Assignment 5 - Computer Programming (0455-3391-01)

http://www.cs.tau.ac.il/˜efif/courses/ComputerProgramming

Due: January 21, 2003

Problem 1

Write a program that substitutes each occurance of a substring within a string with another substring. The program should read in three strings *str*, *from* and *to*. Each string should be entered in a separate line. Each occurence of the substring *from* in *str* should be substituted with the substring *to*. The program should write out the result.
Implement and use the following functions:

```
char * readLine(int * maxSize)
```

The function *readLine* reads a line of unknown length. It returns the input line as a proper string. The parameter *maxSize* is used to pass back the size of the allocated memory that accomodates the line. When a new input character is entered and the currently allocated memroy that accomodates the characters that have been entered so far is full, the function reallocates a block of memory that can sufficiently accomodate the characters that have been entered so far and ADDSIZE additional characters, where ADDSIZE is defined to be 4.

```
char * substitute(char * str, char * from, char * to, int * maxSize);
```

The function *substitute* accepts three strings, and sbstitutes each occurance of *from* with *to* as explained above. The last parameter *maxSize* is used to pass in the size of the memory block that accomodates the input string *str*, and to pass out the size of memory block that accomodates the output string, if relevant. The function allocates and reallocates memory to adjust the size of the memory block that accomodates the result as necessary. The function returns a pointer to the input string if nothing was substituted, a pointer to a new string if at least one substitution has occured, or NULL if something went wrong.

Problem 2

Find three ways to change one character in the code bellow so that the resulting code will print 20 times the minus sign ('-'). Remember, you can change one character only for each solution.

```
int i, n = 20;
for (i = 0; i < n; i--)
  printf("-");
```