ISTANBUL TECHNICAL UNIVERSITY
FACULTY OF COMPUTER AND INFORMATICS ENGINEERING
COMPUTER ENGINEERING DEPARTMENT

BLG102E - INTRODUCTION TO SCIENTIFIC AND ENGINEERING COMPUTATION
2020 -2021 Spring
FINAL EXAM

Date:	24 June 2021
Duration:	**40 minutes**
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1 (35 pts). Download the test file "q3.yaml" and the starter source code "q3.c", add your implementation into this source code, and **submit the modified source file "q3.c" to Ninova.**

Make sure to test your solution against the test file using Calico (the command is given below). Your solutions will be automatically graded with different test cases.

```
python -m calico.cli q3.yaml
```

The given starter code is for a C program that takes two strings (without any spaces in them) as command-line arguments and concatenates them with a space between the two. For example, if the strings are "`istanbul`" and "`teknik`" the result will be "`istanbul teknik`". If the number of command-line arguments is incorrect, the program should print the error message "`incorrect usage`" (with a newline) **on the standard error stream** and exit with a failure status code (`1` or `EXIT_FAILURE`). If the length of the resulting string is greater than the limit, the program should print the error message "`limit exceeded`" (with a newline) **on the standard error stream** and exit with a failure status code.

The starter code already includes the "`concat`" function for doing the concatenation operation, including checking whether the resulting string exceeds the length limit or not. You are asked to write the "`main`" function (which will call the "`concat`" function) so that the program will behave as described. Remember to deallocate all dynamically allocated resources.

Some sample runs are given below (the yellow highlighted parts show how the program is executed):

```
./q3 istanbul teknik
istanbul teknik

./q3
incorrect usage

./q3 istanbul
incorrect usage
```

```
./q3 istanbul technical university
incorrect usage

./q3 firstlongstring secondlongstring
limit exceeded
```

Again note that, in the first example, the message is printed on the standard output stream and the exit status code is success; in all others, the message is printed on the standard error stream, and the exit status code is failure.

You are not allowed to include any other header files, nor to change anything in the starter code except for adding the body of the "`main`" function.