Kadir Has University
Department of Computer Engineering
CE 241 – Programming Languages
Fall 2008 - Ahmet Ardal
Homework #5

1. Think of a student's exam grades for several courses as a tabular data that can be expressed in matrix form:

	1st Exam	2nd Exam	3rd Exam
Course-1	60	70	80
Course-2	70	80	90
Course-3	80	90	100
Course-4	50	60	70

Write a function to calculate the average of those three exams' grades and store the results in a one-dimensional array. Input to the function is the matrix that contains grades.
(Hint: Think courses as the rows and exams as the columns of the matrix.)

Function prototype:
```
const int N_COURSES = 4;
const int N_EXAMS   = 3;
void calculateAverages(const int grades[][N_EXAMS], double *pAverages, int nCourses);
```

2. Write a function that evaluates the length of a string by counting the characters until reaching the null character('\0'). Use pointer arithmetic, not array indexes.

Function prototype:
```
int stringLength(const char *str);
```

3. Write a function that checks a string and determines whether it is a palindrome or not between certain indexes. The function should perform its job by recursion. Example palindrome string: *stressed* / *desserts*

(Hint: Recall the exam question from Midterm-1, and make use of the function you wrote in the preceding question while testing your function)

Function prototype:
```
bool isPalindromeRec(const char *str, int leftIdx, int rightIdx);
```

4. Write a function that copies a string into another string by replacing a certain character with a specified character.

Function prototype:
```
void strCopyReplace(const char *src, char *dest, char oldChar, char newChar);
```