In The Name Of God

The Most Compassionate And Merciful

Problem Set - 4

Arrays

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Sheet info :

* Problem Set 4
* Due Date : Not Set
* Just upload scorable questions on HWS.
* File name format : “**studentNumber\_PS4.zip**”
* Do not hesitate to ask any question from your graders!

0 - We consider a program which the user to type his own ID, if the ID is valid it will ask him to enter his password, if the password is correct the program will print the name of the user, otherwise ,the program will print Incorrect Password and if the ID does not exist , the program will print Incorrect ID.(Only use switch-case)

1 - code these functions.



|  |
| --- |
| int strcmp(char src[] , char des[]) // abc abd int strlen(char str[]) void strcat(char first[] , char second[]) void strncat(char first[] , char second[] , int n) void strcpy(char des[] , char src[]) void strncpy(char des[] , char des[]) int str\_find\_chr(char str[] , char c) int str\_find\_str(char str1[] , char str2[]) |

2 - Write a function to swap characters that their index is between a and b.then print 2 array.

( The function should print an error of the two integers given don’t match the length of the arrays )

Function prototype :

|  |
| --- |
| Void swap\_str(char[] str1,char[] str2,int n1 , int n2) |

Input:

|  |
| --- |
| Esterahatgah Terminal 2 6 |

Output:

|  |
| --- |
| Esrminaatgah Teterahal |

3 - write the following functions :

1. int search ( char sentence[] , char c , int indexes[] )
2. int search ( char sentence[] , char word[] )
3. void remove\_all ( char sentence[] , char c )
4. void remove\_all ( char sentence[] , char word[] )
5. void split ( char sentence[] , char c )
6. void insert\_at ( char sentence[] , int index , char word[] )
7. Void replace ( char sentence[] , char word[] ,char replacement\_word[])

# function E should split the sentence according to the given argument and prints the splitted parts .

# function A searches all occurrences of character c in a sentence and saves the indexes in the given array “ indexes “

#function B searcher the “ word “ inside a given sentence and returns the index of first alphabet of the word in that sentence. If the word didn’t exist in the given sentence , then the function shall return (-1) .

# functions C & D should remove the given arguments from the given sentence and shift the remains to the right so that there would be no gap due to deletion of the wanted arguments .

#function F shall insert a word at the wanted index of a sentence and shifts the remainders of the sentence .

#function G , searches the array and looks for the first word . if the word existed , the word would be replaced by the second one. If the wanted word was not in the sentence , the function shall do nothing .

4- write a function that gets a two sets as input and tells the user if two sets are equal or not by returning an integer number .

( if they were equal , return 1 otherwise return 0 )

**int is\_equal ( int set1[] , int set2[] ) ;**

Ex :

Set1 = { 1 , 2 , 3 }

Set2 = {3 , 1 , 2 }

Printf ( “%d” , is\_equal(set1 , set2 ) ) ;

//output >> 1

5 - 2520 is the smallest number that can be divided by each of the numbers from 1 to 10 without any remainder. Write a program that finds the smallest positive number that is divisible by all of the numbers from **zero** to **y**?

6 - write a function that gets multiple lines of input from the user and then converts the “newline” , “tab” , “space” into visible escape sequences such as “\n” , “\t” , “b”.you have to use switch case . write a function for other direction as well ( for example converts “\t” to tab ).

7- فرض كنيد شما يك ورزشكار هستيد . به عنوان يك ورزشكار ميتوانيد روزانه مقدار محدودي كالري مصرف كنيد. يك ميز با تعدادي غذا براي شما فراهم شده ( n) ولي شما بعضي غذاهارا بيشتر دوست داريد . برنامه اي بنويسيد كه با در نظر داشتن اين موضوع كه شما نبايد از حد محاز كالري ( limit ) بيشتر مصرف كنيد و با در نظر گرفتن ميزان علاقه شما به هر غذا ، برنامه اي به شما دهد كه در آن از تمامي غذاها حداقل يك واحد غذايي را چشيده باشيد و با توجه به اولويت شما در انتخاب غذا ، از غذايي كه بيشتر دوست داريد نيز بيشتر مصرف كنيد . ( فرض كنيد مجموع كالري تك واحد از هر غذا كوچكتر از حد كالري روزانه شما ميباشد).

8 - write a program that gets an input of integers and saves them into an array . the program should show the user a menu and be able to sort the array by two algorithms :

1 - **selection sort**

2 - **bubble sort**

**3 - Insertion Sort**

**4 -Quick Sort**

Ex :

// Show The Menu

Please Make Your Decision :

1 - Get Input

2 - Use Selection Sort

3 - Use Bubble Sort

4 - Exit

>> input : 1

>>Enter Your Numbers :

>>1 , 12 , 14 , 18 , 0 , 5 , 22 , 21

>> // Show the menu Again

>> 2

>> 0 , 1 , 5 , 12 , 14 , 18 , 21 , 22

>> // Show the menu Again

>>4

>> Have Fun ;D

9 - There are two functions called **my\_gets()** and **my\_puts()**.

Assume that these two functions have the following prototype.

*my\_gets(char in[] )*

// this function gets a string as input and saves it into a character array called in.

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*my\_puts(char out[] )*

// this function gets a character array “out” as input and prints the string .

----------------------------------------------------------------------------

Ex :

|  |
| --- |
| **int main () {  char str1[20] = " Enter Input : ";  char str2[20] ;  puts(str1);  gets(str2);  puts(str2);    return(0); } *//Continues on next page* *// Output >> Enter Input :*   >> Hello world  >> Hello world** |