user enters:- debayan

o/p:-

debayanayabed
debaya ayabed
debay yabed
deba abed
deb bed
de ed
d d

auto

int a; printf("%d", a) ← garbage

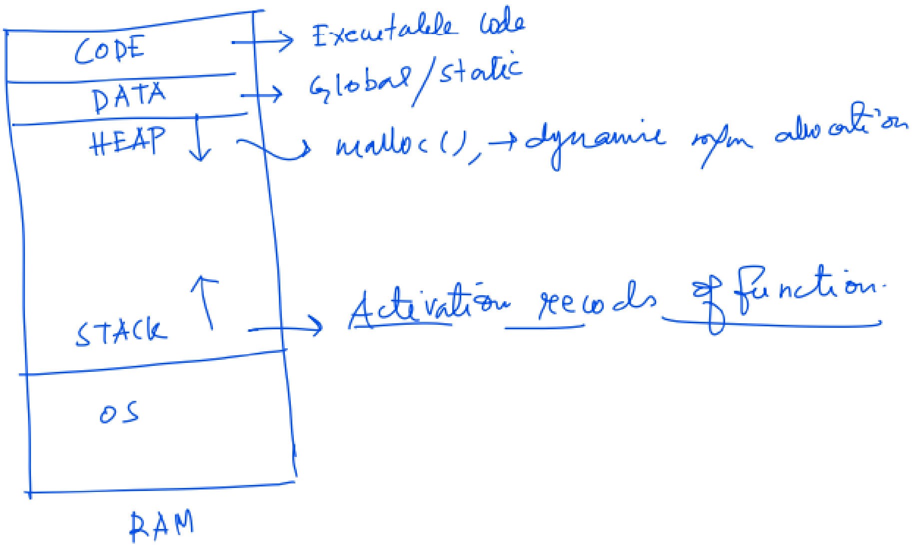
static int a; printf("%d", a); ⇒ 0

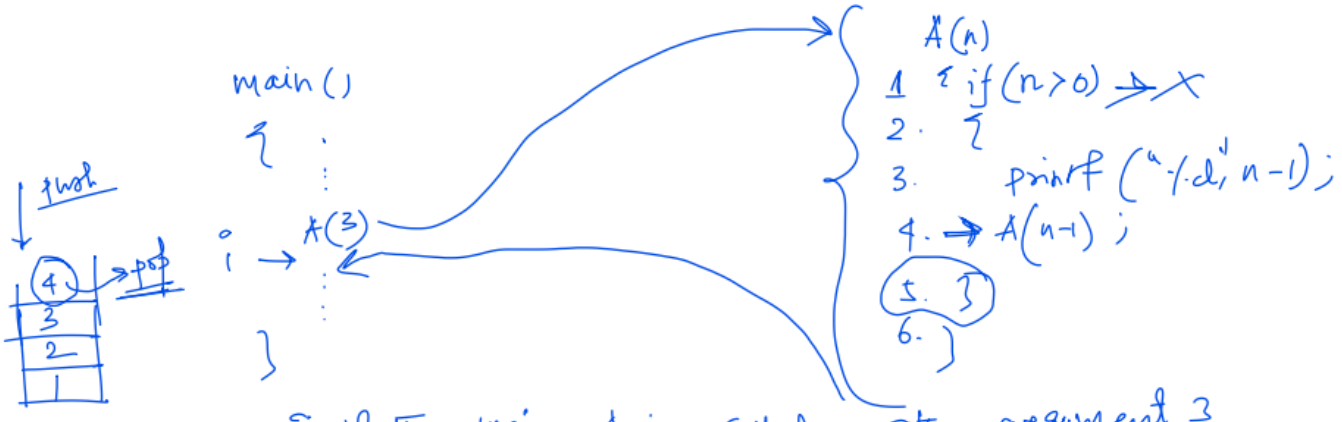
extern int a

register int a;

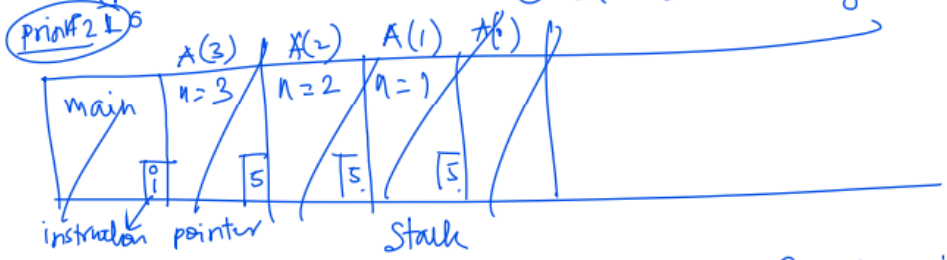
⇓

Storage structure



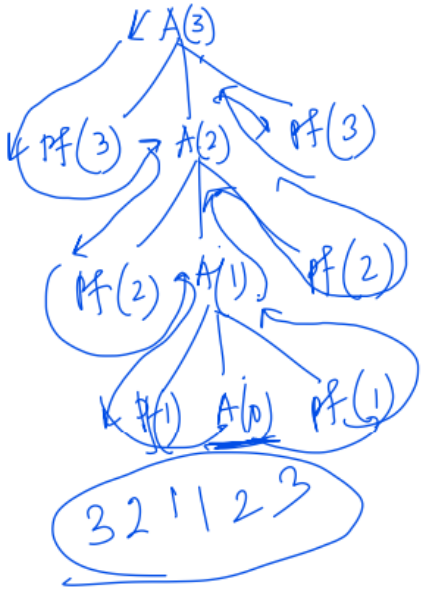


inside the main A is called with argument 3

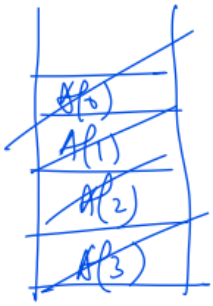


- When a function is called an Activation Record is created.
- Instruction pointer is nothing but the next statement that has to be executed once you get back from the recursion.
- What is present inside the stack of a function that is local variable and IP

Tree method




```
A(n)
{ if(n>0)
  { printf (n);
    A(n-1);
    printf (n);
  }
}
```



Factorial using recursion

$n! = n(n-1)(n-2)\cdots 1$

$5! = 5\times4\times3\times2$

=

```
#include <stdio.h>
typedef long unsigned int L;
L fact (int n)
{ if (n<2)
    return 1;
  return n * fact(n-1);
}
```

fact(4)

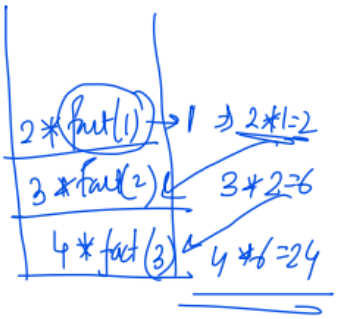
n=4

n<2 ×

fact(3)

n=3<2 ×

return nofact(n)



```
int main()
{ int i;
printf("enter a no"); → 4
scanf("%d", &i); →
printf("Factorial(%d) = %ld \n", i, fact(i));
return 0;
}
```

fact(2)
2<2 ×
return
fact(1)
n=1<2 ✓

a%.b

b a
12 | 4 (1 a
12
2 12 (b
12
GCD a%.b X

GCD of two no's

```
int GCD (int a, int b)
{ if (b == 0)
    return a;
  return GCD (b, a % b);
}
```

LAB-ASSIGNMENT 5 (Function)

SUBJECT: Computer Lab. SUBJECT CODE: CS111. SEMESTER: I

1. Write a program to add three numbers using function.
2. Write a program to find the sum of the digits of a number using function.
3. Write a program to find the prime numbers within a specific range using function.
4. Write a program to find the factorial of 0 to 10.
5. Write a program to find the factorial of a number using recursion.
6. Find the GCD of two numbers using recursion.
7. Write a program to explain the call by value and call by reference mechanism.
8. Write as program to differentiate between static, auto and global variable.

2531 2+5+3+6 253

```
while (n>0)
{
    m = n % 10;
    n = n/10;
    sum = sum + n;
}
```

0 1 1 2 3 5 8 - - - -

* Fibonacci series using recursion.

* checking divisibility by 9 and 11 using recursion