2. Take a series of ‘n’ characters and generate all permutations.

**Constraints:** n should be <=20 as the time complexity of the program is O(n\*n!) so from 20 onwards it cannot print all the permutations.

**Input Example**

Enter the string whose permutation has to be generated

abcde

**Output Example**

The permutations of the string are

abcde

abced

abdce

abdec

abedc

abecd

acbde

acbed

acdbe

acdeb

acedb

acebd

adcbe

adceb

adbce

adbec

adebc

adecb

aecdb

aecbd

aedcb

aedbc

aebdc

aebcd

bacde

baced

badce

badec

baedc

baecd

bcade

bcaed

bcdae

bcdea

bceda

bcead

bdcae

bdcea

bdace

bdaec

bdeac

bdeca

becda

becad

bedca

bedac

beadc

beacd

cbade

cbaed

cbdae

cbdea

cbeda

cbead

cabde

cabed

cadbe

cadeb

caedb

caebd

cdabe

cdaeb

cdbae

cdbea

cdeba

cdeab

ceadb

ceabd

cedab

cedba

cebda

cebad

dbcae

dbcea

dbace

dbaec

dbeac

dbeca

dcbae

dcbea

dcabe

dcaeb

dceab

dceba

dacbe

daceb

dabce

dabec

daebc

daecb

decab

decba

deacb

deabc

debac

debca

ebcda

ebcad

ebdca

ebdac

ebadc

ebacd

ecbda

ecbad

ecdba

ecdab

ecadb

ecabd

edcba

edcab

edbca

edbac

edabc

edacb

eacdb

eacbd

eadcb

eadbc

eabdc

eabcd

**Algorithm**

Step 1: Start

Step 2: Take input of a string str.

Step 3: Find the length of the string as length = strlen(str).

Step 4: Print the statement “The permutations of the string”

Step 5: Call a function permutation(str,0,length).

Step 6: End.

**Step 5:** Algorithm of the function in step5 is as follows:

void permutation(string str,int start,int end)

Step 5.1: Start

Step 5.2.1: If(start == end-1) then print str.

Step 5.2.2: Else move to step5.3.

Step 5.3: Set i🡨start.

Step 5.4: Repeat the steps 5.5 to 5.8 until i!= end-1

Step 5.5: Swap str[start] and str[i] as follows:

Step 5.5.1: temp🡨str[start]

Step 5.5.2: str[start]🡨str[i]

Step 5.5.3: str[i]🡨temp

Step 5.6: Call the function permutation(str,start+1,end).

Step 5.7: Swap str[start] and str[i] as follows:

Step 5.7.1: temp🡨str[start]

Step 5.7.2: str[start]🡨str[i]

Step 5.7.3: str[i]🡨temp

Step 5.8: Set i🡨i+1

Step 5.9: End of the function,return to the main program.