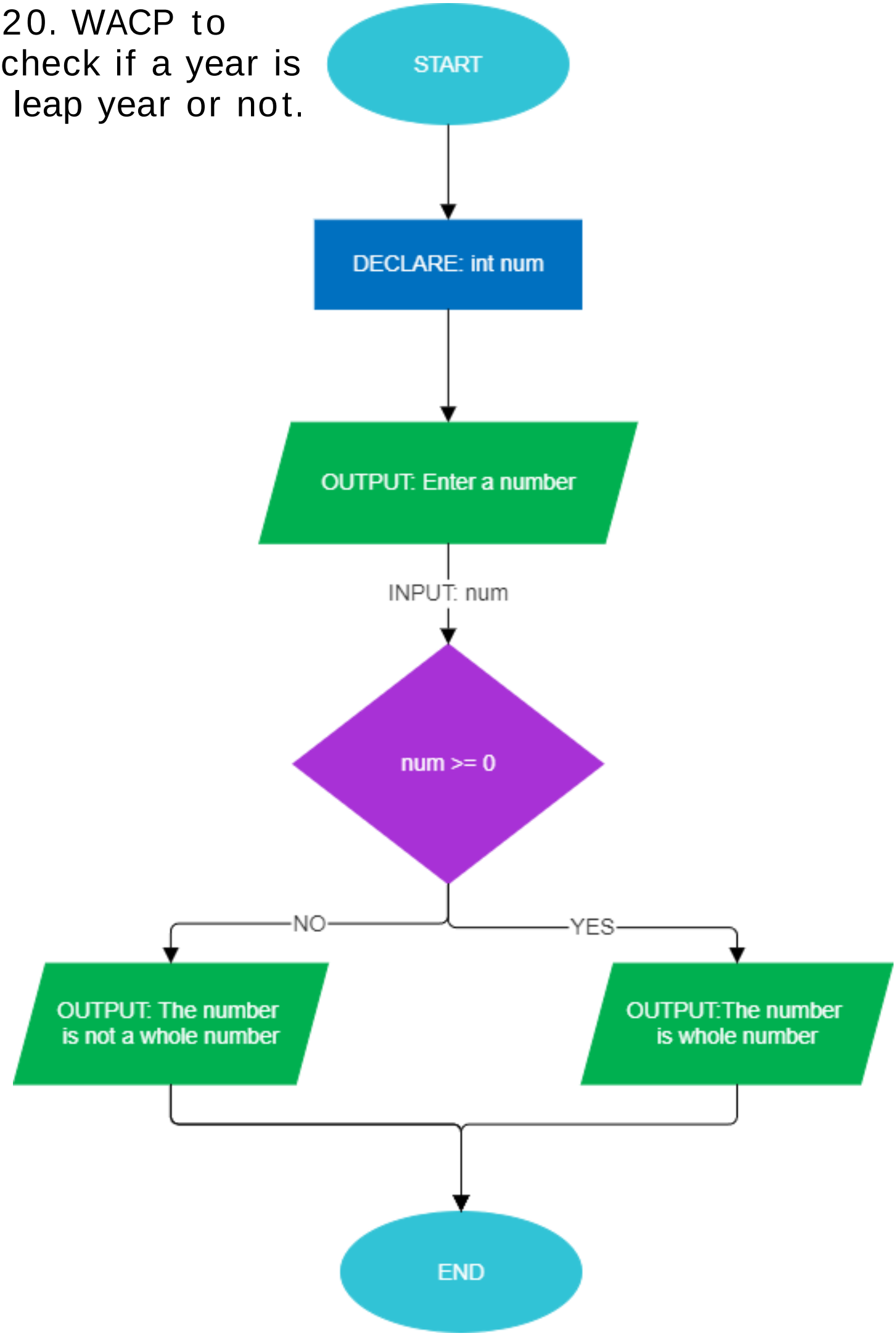
18. WACP to find the greatest among 3 numbers using Ladder if else method.



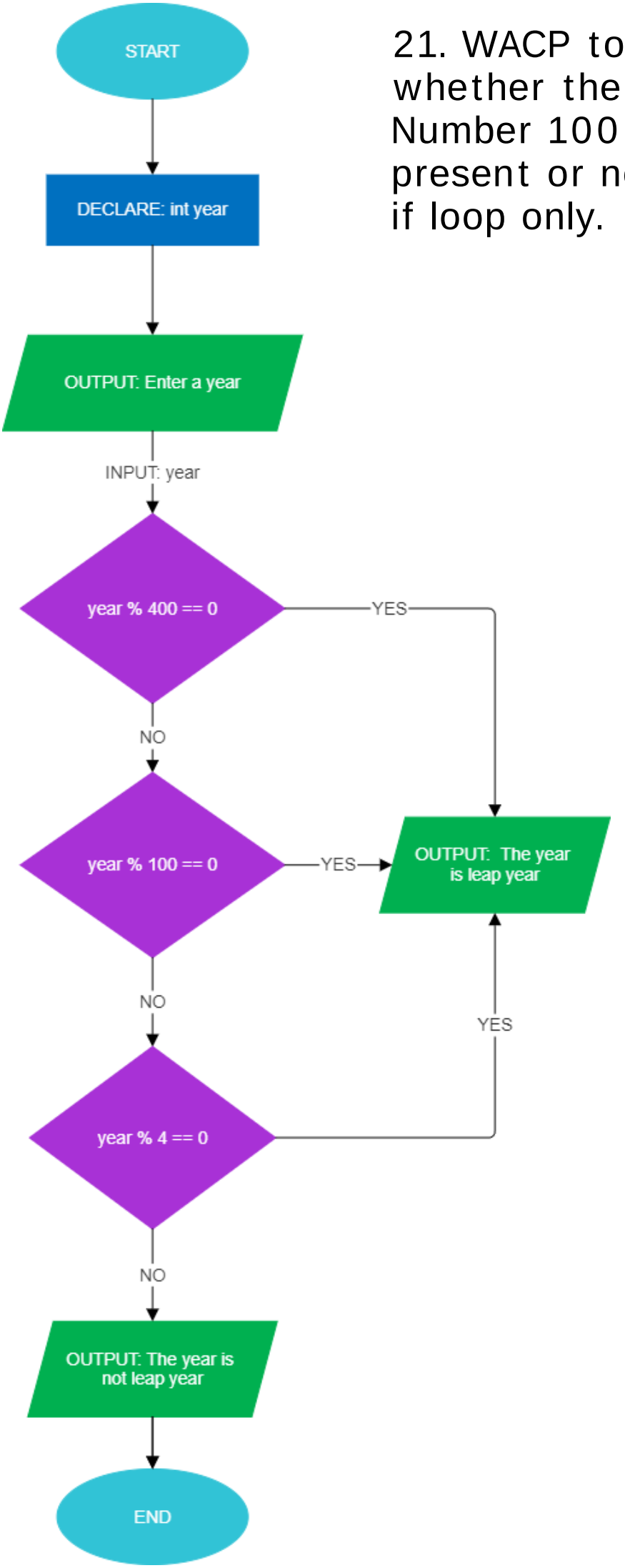
19. WACP to check maximum among 3 numbers using nested if-else method.



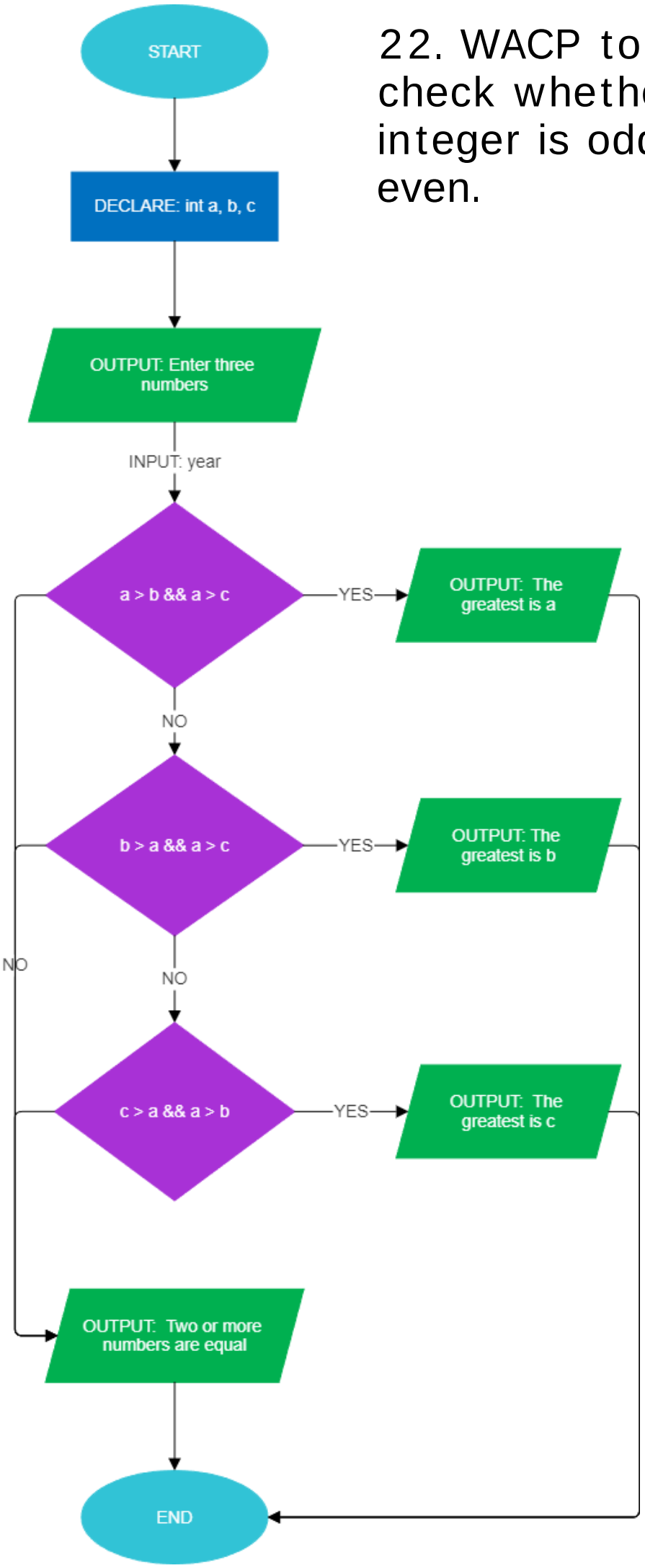
20. WACP to check if a year is leap year or not.



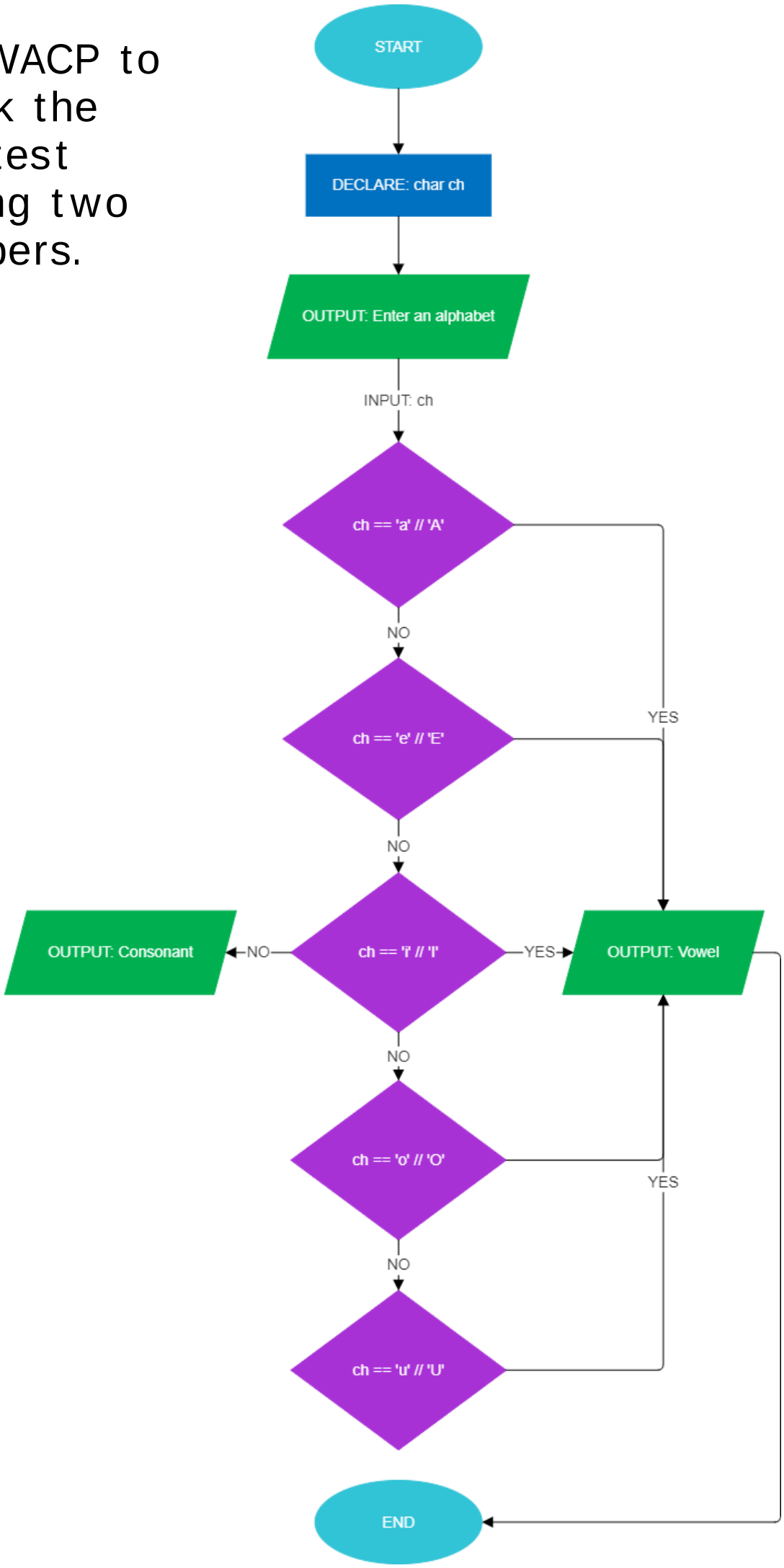
21. WACP to check whether the Roll Number 100 is present or not using if loop only.



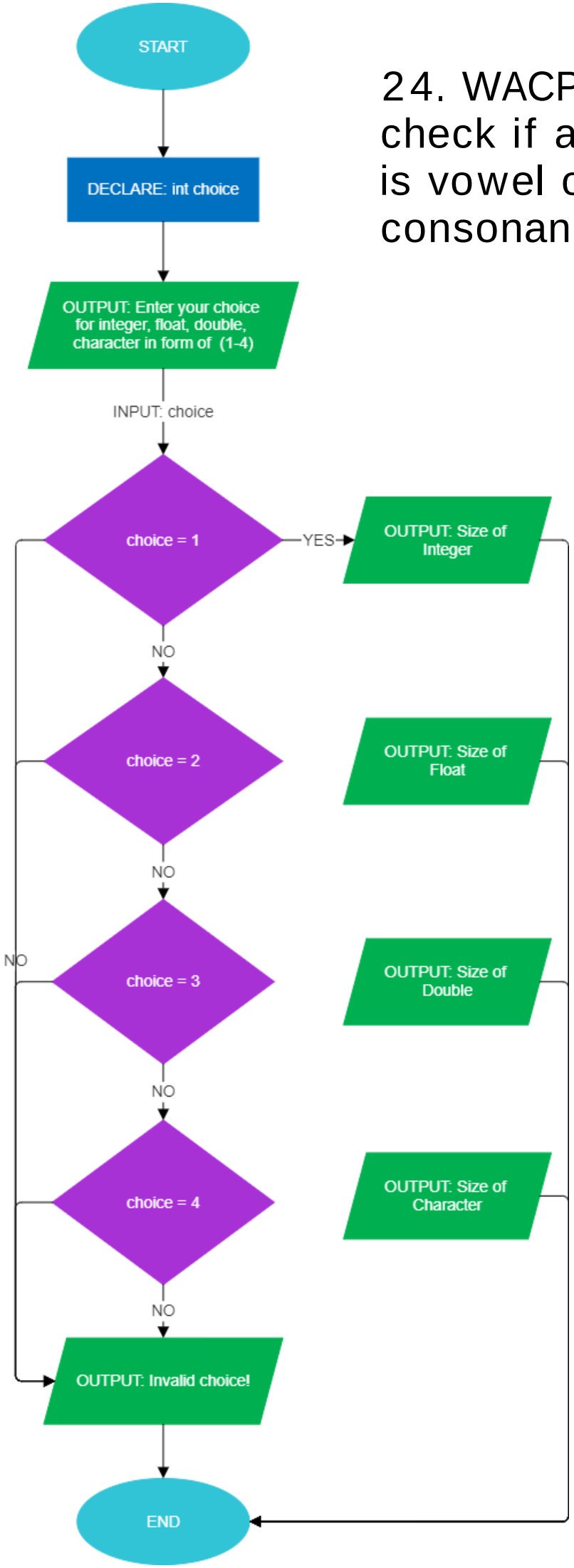
22. WACP to check whether an integer is odd or even.



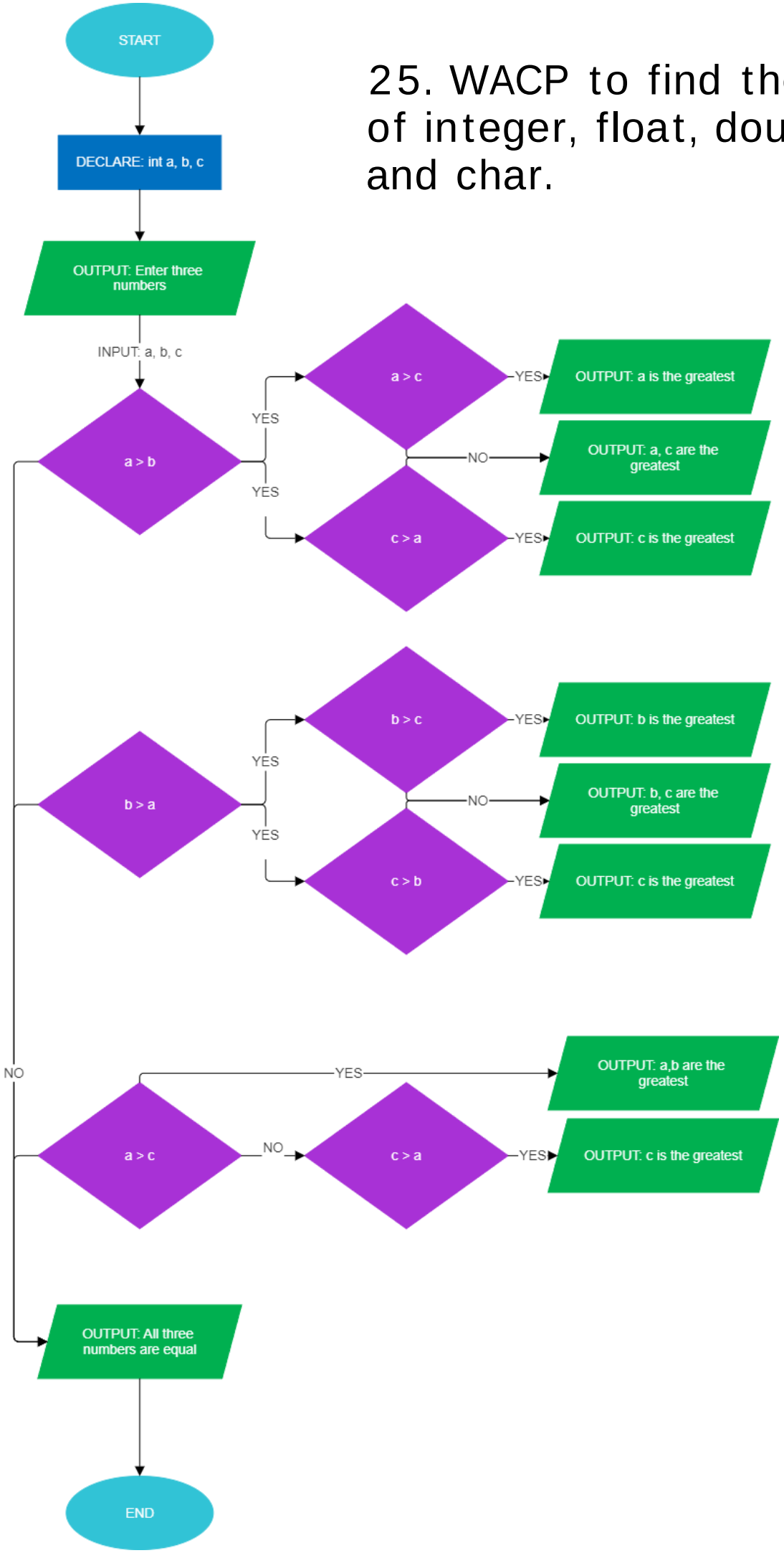
23. WACP to check the greatest among two numbers.



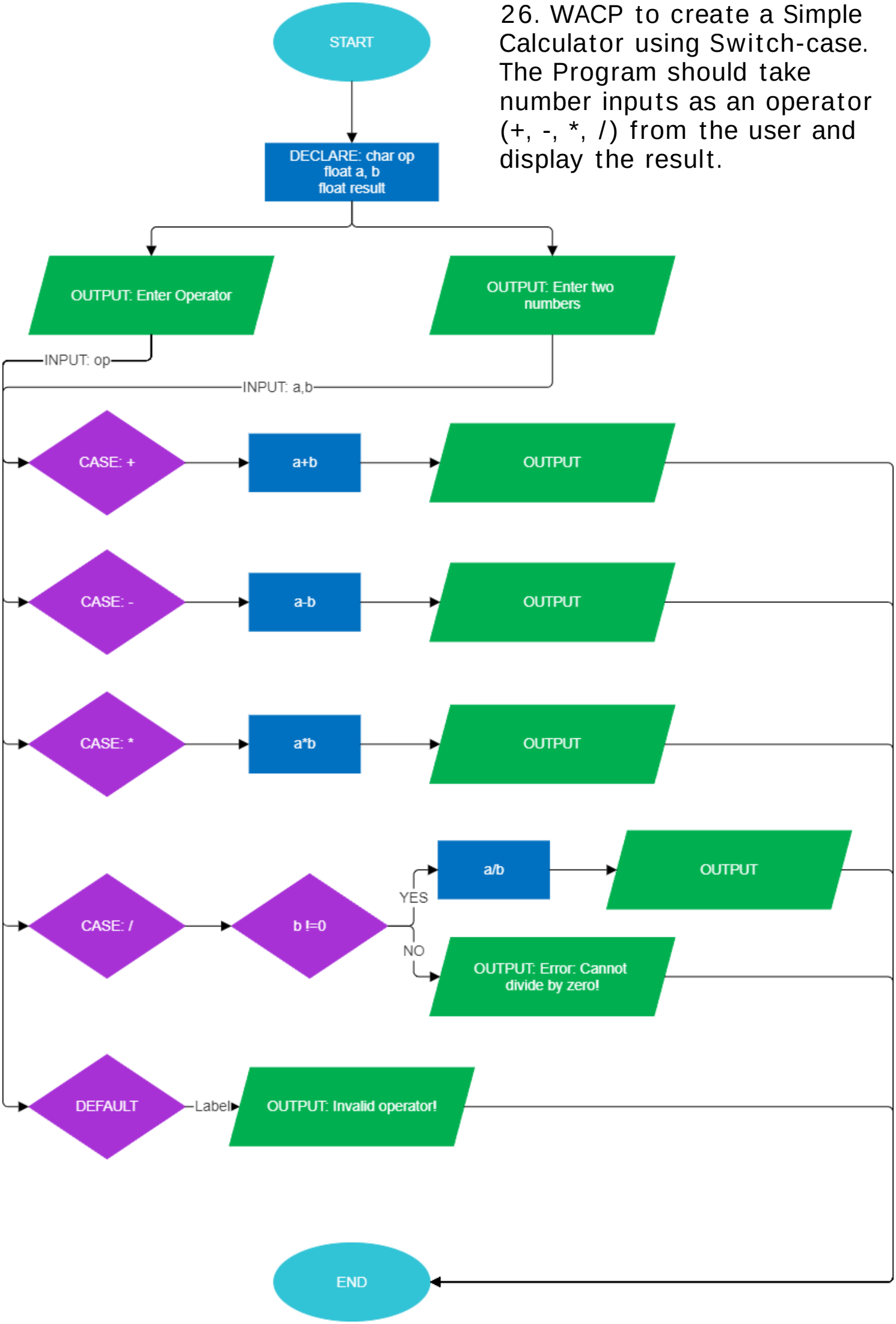
24. WACP to check if a letter is vowel or consonant.



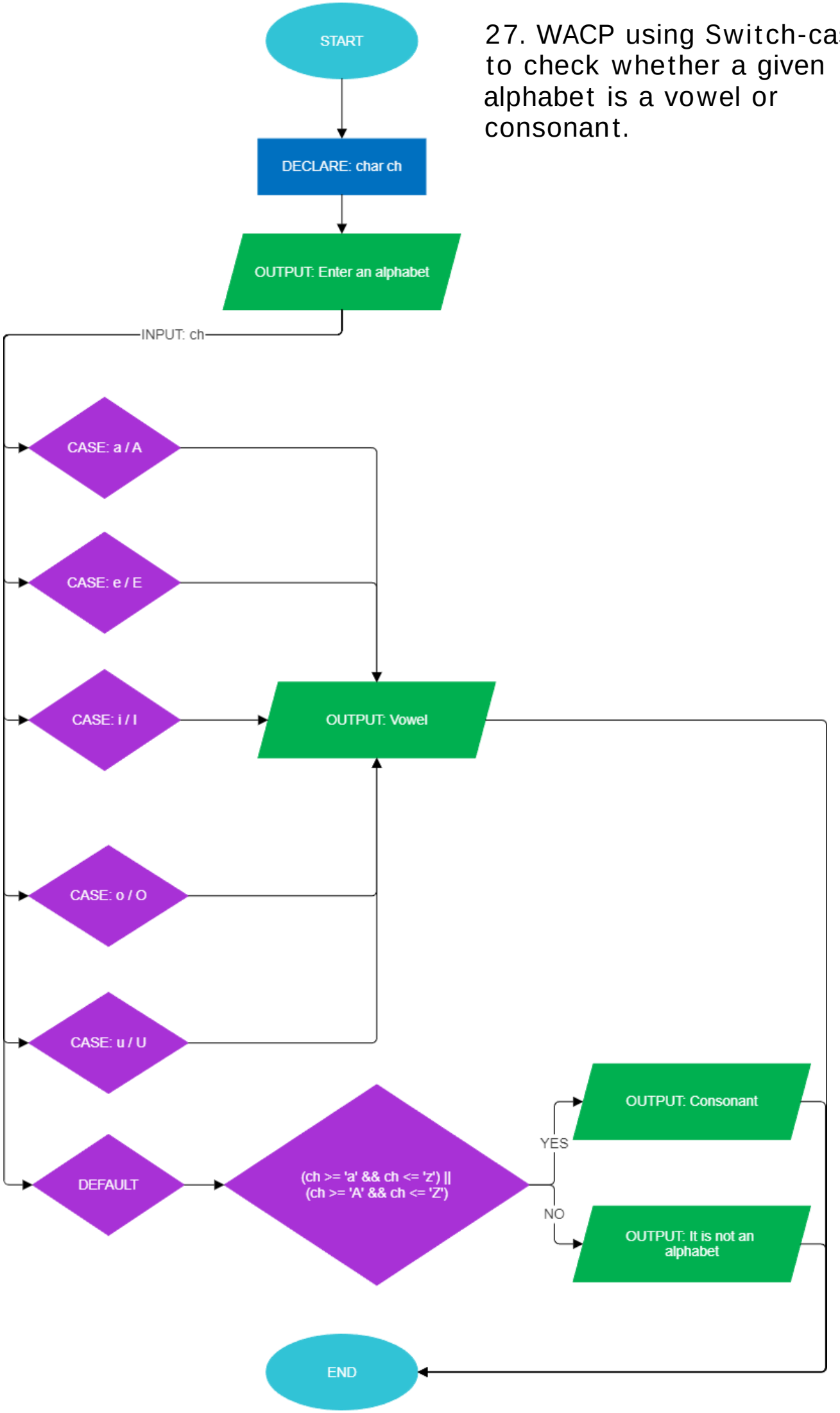
25. WACP to find the size of integer, float, double and char.



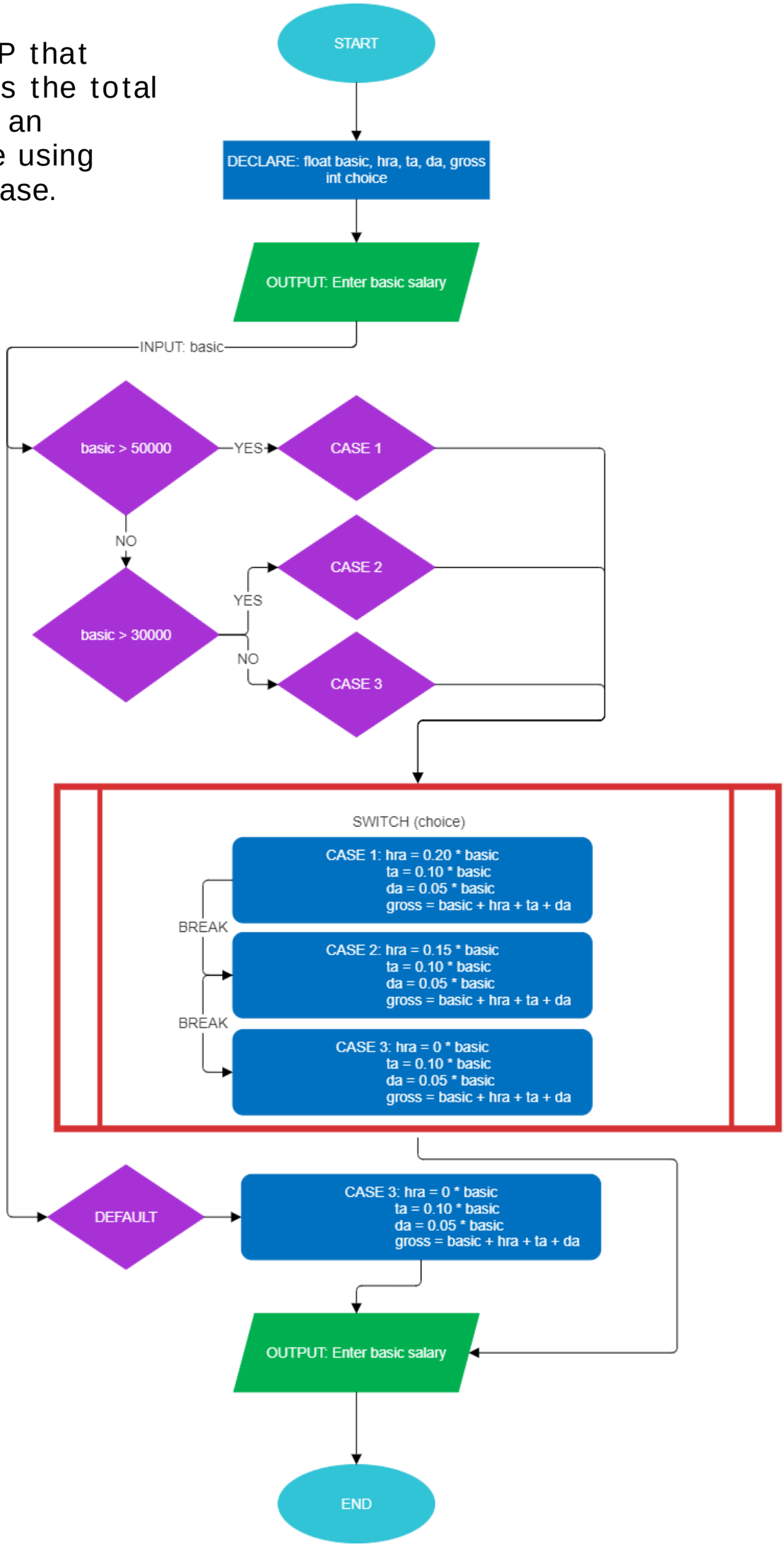
26. WACP to create a Simple Calculator using Switch-case. The Program should take number inputs as an operator (+, -, *, /) from the user and display the result.



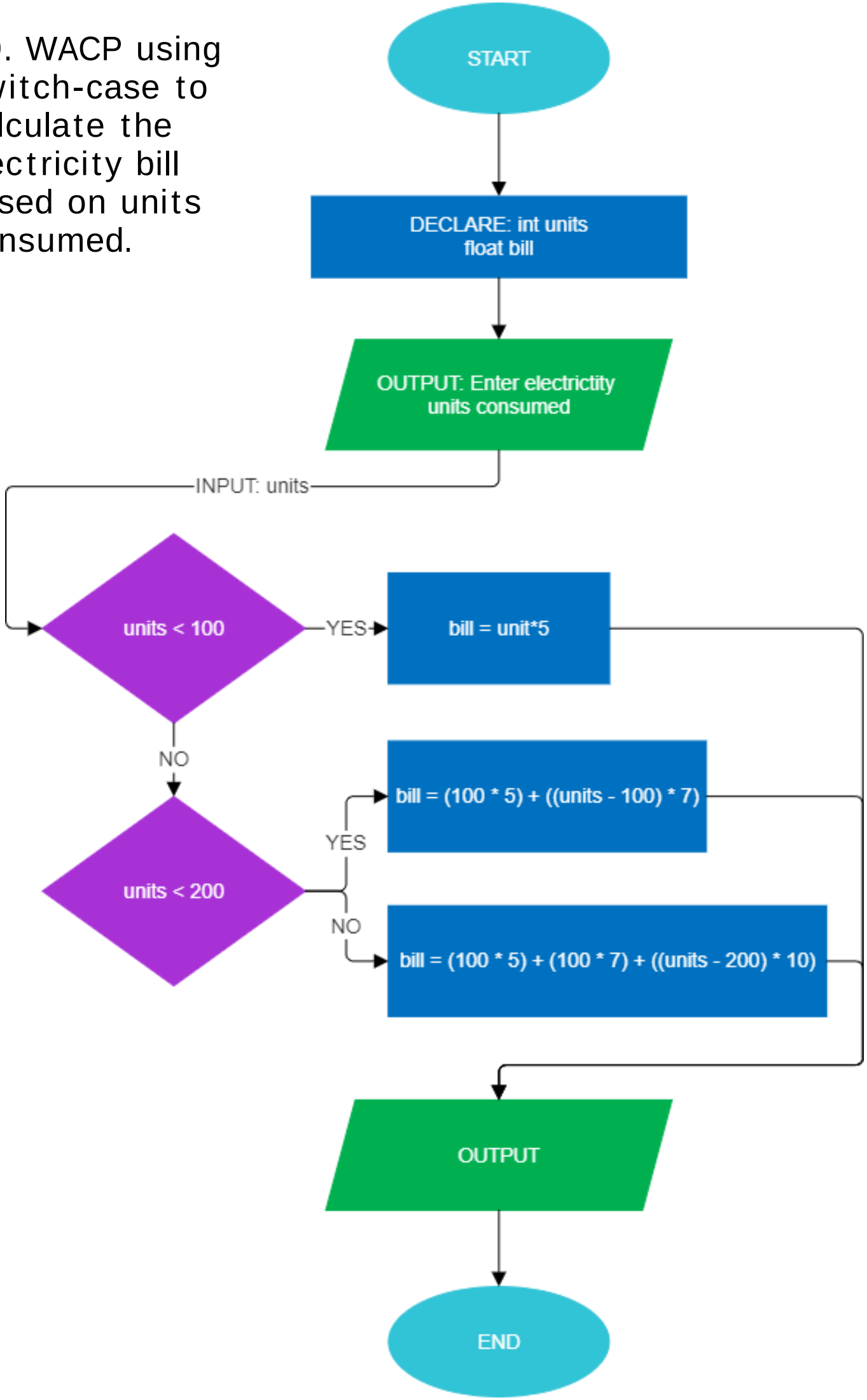
27. WACP using Switch-case to check whether a given alphabet is a vowel or consonant.



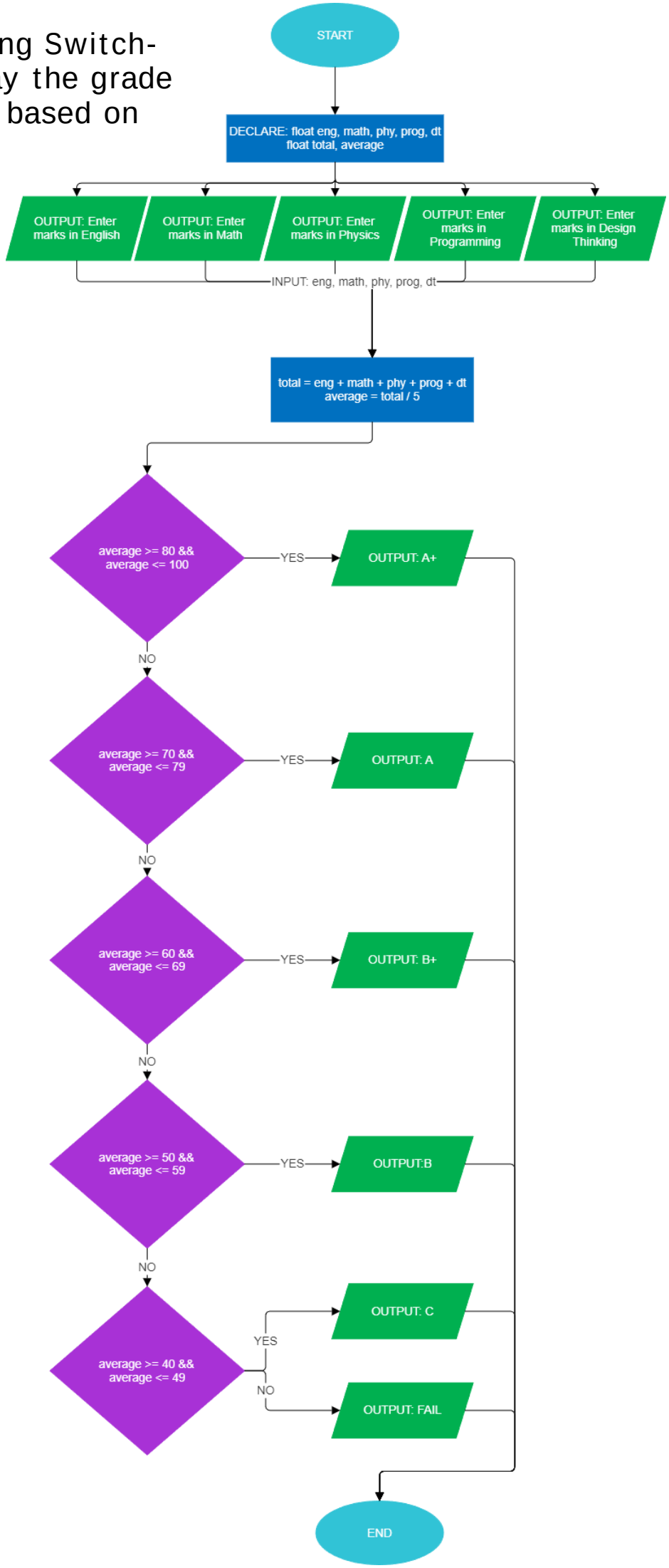
28. WACP that calculates the total salary of an employee using Switch-case.



29. WACP using Switch-case to calculate the electricity bill based on units consumed.



30. WACP using Switch-case to display the grade of a Student based on their marks.



31. WACP to find the sum of n natural numbers.

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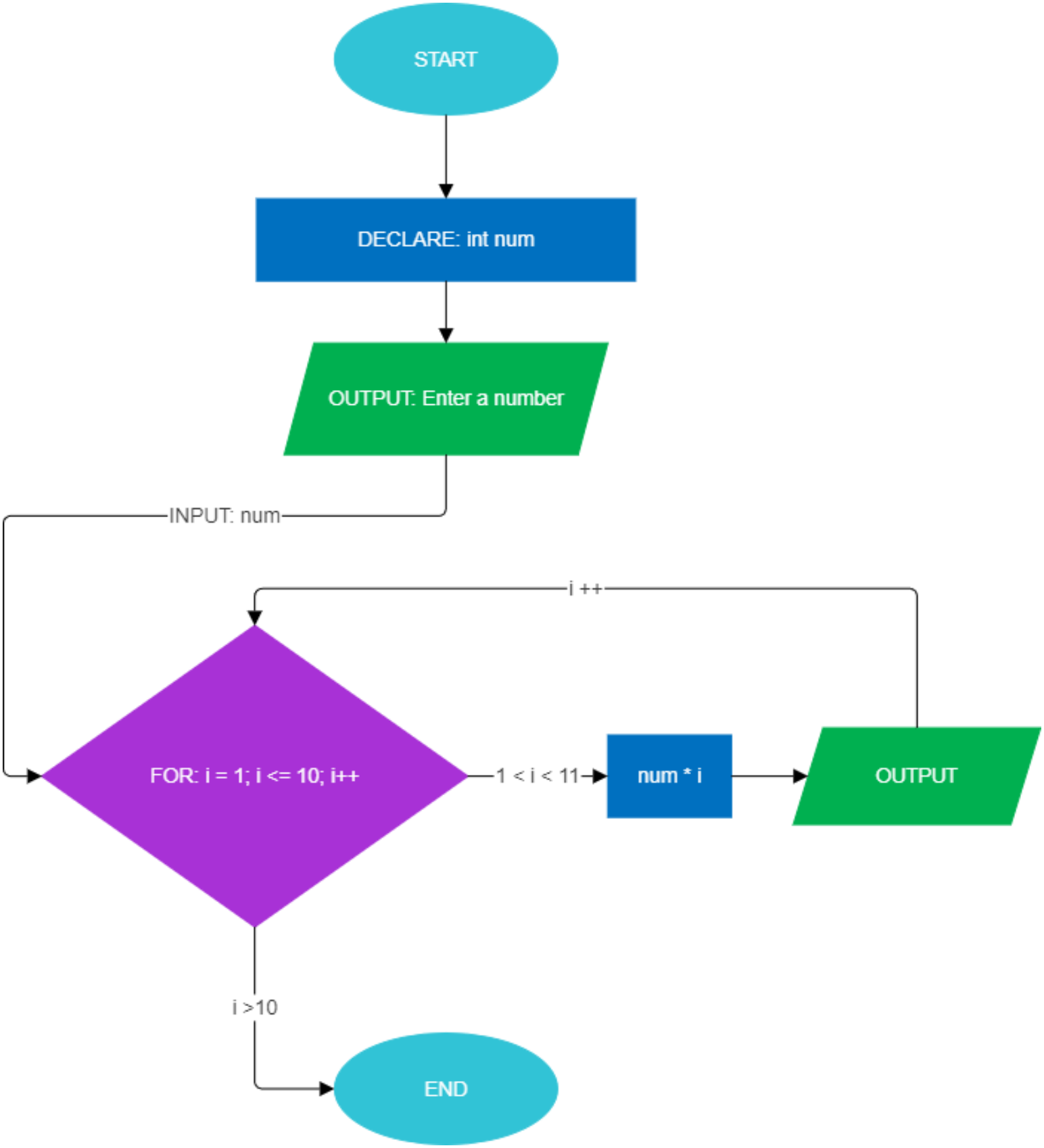

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32.WACP to print a multiplication table using for loop.

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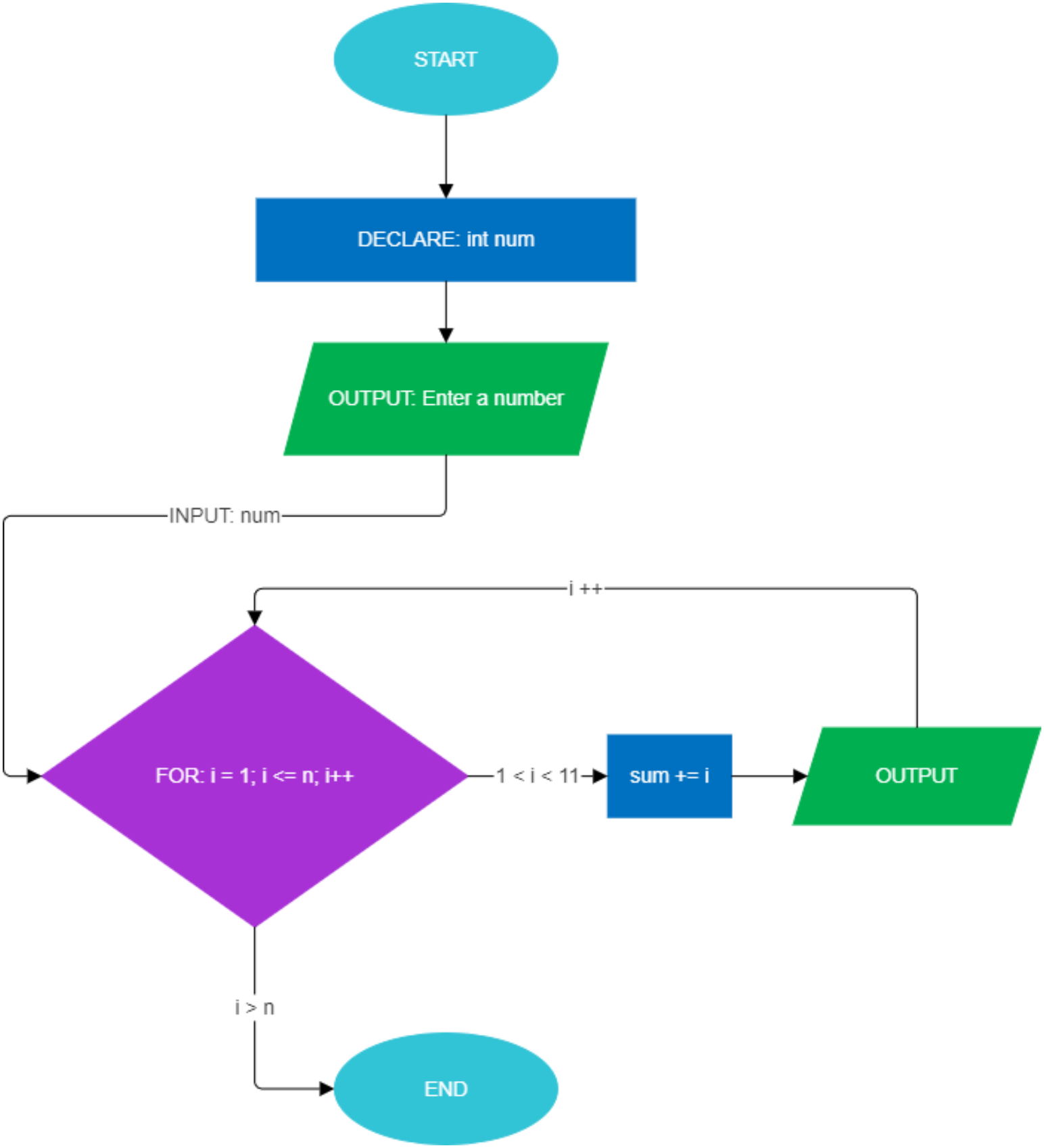

33. WACP to print a factorial of a number using for loop.

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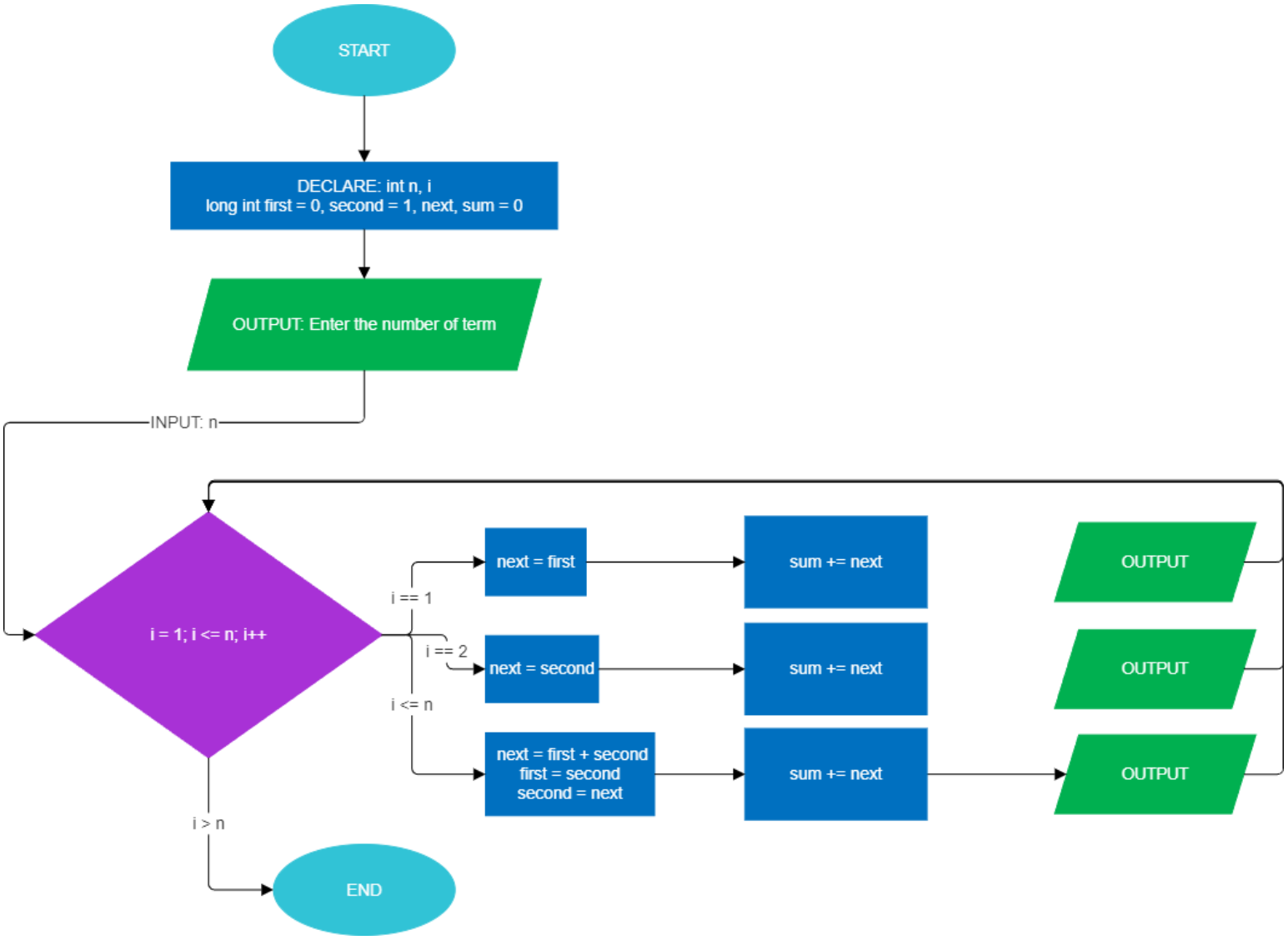
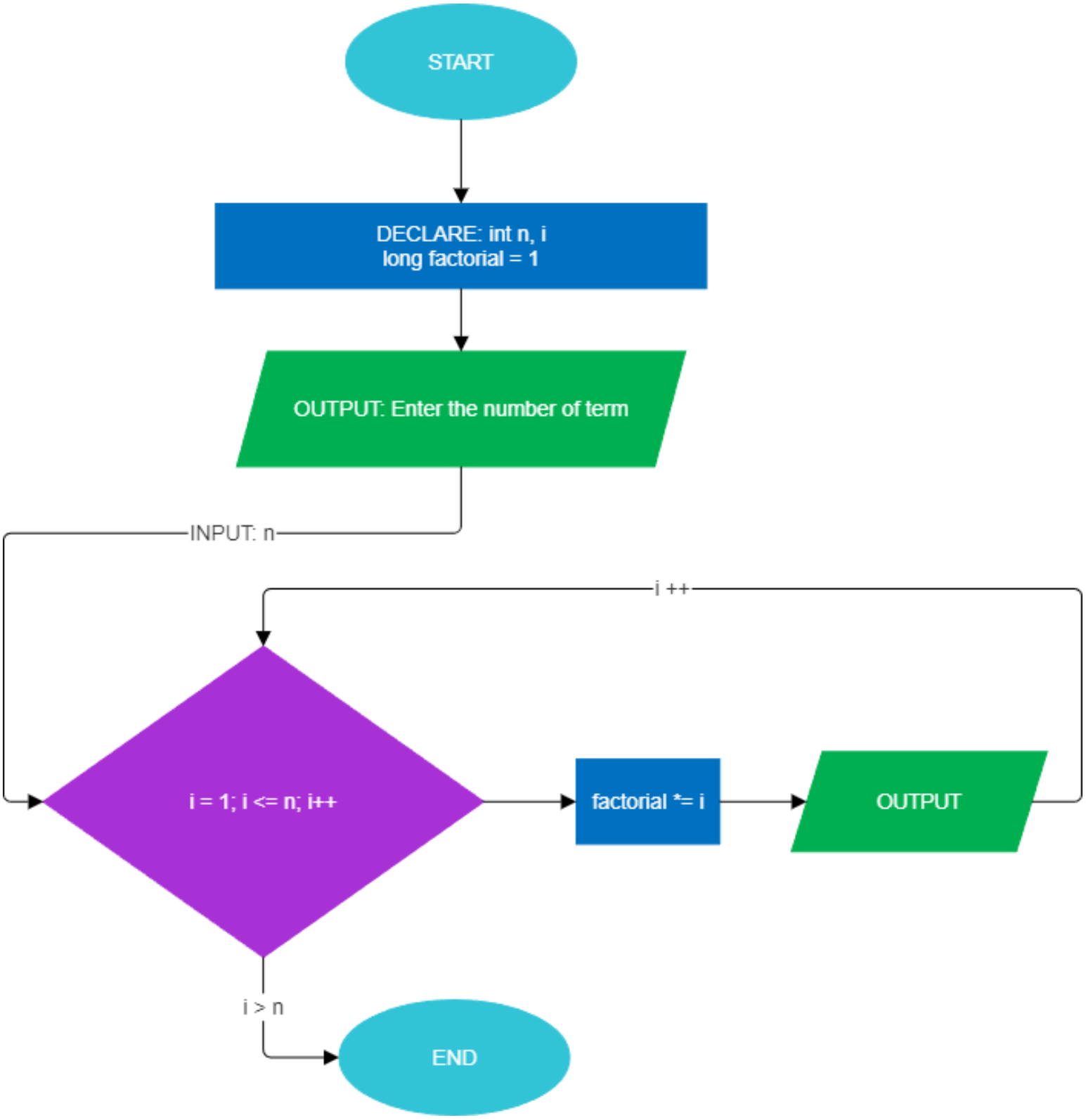


34. WACP to print fibonacci series upto n terms.



35. WACP to print all the prime numbers between a certain range using for loop.

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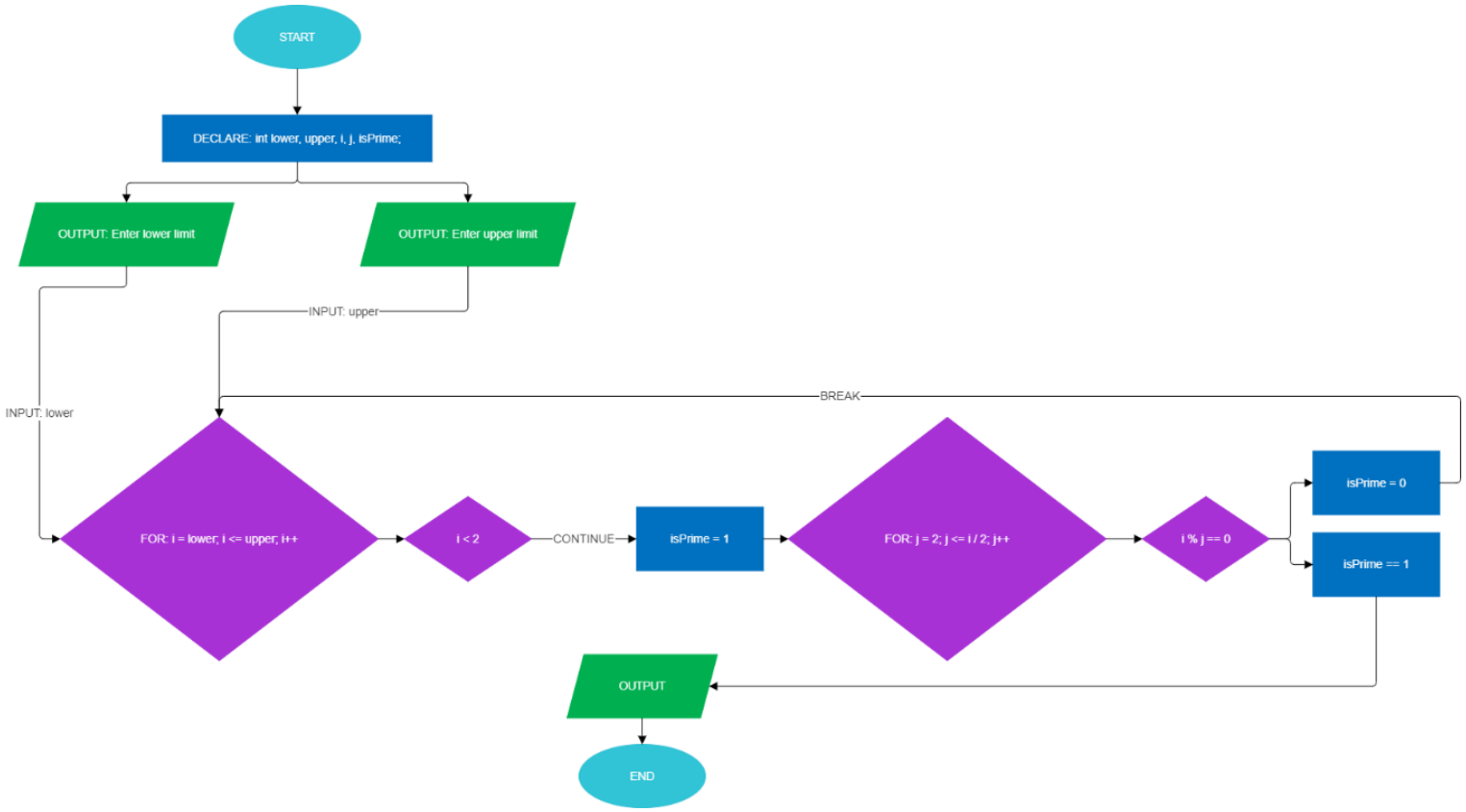

ALGORITHM

1) WAP in C to print “Adamas University”.

Algorithm:

Start

Print "Adamas University" on the screen

Stop

2) WAP in C to add two float numbers.

Algorithm:

Start

Input two float numbers (a, b)

Sum = a + b

Display the sum

Stop

3) WAP in C to subtract two float numbers.

Algorithm:

Start

Input two float numbers (a, b)

Difference = a - b

Display the difference

Stop

4) WAP in C to print multiplication table without using loop.

Algorithm:

Start

Input a number (n)

Use recursive function or direct print (1×n, 2×n ... 10×n)

Display the table

Stop

5) WAP in C to find ASCII value of a character.

Algorithm:

Start

Input a character (ch)

Convert ch to ASCII using (int)ch

Display ASCII value

Stop

6) WAP in C to calculate Simple Interest (S.I.).

Algorithm:

Start

Input principal (P), rate (R), and time (T)

Calculate S.I. = (P × R × T) / 100

Display S.I.

Stop

7) WAP in C to calculate the area of a circle.

Algorithm:

Start

Input radius (r)

Calculate Area = 3.14 × r × r

Display Area

Stop

8) WAP in C to convert °F to °C and °C to °F.

Algorithm:

Start

Input choice (1 for °C→°F, 2 for °F→°C)

If choice = 1:

    °F = (°C × 9/5) + 32

Else if choice = 2:

°C = (°F − 32) × 5/9

Display result

Stop

9) WACP to swap 2 numbers using a 3rd variable.

Algorithm:

Start

Input a and b

Use temp = a

a = b

b = temp

Display new a, b

Stop

10) WACP to swap 2 numbers without using 3rd variable.

Algorithm:

Start

Input a and b

a = a + b

b = a - b

a = a - b

Display new a, b

Stop

11) WACP to find the last digit of an integer

(a) Using modulus operator)

Algorithm:

Start

Input number (n)

lastDigit = n % 10

Display lastDigit

Stop

(b) Without using modulus operator

Algorithm:

Start

Input number (n)

Divide n by 10 → Quotient = n / 10

Multiply Quotient × 10 → Subtract from n → lastDigit = n - (Quotient × 10)

Display lastDigit

Stop

12) WACP to calculate Compound Interest (C.I.).

Algorithm:

Start

Input Principal (P), Rate (R), Time (T)

Calculate Amount = P × (1 + R/100)^T

CI = Amount − P

Display CI

Stop

13) WACP to find the area and perimeter of a rectangle.

Algorithm:

Start

Input length (l) and breadth (b)

Area = l × b

Perimeter = 2 × (l + b)

Display Area and Perimeter

Stop

14) WACP to print the floor and ceiling value of a positive and negative number.

Algorithm:

Start

Input a number (x)

Use built-in floor(x) and ceil(x) functions

Display floor and ceiling values

Stop

15) WACP to find the roots of a quadratic equation.

Algorithm:

Start

Input coefficients a, b, c

Calculate discriminant $D = b^2 - 4ac$

If $D > 0$ → roots are real & distinct

$r1 = (-b + \sqrt{D}) / (2a)$

$r2 = (-b - \sqrt{D}) / (2a)$

Else if D = 0 → roots are real & equal

r1 = r2 = −b / (2a)

Else → roots are complex

r1 = −b/(2a) + i√(−D)/(2a)

r2 = −b/(2a) − i√(−D)/(2a)

Display roots

Stop

16)A coin has been tossed once WACP to check whether it's Head or Tail.

Algorithm:

Start

Generate a random number (0 or 1)

If number = 0 → print "Tail"

Else → print "Head"

Stop

17)WACP to check whether a number is positive or negative using a Ladder if else method.

Algorithm:

Start

Input number (n)

If n > 0 → print "Positive"

Else if n < 0 → print "Negative"

Else → print "Zero"

Stop

18) WACP to find the greatest among 3 numbers using Ladder if else method.

Algorithm:

Start

Input numbers a, b, c

If a > b and a > c → print a is greatest

Else if b > c → print b is greatest

Else → print c is greatest

Stop

19)WACP to check maximum among 3 numbers using nested if-else method.

Algorithm:

Start

Input numbers a, b, c

If a > b

If a > c → a is greatest

Else → c is greatest

Else

If b > c → b is greatest

Else → c is greatest

Display greatest number

Stop

20)WACP to check if a year is leap year or not.

Algorithm:

Start

Input year (y)

If y % 4 ≠ 0 → Not leap year

Else if y % 100 ≠ 0 → Leap year

Else if y % 400 = 0 → Leap year

Else → Not leap year

Stop

21) WACP to check whether the Roll Number 100 is present or not using if loop only.

Algorithm:

Start

Input roll number (n)

If n = 100 → print "Roll number 100 is present"

Else → print "Roll number 100 is not present"

Stop

22) WACP to check whether an integer is odd or even.

Algorithm:

Start

Input number (n)

If n % 2 = 0 → print "Even"

Else → print "Odd"

Stop

23)WACP to check the greatest among two numbers.

Algorithm:

Start

Input numbers a and b

If a > b → print "a is greatest"

Else → print "b is greatest"

Stop

24)WACP to check if a letter is vowel or consonant.

Algorithm:

Start

Input character ch

If ch = 'a' or 'e' or 'i' or 'o' or 'u' (or uppercase) → print "Vowel"

Else → print "Consonant"

Stop

25)WACP to find the size of integer, float, double and char.

Algorithm:

Start

Use sizeof() operator for int, float, double, char

Print the size of each data type

Stop

26) WACP to create a Simple Calculator using Switch-case.The Program should take number inputs as an operator (+, -, *, /) from the user and display the result.

Algorithm:

Start

Input two numbers (a, b) and operator (op: +, -, *, /)

Switch(op)

Case '+': result = a + b → break

Case '-': result = a - b → break

Case '*': result = a * b → break

Case '/': result = a / b → break

Default: print "Invalid operator"

Print result

Stop

27) WACP using Switch-case to check whether a given alphabet is a vowel or consonant.

Algorithm:

Start

Input character ch

Switch(ch)

Case 'a','e','i','o','u','A','E','I','O','U': print "Vowel" → break

Default: print "Consonant"

Stop

28)WACP that calculates the total salary of an employee using Switch-case.

Algorithm:

Start

Input basic salary and choice (for HRA, DA, TA, etc.)

Switch(choice)

Case 1: total = basic + HRA

Case 2: total = basic + DA

Case 3: total = basic + TA

Default: print "Invalid choice"

Print total salary

Stop

29) WACP using Switch-case to calculate the electricity bill based on units consumed.

Algorithm:

Start

Input units consumed (u)

Switch(unit slab)

Case 0–100: bill = u * 5 → break

Case 101–200: bill = u * 7 → break

Case 201–300: bill = u * 10 → break

Default: bill = u * 15

Print bill

Stop

30)WACP using switch-case to display the grade of a student based on their marks.

Algorithm:

Start

Input marks (m)

Calculate grade slab = marks/10

Switch(grade slab)

Case 10, 9 → print "A+"

Case 8 → print "A"

Case 7 → print "B"

Case 6 → print "C"

Default → print "Fail"

Stop

31) WACP to find sum of n natural numbers.

Algorithm:

Start

Input n

Initialize sum = 0

For i = 1 to n → sum = sum + i

Print sum

Stop

32) WACP to print a multiplication table using for loop.

Algorithm:

Start

Input number (n)

For i = 1 to 10 → print n × i

Stop

33) WACP to print factorial of a number using for loop.

Algorithm:

Start

Input number (n)

Initialize fact = 1

For i = 1 to n → fact = fact × i

Print fact

Stop

34) WACP to print Fibonacci series up to n terms.

Algorithm:

Start

Input n (number of terms)

Initialize a=0, b=1

Print a, b

For i = 3 to n → c = a + b → print c → a=b, b=c

Stop

35) WACP to print all prime numbers between a certain range using for loop.

Algorithm:

Start

Input lower limit (l) and upper limit (u)

For num = l to u

    Initialize flag=0

    For i = 2 to num/2 → if num%i==0 → flag=1 → break

    If flag==0 → print num (prime)

Stop