Due Date: 21 May 2017 23:55

KADI: http://bilmuh.gtu.edu.tr/kadi

CSE102 **HW08**

In this homework, you will continue on your HW08. You will manage the contacts directory as you did before but you will use linked list to hold phone record for each person. You are responsible for the allocation and freeing the necessary space for phone records. ***Do not keep any additional space for phone records.***

You are also asked to implement serializer/deserializer functions for the People struct. You need to create a binary file that contains all information of the People struct. One recommended approach is to store *name*, *expenditure*, *number of phone numbers* and the *phone numbers* for a person.

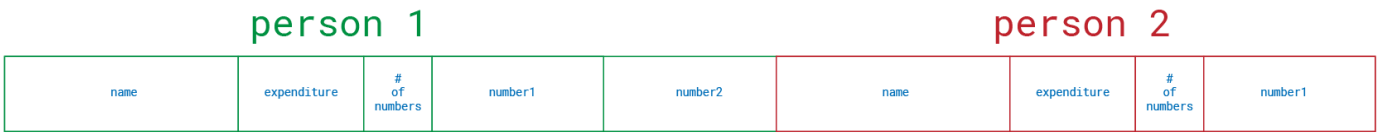

Figure 1 Content of a binary file. Mind that no space wasted!

In this homework, you are given the total of phone bills (defined as expenditures) of a person. Some persons' expenditure information is unknown and denoted as **-1**. You need to calculate expected expenditure for every person with unknown expenditure. Expenditure can be calculated as follows:

$$Expected\ Expenditure\ for\ p_1 = \frac{E}{N} \times K$$
$$E = Total\ expenditure\ of\ every\ person\ with\ known\ expenditures$$
$$N = \#\ of\ phone\ numbers\ for\ every\ person\ with\ known\ expenditures$$
$$K = \#\ of\ phone\ numbers\ of\ the\ p_1$$

Each function is described with comments in starter code. Any attempt for unnecessary memory allocation and unnecessary file writes will be graded 0. You need to implement **both** read and write functions for getting full credit. Therefore you will not have partial credit if you implement just one of read or write functions.

STARTER CODE: https://goo.gl/n9gmOK

Signature

```
void writePeople(People people, char* filename);
void readPeople(People *people, char* filename);
void imputation(People *people);
void read(char* filename, People *people);
```

Sample Usage

```
Sample usage is provided in starter code.
```

Output

```
Expected output is given in starter code.
```

Good luck!