ICT 5101

Lecture 9

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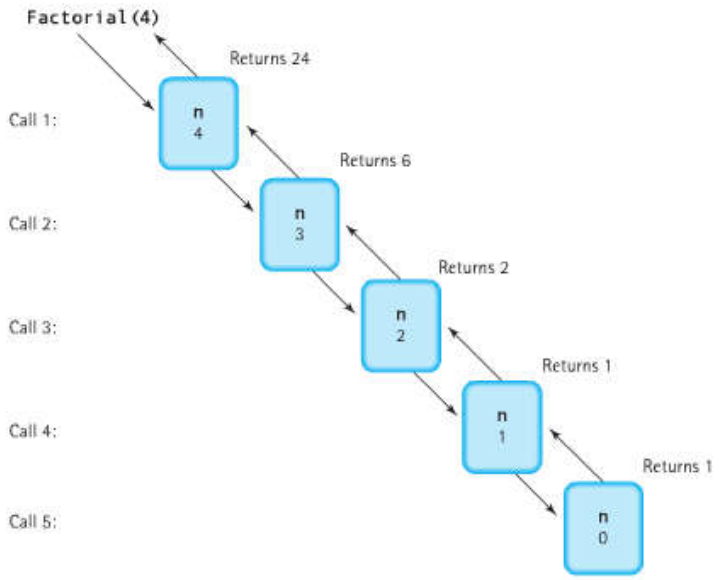
Class Exercise

- Write a program named exercise.c
- The program should take a number as input
- In the program, write a function void showMagicSquare(int n), which will take an ODD number as input and generates a magic square and prints it.
- In a magic square, the sum of every row and column is equal.
- Example:
  - Input = 3 => Output

5	7	3
9	2	4
1	6	8

Recursion

- In recursion, a function may call itself either directly or indirectly
- C functions may be used recursively
- Recursive function backtracks to the initial call of the function



Factorial

```
int factorial(int n){
    return n*factorial(n-1);
}

int main(){
    printf("%d\n", factorial(5));
    return 0;
}
```

Factorial

```
int factorial(int n){
    if(n==1)
        return 1;
    return n*factorial(n-1);
}
int main(){
    printf("%d\n", factorial(5));
    return 0;
}
```

Class Assignment

- Write a program named classassignment9.c
- The program should take a number as input
- In the program, write a recursive function void show Fibonacci (int n), which will take a number as input and show the first n numbers of Fibonacci series.
- In Fibonacci series, a number is the sum of the previous two numbers
- Example:
  - Input = 10
  - Output: 0 1 1 2 3 5 8 13 21 34