**Define Variables**

Set “str” equal to a string-type variable

Set “input” equal to an integer-type variable

Set ‘x’ and ‘y’ equal to an integer-type variable, then initialize to 0

**Prompt for User Input**

Print “How many characters do you wish to permute: ”

Grab the input from the user and store that input into the integer-type variable “input”

Delete the user input from the stream

Print a new line followed by “Enter “ n “ characters: ”

Get the line of characters inputted from the user, then store it into the string-type variable “str”

**Remove Spaces Within the String**

While index ‘x’ is NOT NULL

If index ‘x’ is equal to the space character

Increment x

Else

Initialize index ‘y’ to index ‘x’

Increment ‘x’ and ‘y’

Endwhile

Delete the parts of the string with 0’s and shorten the length

**Function Call**

Pass string “str”, integer ‘0’, and integer ‘input’ into the permutations

**Space, then exit main function to terminate program**

Print new line

Endprogram

**Swap Function Design**

Create a void-type function named “swap” that passes two characters via reference

Create a new variable named “temp”

Set “temp” to “x”

Set ‘x’ to ‘y’

Set ‘y’ to “temp”

**Permute Function Design**

Create a void-type function named permutations which accepts a string and two integers.

Create a variable ‘y’

Create a static-type variable ‘z’ which initializes to 1, where ‘z’ serves as a counter

If ‘x’ equals “input”

Print a new line “Permutations ” increment ‘z’ ‘:’ “str” then tab

Else

For ‘y’ equals ‘1’, ‘y’ is less than “input”, increment ‘y’

Swap ‘x and ‘y’

Permute recursively to find next iteration of ‘x’

Swap indeces ‘x’ and ‘y’

Endfor

Endif