```
/*################################################################################*/
/*HW09_part3.c                                                                    */
/*_____________________________                                                   */
/*Written by Mustafa Akilli on April 28, 2015                                     */
/*                                                                                */
/*Description                                                                     */
/*___________                                                                     */
/*  Guessing An Integer Number                                                    */
/*Inputs:                                                                         */
/*  -Guess number                                                                 */
/*Outputs:                                                                        */
/*                                                                                */
/*################################################################################*/
/*                                                                                */
/*--------------------------------------------------------------------------------*/
/*                           Includes                                             */
#include <stdio.h>
/*--------------------------------------------------------------------------------*/
/*                             Struct                                             */
typedef struct{

    int first_five;
    int second_five;
    int third_five;

}triplet_t;

typedef struct{

    triplet_t Combination_of_Positives;
    int Most_probable_number;
    int Lower;
    int Upper;

}Row;
/*--------------------------------------------------------------------------------*/
/*                           Function                                             */
void Into_Binary(FILE *text_input, FILE *binary_output);
int Load_Mpn_table(FILE *binary_input_file,Row mpn_table[], int maxsize);
void Printf_function(Row mpn_table[],int actual_size);
void search( Row mpn_table[], int actual_size, const triplet_t triplet_to_search);
/*--------------------------------------------------------------------------------*/

int
main(void)
{
    Row mpn_table[50];
    int actual_size=0, temp_actual_size=10,i,line=0;

    FILE *text_input,*binary_output,*binary_input_file;

    text_input=fopen("input.txt","r");

    /*Check the text_input*/
    if(text_input == NULL){

        printf("ERROR!! Text input file could not be opened to read.\n");
        return 0;
    }

    binary_output=fopen("converted.bin","wb");

    /*Check the binary_output*/
    if(binary_output == NULL){

        printf("ERROR!! Binary Output file could not be opened to write.\n");
        return 0;
    }

    /*Call the Into_Binary*/
    Into_Binary(text_input,binary_output);
```

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    /*Close the Files*/
    fclose(text_input);
    fclose(binary_output);

    binary_input_file=fopen("converted.bin","rb");

    /*Check the binary_input_file*/
    if(binary_input_file == NULL){

        printf("ERROR!! Binary input file could not be opened to read.\n");
        return 0;
    }

    /*Call the Load_Mpn_table*/
    /*Find the actual_size*/
    while(temp_actual_size==10)
    {
        temp_actual_size=Load_Mpn_table(binary_input_file,&mpn_table[line],10);
        actual_size+=temp_actual_size;
        line=+10;
    }

    /*Close the File*/
    fclose(binary_input_file);

    /*Call the Printf_function*/
    Printf_function(mpn_table,actual_size);

    return 0;
}

/*Reads the data from text file and writes into binary file*/
void Into_Binary(FILE *text_input, FILE *binary_output)
{
    Row string[1000];
    int i=0,status,k;
    char character[100];
    char char_char;

    /*------İmportant-----------*/
    /* İnput File be like this:
            4 – 2 - 0

    first hyphen is long
    second hyphen is short

    *************************
    not like this==> 4 - 2 - 0
    not like this==> 4-2-0
    *************************

    if you use short hyphen,

    like this:4 - 2 - 0

    you must delete 151. line
    in the program.

    *************************
    if you dont use the space
    and you use short hyphen

    like this:4-2-0

    you must delete 151. 153.
    155. 161. 163. lines in
    the program.

                                */
    /*------İmportant-----------*/
    do
    {
```

```
        status=
        fscanf(text_input,"%d",&string[i].Combination_of_Positives.first_five);


        fscanf(text_input,"%c",&char_char);

        fscanf(text_input,"%c",&character[i]);

        fscanf(text_input,"%c",&character[i]);

        fscanf(text_input,"%c",&character[i]);

        fscanf(text_input,"%d",&string[i].Combination_of_Positives.second_five);

        fscanf(text_input,"%c",&char_char);

        fscanf(text_input,"%c",&character[i]);

        fscanf(text_input,"%c",&character[i]);

        fscanf(text_input,"%d",&string[i].Combination_of_Positives.third_five);

        fscanf(text_input,"%d",&string[i].Most_probable_number);

        fscanf(text_input,"%d",&string[i].Lower);

        fscanf(text_input,"%d",&string[i].Upper);


        if(status!=EOF)
        {
            fwrite(&string[i],sizeof(Row),1,binary_output);
        }

        ++i;
    }while(status!=EOF);


}

/*Read data from the binary file,
  assign to called Row array
  returns the actual size of array*/
int Load_Mpn_table(FILE *binary_input_file,Row mpn_table[], int maxsize)
{
    int actual_size;

    actual_size=fread(mpn_table,sizeof(Row),maxsize,binary_input_file);

    return actual_size;
}

/*Take from the user combination of positives and call the search function*/
void Printf_function(Row mpn_table[],int actual_size)
{
    triplet_t triplet_to_search;
    char character;

    printf("combination-of-positives triplet(For example:5-2-1):");
    scanf("%d",&triplet_to_search.first_five);
    scanf("%c",&character);
    scanf("%d",&triplet_to_search.second_five);
    scanf("%c",&character);
    scanf("%d",&triplet_to_search.third_five);

    search(mpn_table,actual_size,triplet_to_search);
}

/*Chech the combination of positives
  if find then print the data,
  if not find then print the error message*/
void search( Row mpn_table[], int actual_size, const triplet_t triplet_to_search)
```

```
{
    int i=0,k,found=0;

    triplet_to_search.first_five;
    triplet_to_search.second_five;
    triplet_to_search.third_five;

    for(k=0;k<=actual_size;++k)
    {
        if(mpn_table[i].Combination_of_Positives.first_five==
            triplet_to_search.first_five &&

            mpn_table[i].Combination_of_Positives.second_five==
            triplet_to_search.second_five &&

            mpn_table[i].Combination_of_Positives.third_five==
            triplet_to_search.third_five)
        {
            printf("MPN=%d; ",mpn_table[i].Most_probable_number);
            printf("95%% of samples contain between ");
            printf("%d and ",mpn_table[i].Lower);
            printf("%d bacteria/ml.\n",mpn_table[i].Upper);
            found=1;
        }
        ++i;
    }

    if(found==0)
    {
        printf("This combination of positives not found.\n");
    }
}
/*##############################################################################*/
/*                            End of HW09_part3.c                               */
/*##############################################################################*/
```