

National University of Computer and Emerging Sciences



Laboratory Manual
for
Programming Fundamentals

Course Instructor	Ms. Ifrah Qaiser
Lab Instructor(s)	Ms. Shazia Ahmed Mr. Adeel Qayyum
Section	PF E
Semester	Fall 2020

Department of Computer Science

FAST-NU, Lahore, Pakistan

Lab Manual 09

Problem 1

Write a program to help a local restaurant automate its breakfast billing system. The program should do the following:

- Show the customer the different breakfast items offered by the restaurant.
- Allow the customer to select more than one item from the menu.
- Calculate and print the bill.

Assume that the restaurant offers the following breakfast items (the price of each item is shown to the right of the item):

Plain Egg	RS 15.00
Omelet	RS 15.00
Paratha	RS 12.00
French Toast	RS 20.99
Fruit Basket	RS 120.49
Coffee	RS 50.00
Tea	RS 20.00

Use an array, menuList, of the struct menuItemType,
Your program must contain at least the following functions:

- Function getData: This function loads the data into the array menuList.
- Function showMenu: This function shows the different items offered by the restaurant and tells the user how to select the items.
- Function printCheck: This function calculates and prints the check.

(Note that the billing amount should include a 17% tax.)

Sample Output

-----Welcome to Café international-----

1	Plain Egg	RS 15.00
2	Paratha	RS 24.00
1	Coffee	RS 50.00
	Tax	RS 15.3

Amount due RS 105.3

Format your output with two decimal places. The name of each item in the output must be left justified. You may assume that the user selects only one item of a particular type.

Problem 2:

Write a C++ program whose main function is merely a collection of variable declarations and function calls. This program reads a text and outputs the letters, together with their counts, as explained below in the function **printResult**. (There can be no global variables! All information must be passed in and out of the functions. Use a structure to store the information.)

Your program must consist of at least the following functions:

- Function **openFile**: Opens the input and output files. You must pass the file streams as parameters (by reference, of course). If the file does not exist, the program should print an appropriate message and exit. The program must ask the user for the names of the input and output files.
- Function **count**: Counts every occurrence of capital letters A-Z and small letters a-z in the text file opened in the function **openFile**. This information must go into an array of structures. The array must be passed as a parameter, and the file identifier must also be passed as a parameter.
- Function **printResult**: Prints the number of capital letters and small letters, as well as the percentage of capital letters for every letter A-Z and the percentage of small letters for every letter a-z. The percentages should look like this: "25%". This information must come from an array of structures, and this array must be passed as a parameter.

Sample output:

In case file not found:

Please enter the file name: abc.txt

File not foundProgram terminate

In case file found:

Please enter the file name: abc.txt

The file contains

Upper case letters:		lower case letters	
A	1%	a	40%
B	0%	b	20%
C	0%	c	10%
D	0%	d	30%
E	1%	e	50%
.			
.			
.			

Problem 3

Write a C++ program that declares a struct to store the data of a football player:

- Player's name
- Player's position
- Number of touchdowns
- Number of catches
- Number of passing yards
- Number of receiving yards
- Number of rushing yards

Declare an array of components to store the data of football players. Your program must contain a function to input data and a function to output data. Add functions to search the array to find the index of a specific player, and update the data of a player. (You may assume that input data is stored in a file.) Before the program terminates, give the user the option to save data in a file. Your program should be menu driven, giving the user various choices

Sample output:

```
Enter the name of player1:  Ali
Enter the name of player2:  Ahmed
Player1 position: Center back
Player2 position:          sweeper
Number of touchdowns for player1  5
Number of catches for player1      6
Number of passing yards for player1 1
Number of receiving yards for player1 2
Number of rushing yards for player1 4
```

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Please select your option

```
Search a Player
Display players information:
Update players information:
Enter choice: 1
```

Enter player name to be search: Ali

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