KING SAUD UNIVERSITY
COLLEGE OF COMPUTER AND INFORMATION SCIENCES
COMPUTER SCIENCE DEPARTMENT

CSC215 - Procedural Programming
Fall 2016
Lab 09: Advanced Pointers

1. Exercise 1:

1. Launch the terminal
2. Create a new directory with the name "Lab09" inside "CSC215"
3. Write a C file "functions.c" that contains all functions defined in this lab
4. Write the function str_replace:
   `char* str_replace(char* search, char* replace, char* orig)`
   The function takes a string `orig`, search for all occurrences of the substring `search` and replaces each of them with the string `replace`.
   Plan:
    - find out the number of occurrences of `search` in `orig`
   - prepare a buffer big enough to hold the resulting string
   - copy from `orig` to the new buffer until the next occurrence of search
   - copy the string `replace` to the new buffer
   - repeat until there is no more occurrences of `search`

2. Exercise 2:

1. Write the function explode:
   `char** explode(char* delimiter, char* string, int* count)`
   The function returns an array of strings, each of which is a substring of `string` formed by splitting it on boundaries formed by the string `delimiter`.
   Plan:
   - find out the number of substring by counting the number of occurrences of the delimiter
   - prepare an array or pointers of the appropriate size
   - start tokenizing the string and add the tokens to the array

2. Exercise 3:

1. Write the function implode:
   `char* implode(char* glue, char** pieces, int count)`
   The function returns a string representation of all the array `pieces` elements in the same order, with the `glue` string between each two consecutive elements.
   Plan:
   - prepare an array or pointers of the appropriate size
   - copy the next substring from the array to the buffer
   - copy the glue string from the array to the buffer
   - repeat for all array elements