CHAPTER - 3: CONDITIONAL STATEMENTS

PROBLEM 3.1

A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not

ALGORITHM

1. Start
2. Declare integer variable num, and an array a
3. Take num as input
4. Take the remainder of num and 10 and add to the array.
5. Reassign num to integer division of num and 10
6. Repeat steps 4 and 5 until num<=0
7. Declare a variable s
8. Multiply 2**(length(a)-i) to the ith element of a, and add to the variable s
9. Repeat step 8 for each element in a
10. check if s is equal to num:

    a. If yes, display “Pallindrome”
    b. Else, display “Not pallindrome”

11. Stop

PSEUDOCODE

```
FUNCTION CountDigits(INTEGER num)
    DECLARE INTEGER result and ASSIGN 0 to it
    WHILE num != 0
        ASSIGN num/10 to num
        INCREMENT result
    ENDWHILE
    RETURN result
ENDFUNCTION

FUNCTION main
    DECLARE INTEGER num,rem,temp,n
    INPUT num
    ASSIGN CountDigits(num) to n
    DECLARE INTEGER ARRAY a[n]
    ASSIGN num to temp
    WHILE temp>0
        ASSIGN REMAINDER(temp,10) to rem
        APPEND rem to ARRAY a
        ASSIGN temp/10 to temp
```

```
    ENDWHILE
    DECLARE INTEGER s = 0
    FOR i IN RANGE OF 0 to length(a)
        ASSIGN s to s*10 + a[i]
    ENDFOR

    IF s is equal to num
        DISPLAY "Pallindrome"
    ELSE
        DISPLAY "Not Pallindrome"
    ENDIF
ENDFUNCTION
```

FLOWCHART

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flowchart TD
A([Start]) --> B[[Declare integer variables num,rem and array a]]
B --> C[/Input num/]
C --> D{While num > 0}
D --> E[[Assign remainder of num and 10 to rem]]
E --> F[[Append rem to array a]]
F --> G[[Assign integer quotient of num and 10 to num]]
G --> D
G --> H[[Declare integer variable s]]
H --> I{for i in range of 0 to length of a}
I --> J[[Multiply ith element of a by its place value and add it to s]]
J --> I

J --> K{If s is equal to num}
K --> |Yes| L[/Display Pallindrome/]
K --> |No| M[/Display Not pallindrome/]
L --> N([Stop])
M --> N
```