In The Name Of God

The Most Compassionate And Merciful

Problem Set - 3

Functions + Arrays

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Sheet info :

* Problem Set 3
* Due Date : Not Set
* Just upload scorable questions on HWS.
* File name format : “**studentNumber\_PS3.zip**”
* Do not hesitate to ask any question from your graders!

1. Write a program that gets numbers from user until EOF and it returns length of the array.

(do the following for characters too).

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2. Write a function that gets three strings and replaces the occurrences of second string in the first string, with the third string.

Show us that this examples work...

Prototype:

void string\_replace(char hay[], char needle[], char tocopy[]);

Examples:

string\_replace(“Hello World!”, “or”, “and”) --> becomes: Hello Wandld

string\_replace(“He is the target”, “e”, “”) --> “H is th targt”

string\_replace(“Not to worry.”, “”, “Seriously?!”) --> “Not to worry.”

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3. Write a function to sort strings in dictionary order.

Input:

bonuose

Output:

benoosu

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4. Write a function that gets two character arrays from input and check if they are the same, if they’re the same returns 0, if not returns -1.

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5. Write a function that gets two character arrays and then checks if the second arrays exists in the first array, if it exists return 0,if not return -1.

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6. Write ur own function of atof.

(inputs with getchar() and outputs with putchar() )

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7. Two words are anagram if they have same letters in the same or different orders, write a function to determine whether two strings are anagram or not. Return 0 if yes and return -1 otherwise.

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8. Write a function that gets a character array and a character and then SAVES all the indexes of the occurrences in that array.

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9. Write a function which gets a number from user and displays it in BCD.

(U should save it in char array)

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10. Write functions that gets two arrays from user and add and sub of two polynomial.

Input:

[1,0,1,1]

[1,3,1]

Output:

Sum -> [2,3,2,1]

(x^3 + 2x^2+ 3x+ 2)

Sub -> [0,-3,0,1]

(x^3 - 3x)

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Q 11 - Is Scorable and would be announced later .

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12. برنامه ای به زبان سی بنویسید که از کاربر یک ورودی کاراکتری بگیرد ( این ورودی میتواند شامل تمامی حروف باشد از جمله اعداد و سمبل هایی مثل @ یا # و یا … ) . برنامه باید تمامی کاراکترهایی که جز الفبای انگلیسی نیستند را حذف کرده و حروف بزرگ الفبا ( A ) را به حروف کوچک معادل آن (a) تبدیل کند . شما تنها قادر به استفاده از یک آرایه در حل این سوال هستید و مجاز به تعریف کردن آرایه ای جداگانه ندارید . ( برای کاراکتر هایی که از آرایه حذف میشوند باید عملیات شیفت دادن را انجام دهید . ) و سپس نتیجه نهایی را چاپ نماید. ( در این سوال همانند سوال قبل تنها محاز به استفاده از همان توابع هستید . و از تابع printf() نیز نمیتوانید استفاده کنید )( اگر در بین کاکتر ها ، کاراکتر\_ undescore قرار داشت ، آنرا با space جایگزین کند )

Ex :

>>> give me a sentence :

>>>#WE\_w0orK\_In\_95Da/\rkness12\_To@\_Save\_THE!^\_Light

>>>we work in darkness to save the light

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13. Write a program that:

1. gets two numbers (buttom\_limit and upper\_limit) from user.
2. Gets a number (period) from user.
3. Does the following every period (period is in seconds):
   1. Clears the output screen.
   2. Creates a random integer between “buttom\_limit” and “upper\_limit” .
   3. Prints the number.

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14. A. Write a function to **map** the indexes of a **square matrix** to a one-dimensional array.

Example:

Int map(int matrix[], int n, int row, int column);

int matrix[9] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};

int n = 3;

map(matrix, n, 0, 1); // returns 1

map(matrix, n, 1, 2); // returns 5

B. Write the following functions:

1. Adds two square matrices

void add\_matrices(int matrix\_1[], int matrix\_2[], int n);

1. Multiplies two matrices

void multiply\_matrices(int matrix\_1[], int matrix\_2[], int n);

3. Turns a matrix into its transpose form

void transpose(int matrix[], int n);