

```
//whata is recurnsion? ekta function nijer modda nijk call korle take recurnsion bole
let myFunc = function() { //golbal score
  myFunc(); //child score //global scopey child score passi
}
```

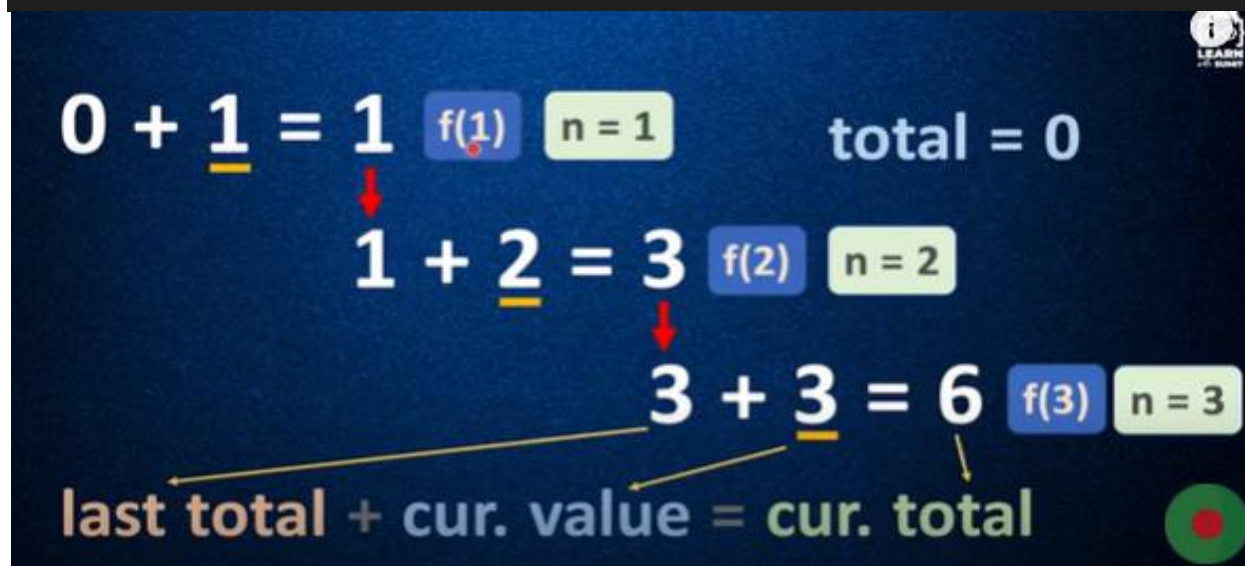


Fig: for understand recursion

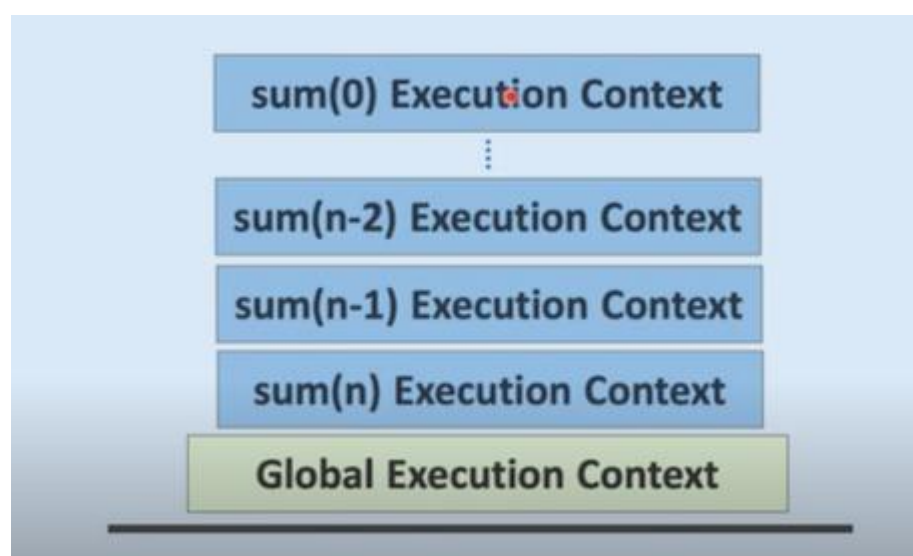


Fig: Execution example 1

```
//1+2+3+4+.....+ n er sum korbo
let total = 0;
let n = 10;
for(let i = 1; i<=n; i++){ //0+1=1, 1+2=3, 3+3+6 total er shate n jug hosse
  total +=i; //total = total + 1 same
}
console.log(total);

//convert loop to recursive function
// formula toiri hoilo: f(n-1) + n;
function sum(n){ //ai function nijk e nije call korse ai function kono din sesh hobe na
  return sum (n-1) + n;
}

//1. convert loop to recursive function
//aita recurnsion function jeta nijak nije korse
function sum(n){ //ai function nijk e nije call korse ai function kono din sesh hobe na
  if(n === 0){
    return 0;
  }else{
    return sum(n-1) + n; //1+2+3
  }
}

console.log(sum(10));

// code ta ki vabe run hosse 1 No?
sum(3) //dorlam n = 3;
sum(2) + 3
sum(1) + 2 + 3
sum(0) + 1 + 2 + 3
```

```
//onek boro number niya jak korer konno recursion suitable na
//recursion avoid kora e valo

//n number er jug kora lagbe onek boro number tahole ki korbo? dakhi ki korte pari code diya...

function sum(n){//ai function nijk e nije call korse ai function kono din sesh hobe na
  if(n === 0){
    return 0;

  }else{
    return sum(n-1) + n;
  }
}

console.log(sum(10000000));//output range error// for loop error dito na run korto but efecient na //function call er
limit ase function stack a joma hoi ek shoimoi stack full hoiya jai tai ai stack full dekhabe errorry

//solution
//age formila use kore kortam choto bela akhon o tai korbo
//((n(n+1))/2
var n = 10000000000;
console.log((n * (n + 1)) / 2);//function lagse na math formula use kore korlam
//cpu use kore calculation na kora
//aita onek voro number tai recursion avoid kora hoiyase
```