

100 pts

Name: _____

Class Day / Time: _____

Due Date: _____

Assignment #1 – Functions and Arrays

Write a program that will first receive from the user as input the name of an input file and an output file. It will then read in a list of names, id #s, and balances **from the input file specified** (call it **InFile.txt**) and initialize the three parallel arrays. The input file will be created from the data provided below. The program will then execute some tasks using the parallel arrays. The user will interact with the program through a menu that allows for the user to select the specific tasks to be executed. USE AN **ENUMERATED TYPE** FOR THE MENU OPTIONS. Each task will be executed using functions, which will be described below.

Display the selection menu (see the screen output for specifics) → loop until the user enters 0 to terminate the program. The selection menu options will allow the user to:

- 1) Find the person with the **larger** balance and output the person information (name, id # and balance) in the **output file** (call it **OFile.txt**).
- 2) Find the person with the **smaller** balance and output the person information (name, id # and balance) in the **output file**.
- 3) Obtain the sum of all balances and output the result in the **output file**.
- 4) Obtain the average of all balances and output the result in the **output file**.
- 5) Find a person. The program will prompt the user for a name to search for, when it finds the name it will **output to a file** the person's id#, name, and balance. Please see the next page for the expected format of your output file.

Finally, create a header file for all your preprocessor directives, prototypes and constants as discussed in class. **NOTE: For this assignment do not make the array size a GLOBAL constant → pass it as a parameter as necessary.**

Your program will need the following functions:

- 1 – **print heading function** – prints your heading to console (**cout**) and output file.
- 2 – **input function** - that will propagate the arrays (reads in all the data) – you will need **3 parallel arrays** for this assignment (one for the **names**, one for the **ids** and one for the **balances**). This function should read all the data from **InFile.txt**.
- 3 – **search balance function** - this function will search for the larger or the smaller **balance** and return the proper index (of type int) to the calling function. The function uses an input parameter to determine whether it will search for the largest or the smaller balance.
- 4 – **sum/average function** – this function will add all balances and return a type float with either the sum of all balances or the average of all balances to the calling function. The function uses an input parameter to determine whether it will return the sum or average of all balances.

5 - **search name function** - this function will search for a **name** and return the proper index (of type int) to the calling function.

Turn in (IN THIS ORDER)

1. The **first page** of this lab
2. screen I/O – pasted into a text file
3. output file
4. Your header file
5. a listing of main.cpp (conforming to style discussed in class)
6. a listing of your input/output, add and search functions
7. a listing of your print heading function (should be in a separate file)
8. input file

TEST INPUT – Test each one of these cases!

- 1) Find the person with the larger balance
- 2) Find the person with the smaller balance
- 3) Obtain the sum of all balances
- 4) Obtain the average of all balances
- 5) Find Person for the following input in this order:
 - a. Steve Woolston
 - b. Jacques Rousseau
 - c. Chris Carroll
 - d. Pete McBride
 - e. Jean Rousseau
 - f. Florence Cyr

Screen **Input/Output** should be formatted as follows:

ALL test cases should be formatted as follows.

```
What input file would you like to use? InFile.txt
What output file would you like to use? OFile.txt
```

Note: These are
lined up

MENU OPTIONS

```
1 - Find the larger balance
2 - Find the smaller balance
3 - Obtain the sum of all balances
4 - Obtain the average of all balances
5 - Find person
0 - Exit
Enter an option (0 to exit): 1
```

```
Finding the larger balance...
```

```
<redisplay menu>
```

```
Enter an option (0 to exit): 2
```

```
Finding the smaller balance...
```

```
<redisplay menu>
```

```
Enter an option (0 to exit): 3
```

```
Obtaining the sum of all balances...
```

```
<redisplay menu>
```

```
Enter an option (0 to exit): 4
```

```
Obtaining the average of all balances...
```

```
<redisplay menu>
```

```
Enter an option (0 to exit): 5
```

```
Who do you want to search for (enter done to exit): Steve Woolston  
Found.
```

```
<redisplay menu>
```

```
Enter an option (0 to exit): 5
```

```
Who do you want to search for (enter done to exit): Jacques Rousseau  
Jacques Rousseau was not found.
```

... Also search for the following names here. Continue to format the I/O as described above.

Chris Carroll

Pete McBride

Jean Rousseau

Florence Cyr

... The following should be your last input.

```
<redisplay menu>
```


```
Enter an option (0 to exit): 6
```

```
Thank you for using my program.
```

Input File: (your input file should look exactly as follows)

```
Jean Rousseau  
1001 15.50  
Steve Woolston  
1002 1423.20  
Michele Rousseau  
1005 52.75  
Pete McBride  
1007 500.32  
Florence Rousseau  
1010 1323.33  
Lisa Covi  
1009 332.35  
Don McBride  
1003 12.32  
Chris Carroll  
1008 32.35  
Yolanda Agredano  
1004 356.00  
Sally Sleeper  
1006 32.36
```

Output File: should include **all of the names** that were found (not just these) in the order in which they were found. The output should be formatted as follows.



```
Larger Balance:
ID #      NAME      BALANCE DUE
----      -
1002      Steve Woolston    $    1423.20

Smaller Balance:
ID #      NAME      BALANCE DUE
----      -
1003      Don McBride      $      12.32

Sum of Balance for all persons:
$    4080.48

Average Balance for all persons:
$      408.05

Search Name:
ID #      NAME      BALANCE DUE
----      -
1002      Steve Woolston    $    1423.20

Search Name:
ID #      NAME      BALANCE DUE
----      -
1008      Chris Carroll      $      32.35

...
```