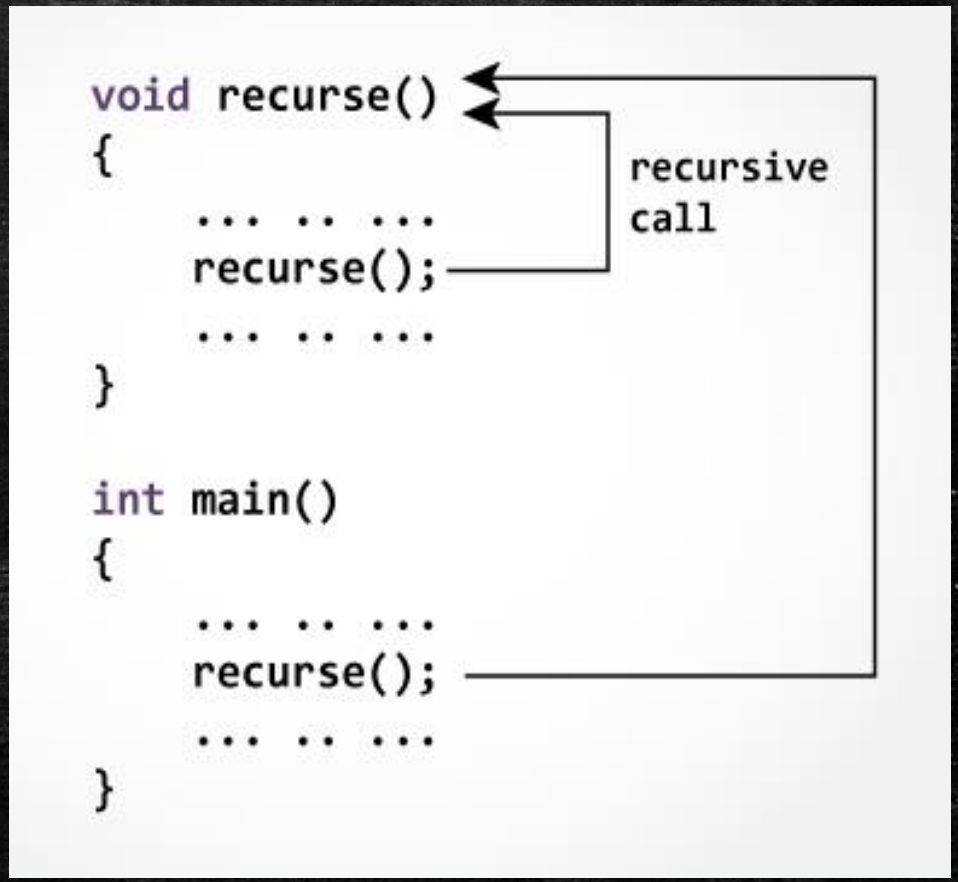
CSE 113 Structured Programming Language

Recursion

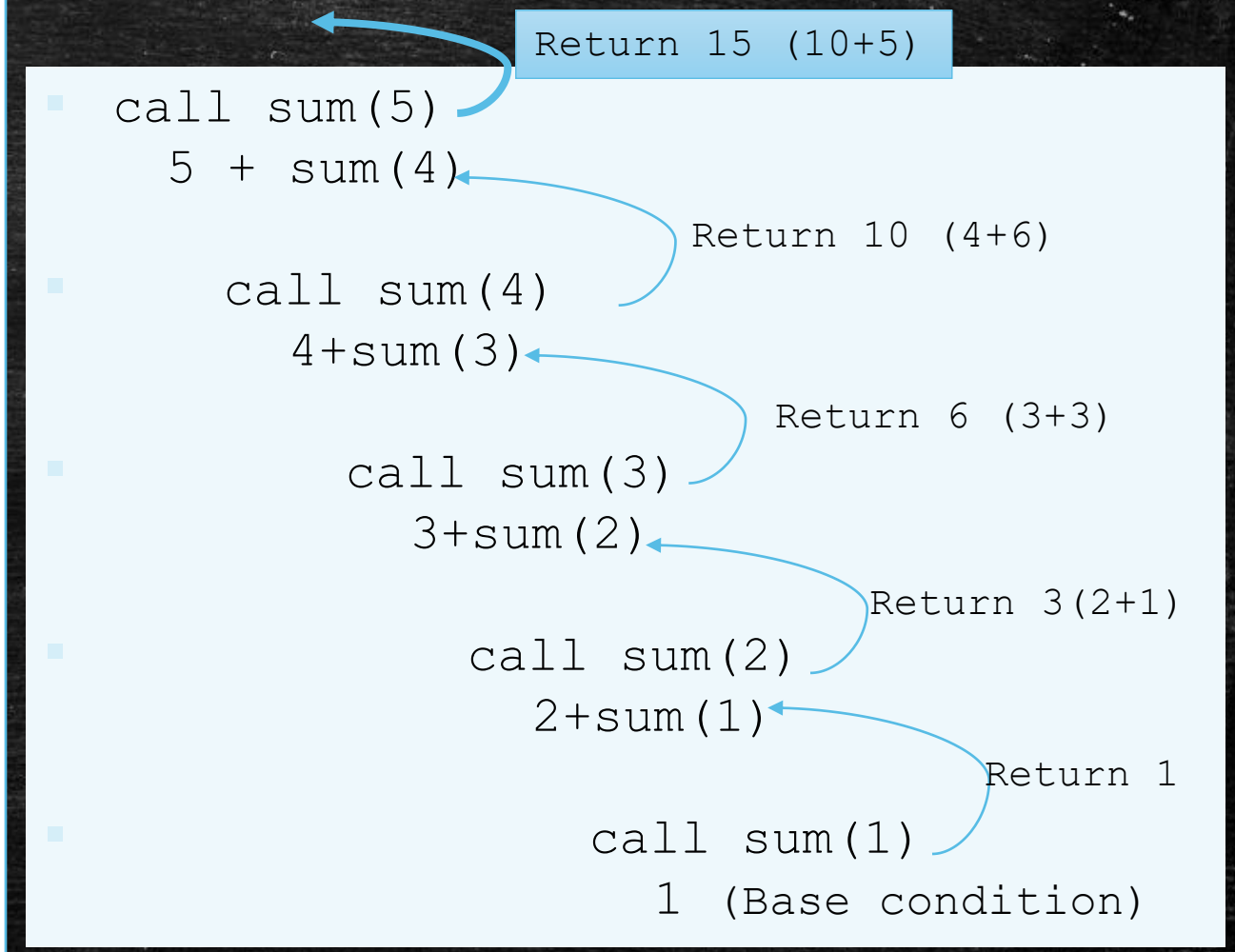
Tasnim Zahan
Assistant Professor
Dept. of CSE
NEUB

Recursion

- The process in which a function calls itself is called recursion and the corresponding function is called as recursive function
- A recursive function calls itself until a *base condition* is true, and execution stops

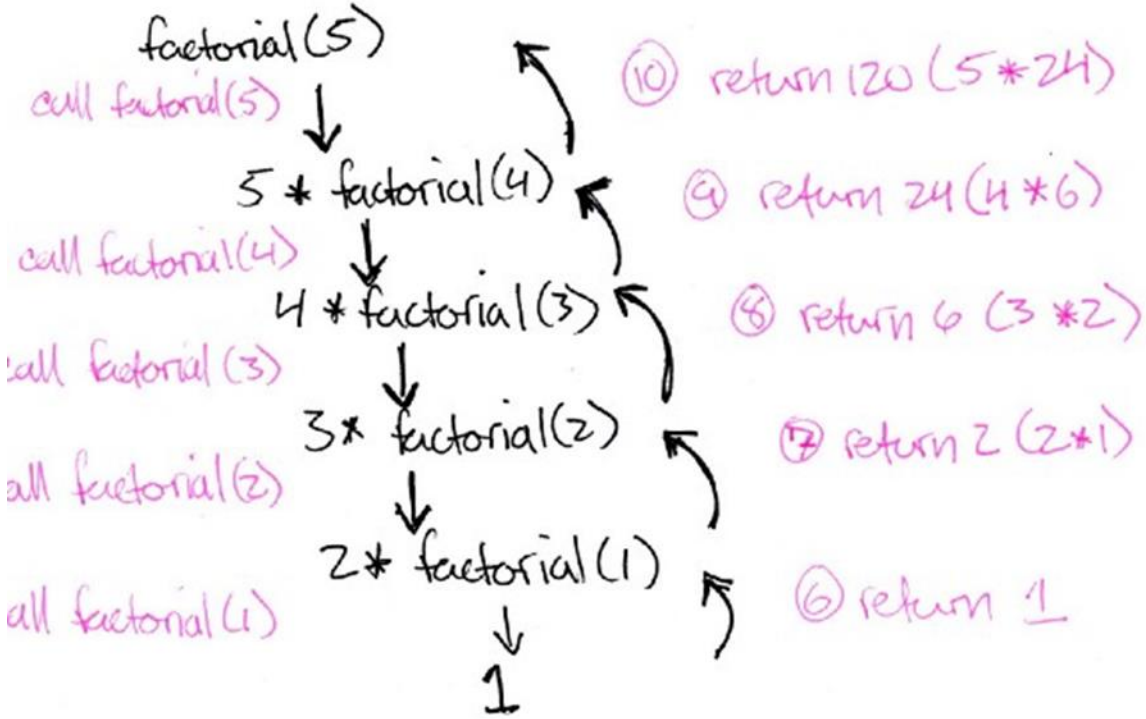


```c
#include <stdio.h>

int sum(int n) {
    if (n <= 1)
        return n;

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

int main() {
    int n, result;

    printf("Enter a positive integer: ");
    scanf("%d", &n);

    result = sum(n);
    printf("sum = %d", result);
    return 0;
}
```



Factorial with recursion

```
#include <stdio.h>

long factorial(long n) {
    if(n<=1)
        return 1;

    return (n*factorial(n-1));
}

int main(){
    long n, result;

    printf("Enter a positive integer: ");
    scanf("%ld", &n);

    result = factorial(n);
    printf("factorial of %ld is %ld", n, result);

    return 0;
}
```



String Reverse

```
#include <stdio.h>
char str[100];

void str_rev(int ind) {
    if(str[ind]=='\0')
        return;

    str_rev(ind+1);
    printf("%c",str[ind]);
    return;
}

int main() {
    printf("Enter a line of text: ");
    gets(str);

    str_rev(0);

    return 0;
}
```