**Day-09**

**14/05/2025**

**Recurison**

Recursion:

From a given String we have to remove a character using recursion.Assume that we are starting with 2strings-Input string and Output string. Output string is empty.We have few steps those are-

* Take the first character from the string and store in character variable.
* Check the variable to the target character,if it matches just return output string else append the character to the output string.
* Slice the string by 1 character

Recursion:-

A function call itself till it meets Base-condition

-> There are two types in recursion

i) Funtiion calling same function itself untill it hits base condition

ii) Function calling another function itsel untill it hits base condition

->recursions are used to break the code->For every recursive call elements will be pushed onto a stack after reaching the base condition

the elements will be poped

-> for our question{write a program to find factorial using recursion} 5,4,3,2,1 all the values pushed onto a stack

->Pseude-code:

import java.util.\*;

public class Main{

public static void main(String[] args){

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

int res = fact(n);

System.out.println(res);

}

public static int fact(int n){

if(n == 0 || n==1){

return 1;

}else{

return n\*fact(n-1);

}

}

}

**String Using Recurssion:**

Assume that we are starting with two strings input and output string , initially the output is empty, we have few

steps they are:

i) take first character from the string and store it in a character\_variable

ii) check the variable with our target character

iii) if it matches just return otput string else append character to output

iv) next, slice the string by onr character to make sure that the remaining string should start with index-1

v) for slicing the string we have substring() method

vi) for accesing the string index we have string\_name.charAt(0)

-> Whenever input string becomes empty we have to stop the recurssion that is the Bast-case

**2Pointer Approach:**

Step-1 :- Initialize the pointers according to the question

strp-2 :- if you are starting 1st pointer at 0th index and 2nd pointer at last index whenever both pointers

crosses eachother break the loop in between(before breaking -loop) do the relevant operation

ex:- Reversing an Array

i) Start i from 0th index and start j from last index

ii) swap arr[i] and arr[j]

iii) increment i and decrement j

iv) when i crosses j (i.e i>j) break(stop moving)