Mental Health Project

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1. Introduction of project

Whenever there is stress, it can become very overwhelming. It increases the risks of mental health problems. In addition to numerous medical problems, such as high blood pressure. Stress(long-term) increases mental health problems such as depression and anxiety. It also increases sleep problems, as well as muscle tension. Our project is designed to help with tracking people's mental health condition in the workforce.

In our project, users can type in all their information, such as name, state, and country and also add in if they have a history of mental problems and if they suffer from job stress. Once the users input all their information, they are allowed to grade their mental health on an A-D scale, in relation to how their job stress is affecting them. A is the highest grade and D is the lowest grade they can score themselves with. Our project will store all of the information as a new file called save.txt, and users can do some simple analyzation on these data, such as displaying, inserting, deleting, modifying, searching, sorting and counting.

Our project can record mental health conditions of each person, and should be helpful for making specific treatment plans. Psychologists can be much easier to know whether a worker should take necessary treatment according to the recorded data.

For further study, we want to add more complex analyzation functions, which means our project can do much detailed tasks, like sorting each feature (ID, Age, Gender, Country, State, History, Work and Score) and display people with certain problems. It is also possible to add more features in the project for accuracy.

Source. cpp link:
https://github.com/Yizhe07/Project_Mental_Health/blob/master/Source.cpp

Stack_version.cpp link:
https://github.com/Yizhe07/Project_Mental_Health/blob/master/stack_version.cpp

2. Division of duties

Yizhe Wang:

1. (The stack version display code)
2. Create the data structure for person (Class person and sequences of strings)
3. Read data from the txt file
4. Save the dataset in a new text file
5. Menu
6. Delete function
7. Modify function (Individual work)
8. Search function
9. Sort function
10. Read and Write function (Individual work)
11. Documentation and user guideline

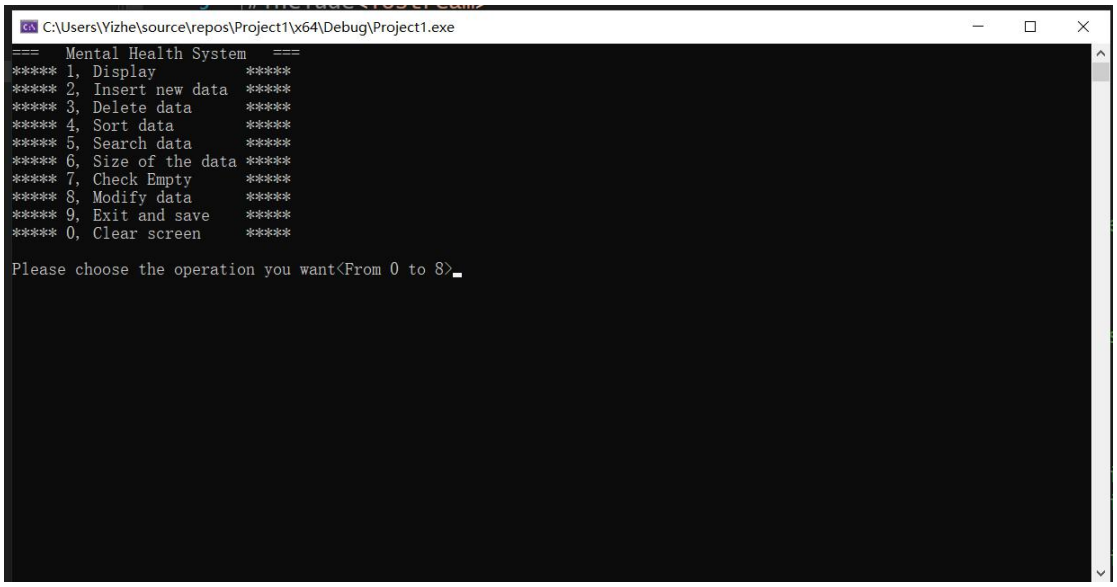
Jalen Smith:

1. Find and the dataset
2. Display function
3. Empty function (Individual work)
4. PowerPoint for presentation
5. Documentation

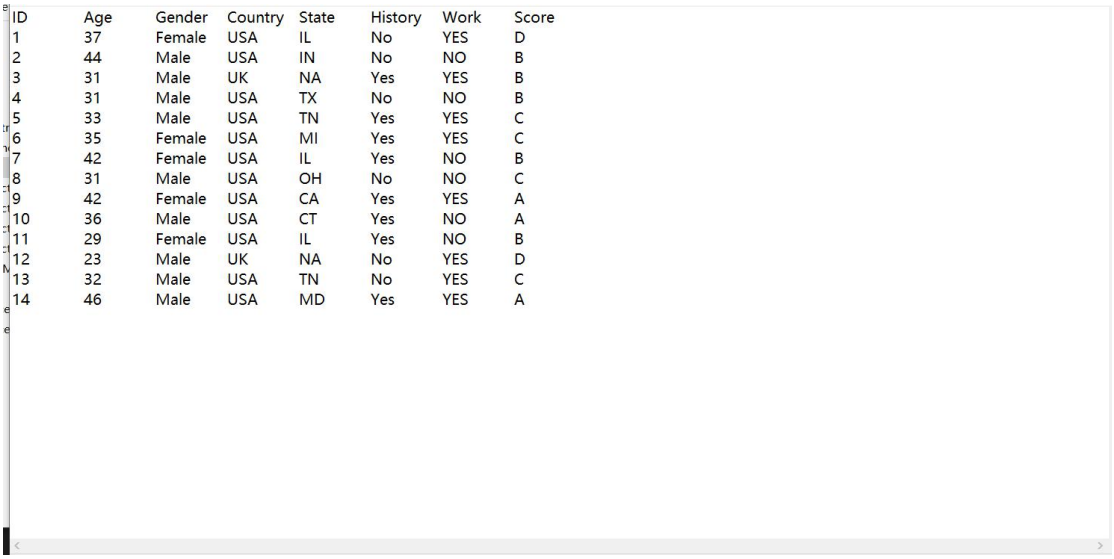
Jamal Beacham

1. Keep the dataset in right text format
2. Insert Function
3. Size Function (Individual work)
4. Documentation

3. Instructions on how to run the code (Guideline)



Before running the code, the user should import the dataset file called data.txt, just put this txt file in the resource files.



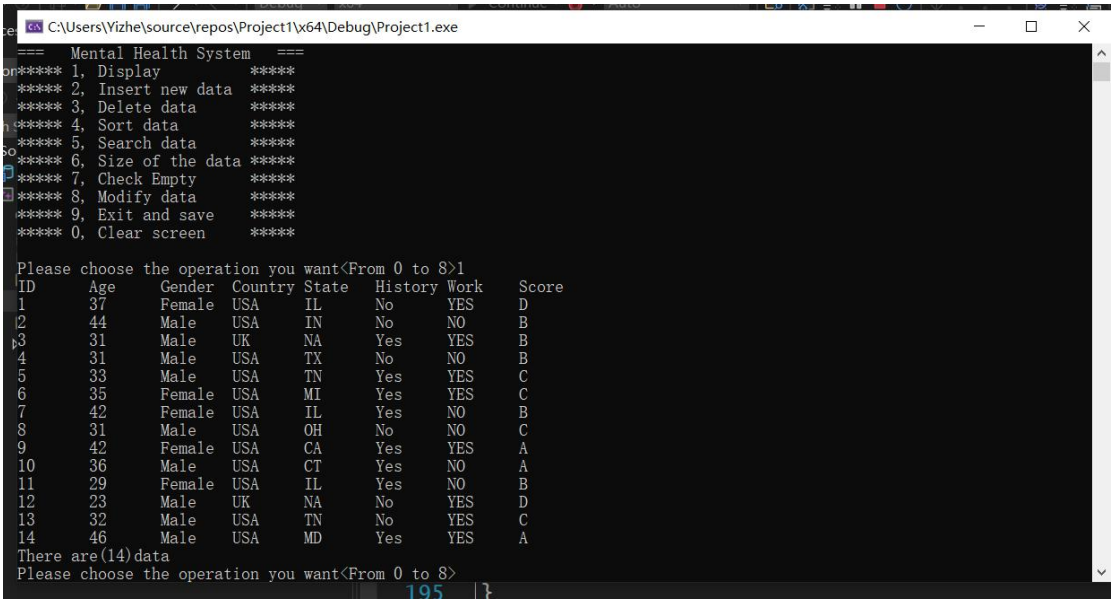
ID	Age	Gender	Country	State	History	Work	Score
1	37	Female	USA	IL	No	YES	D
2	44	Male	USA	IN	No	NO	B
3	31	Male	UK	NA	Yes	YES	B
4	31	Male	USA	TX	No	NO	B
5	33	Male	USA	TN	Yes	YES	C
6	35	Female	USA	MI	Yes	YES	C
7	42	Female	USA	IL	Yes	NO	B
8	31	Male	USA	OH	No	NO	C
9	42	Female	USA	CA	Yes	YES	A
10	36	Male	USA	CT	Yes	NO	A
11	29	Female	USA	IL	Yes	NO	B
12	23	Male	UK	NA	No	YES	D
13	32	Male	USA	TN	No	YES	C
14	46	Male	USA	MD	Yes	YES	A

The dataset is shown above.

Then we can start debug the code. When debugging, a menu should be shown and the user can choose from 0 to 9.

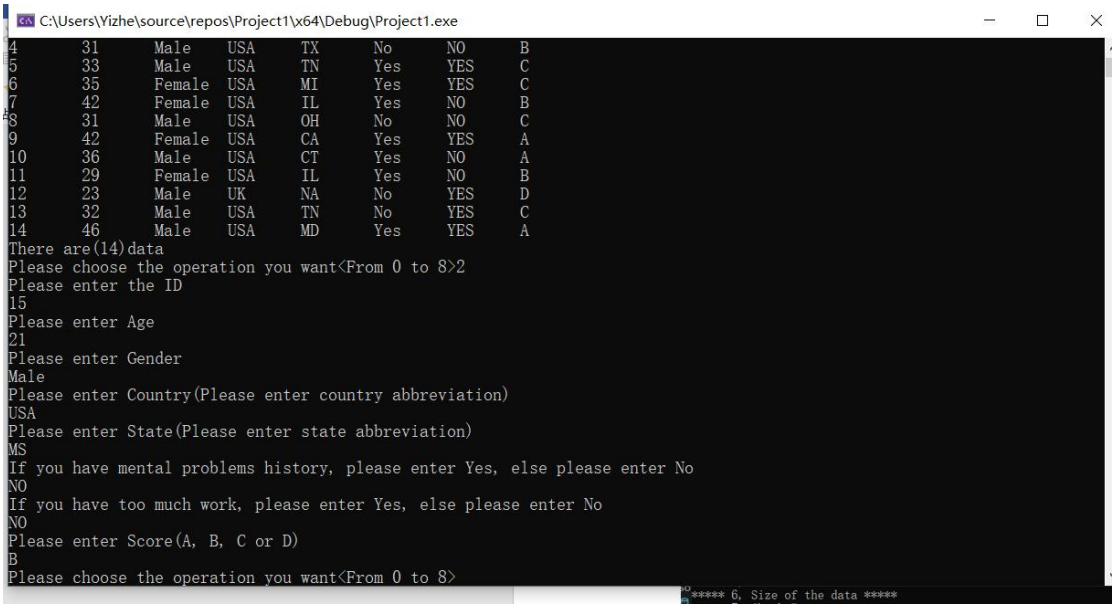
1. Display

Once choose the display function, the original data set and the size of the dataset will be shown in the screen, as shown below:

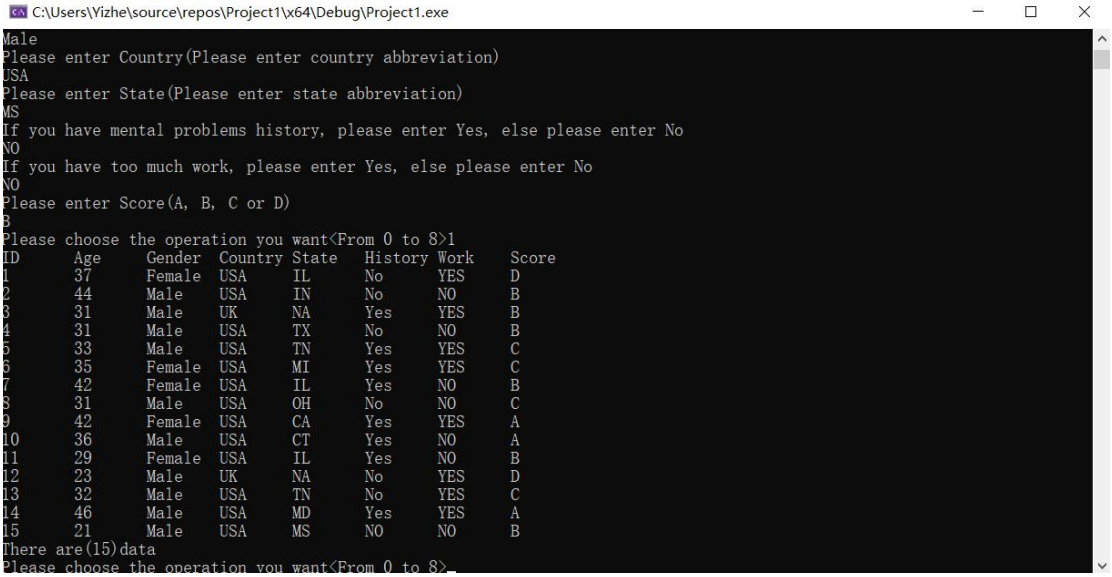


2. Insert

If you want to insert a new data, press 2, and then enter all of the information.



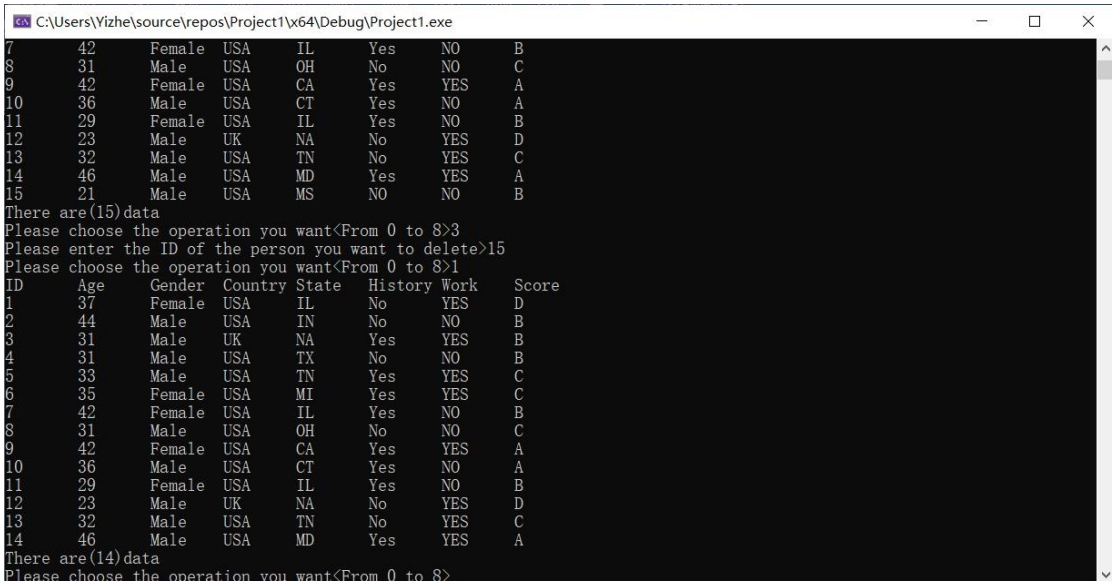
If you want to check whether the data is inserted, press 1 to display.



As you can see in the screenshot, the new dataset entered has been added to the end of the text file and the size of the function has changed to 15.

3. Delete

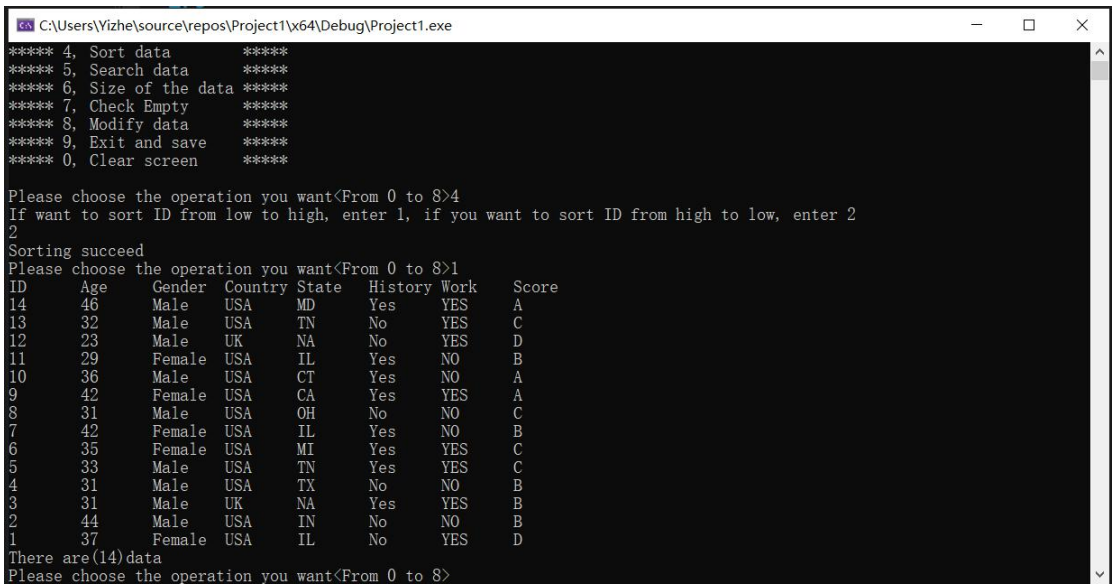
If you want to delete a data, just press 3 and enter the ID



The 15th data has been deleted and the size of the dataset has changed to 14.

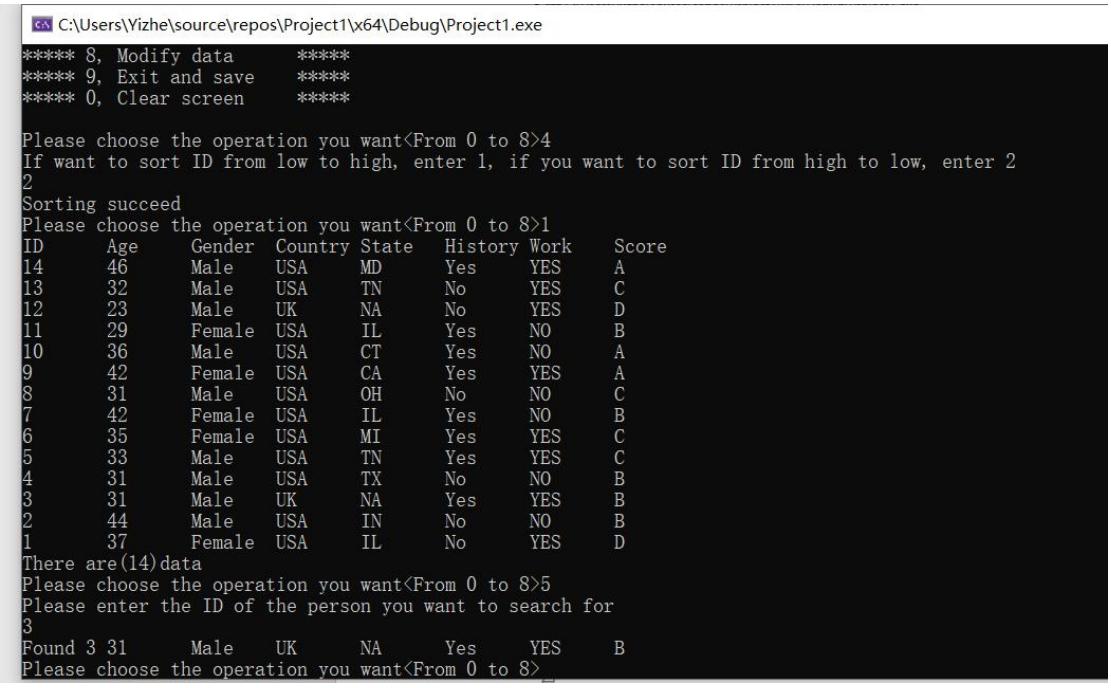
4. Sort

If you want to sort the data, please press 4. For now, our program can only sort the dataset in ID. However, you can sort the dataset from low or high or high to low. As shown in the screenshot below. Once the operation is done, you can press 1 to display it.



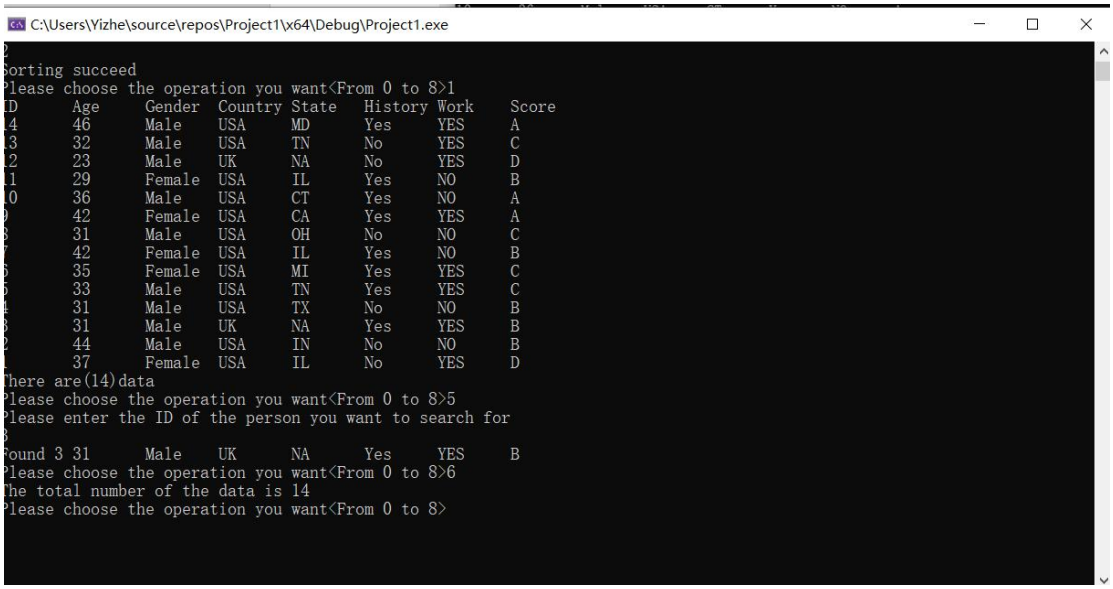
5. **Search**

If you want to search a certain person dataset, please enter the ID of the person. If the person is in the list, the data will be shown in the screen.



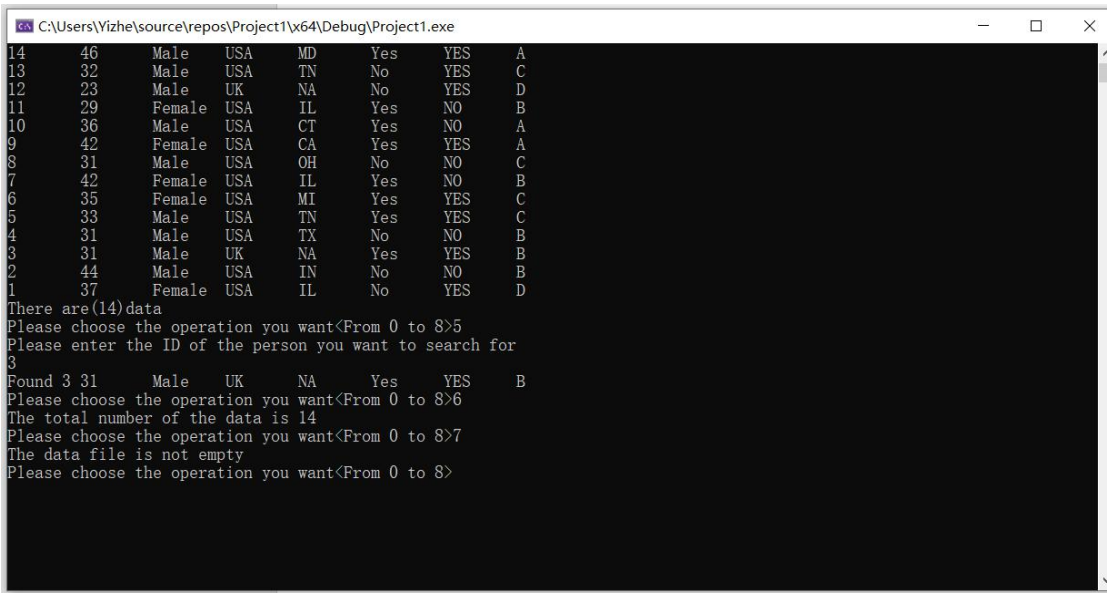
6. Size

If you want to know the size of the data, you can press 6 to display it.



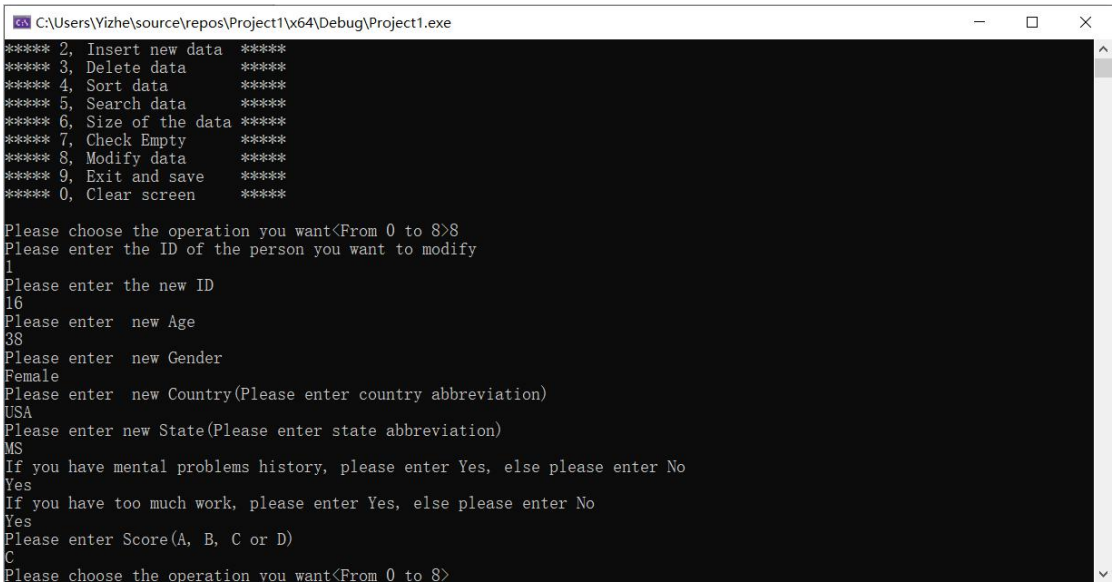
7. Check empty

If you want to check whether the list is empty, press 7.

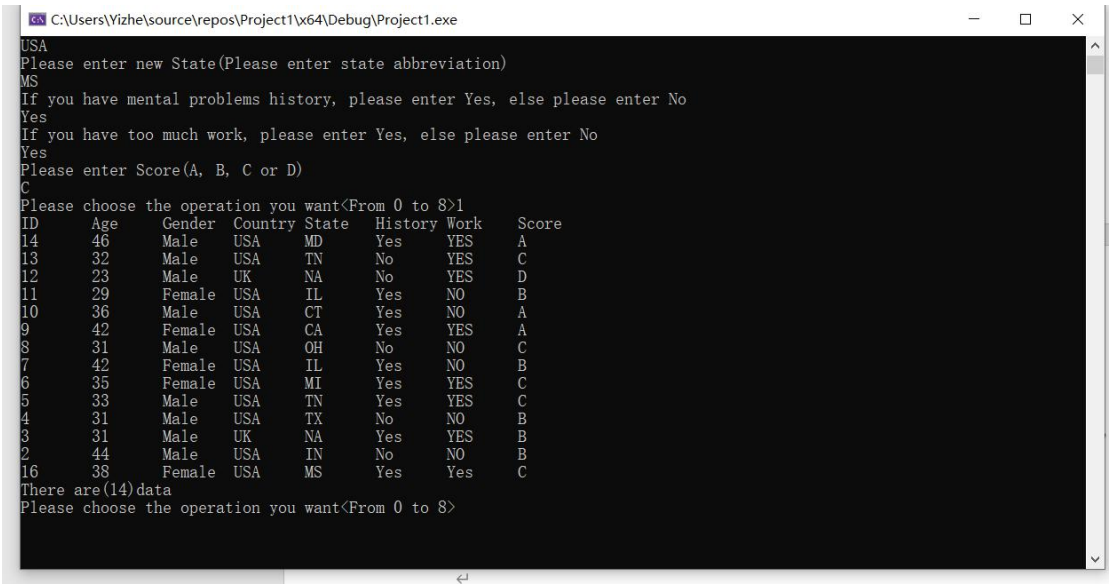


8. Modify

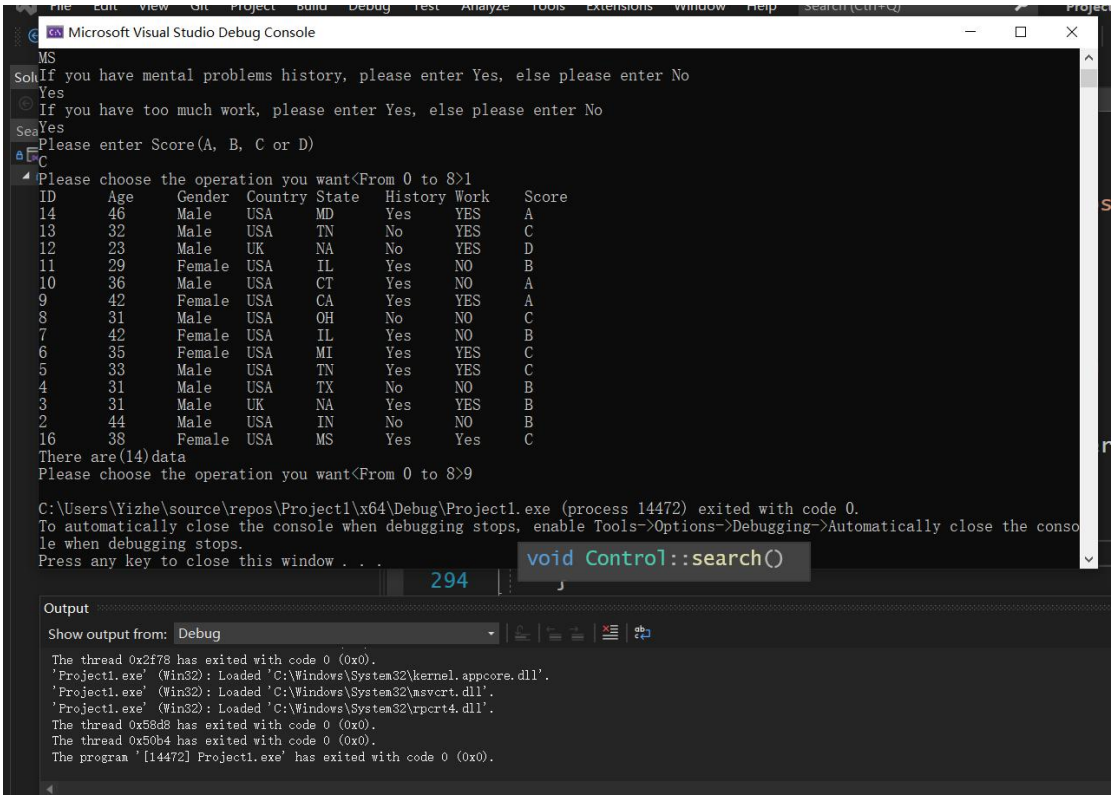
If you want to modify a data, press 8. You should first enter the ID of the person, and then enter the new information you want to modify.



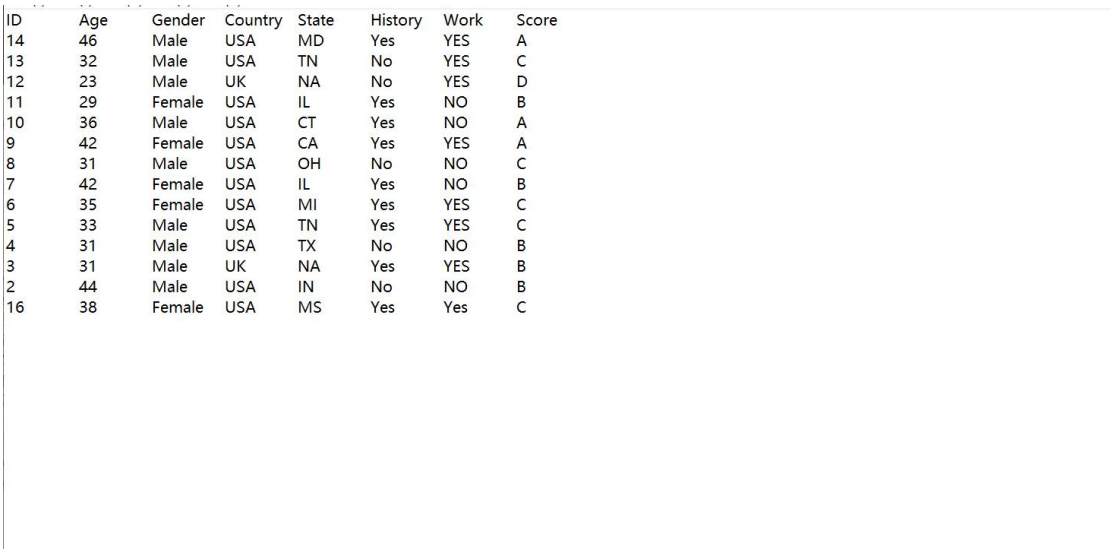
You can press 1 to check whether the data has been modified



9. Exit and save



If you want to exit the program, press 9. The debug will be ended and the program will create a new txt file called save.txt to store the data, as shown below.



ID	Age	Gender	Country	State	History	Work	Score
14	46	Male	USA	MD	Yes	YES	A
13	32	Male	USA	TN	No	YES	C
12	23	Male	UK	NA	No	YES	D
11	29	Female	USA	IL	Yes	NO	B
10	36	Male	USA	CT	Yes	NO	A
9	42	Female	USA	CA	Yes	YES	A
8	31	Male	USA	OH	No	NO	C
7	42	Female	USA	IL	Yes	NO	B
6	35	Female	USA	MI	Yes	YES	C
5	33	Male	USA	TN	Yes	YES	C
4	31	Male	USA	TX	No	NO	B
3	31	Male	UK	NA	Yes	YES	B
2	44	Male	USA	IN	No	NO	B
16	38	Female	USA	MS	Yes	Yes	C

10. clear screen

You can press 10 to clear the screen.

4. Data structure and design

The data structure used in our project is std strings. In the beginning, our group thought of whether we could use stacks to do the project. It took me some time to do the display code called stack_version.cpp, but found that this solution is not appropriate, because the code needs to read data from the text file and show them. Therefore, I changed my mind and decided to use std strings as our data structure.

One of the biggest advantages of using std strings is that we can import our dataset as a text file and save it as another text file once the modification is completed. Also, we can store much more data as large as the size of uint32, the code of creating data structures is shown below:

```
using namespace std;

class Person
{
    using uint32 = unsigned; //Use uint32 to restore more data because there is no negative numbers.
public:
    Person(); //The function itself
    Person(uint32 ID); //Use ID to identify different people.
    Person(uint32 ID, int Age, const std::string& Gender, //use std to store the the data. Data structure used is std string.
        const std::string& Country, const std::string& State,
        const std::string& History, const std::string& Work,
        const std::string& Score);
    void display(); //The display operation.
    std::string datainfo(); //To get our data information as strings.
    void datawrite(const std::string& str); //To write our data information down.
public:
    bool operator==(const Person& right) const; // To eliminate inappropriate data and be more efficient.
    bool operator>(const Person& right) const;
    bool operator<(const Person& right) const;
public:
    uint32 ID; //All of the different types in our data
    int Age;
    std::string Gender;
    std::string Country;
    std::string State;
    std::string History;
    std::string Work;
    std::string Score;
};
```

The stark version code is in the GitHub. Please copy the link to see it.

https://github.com/Yizhe07/Project_Mental_Health/blob/master/stack_version.cpp

5. Dataset

DATA SET

ID	Age	Gender	Country	State	History	Work	Score
1	37	Female	USA	IL	No	YES	D
2	44	Male	USA	IN	No	NO	B
3	31	Male	UK	NA	Yes	YES	B
4	31	Male	USA	TX	No	NO	B
5	33	Male	USA	TN	Yes	YES	C
6	35	Female	USA	MI	Yes	YES	C
7	42	Female	USA	IL	Yes	NO	B
8	31	Male	USA	OH	No	NO	C
9	42	Female	USA	CA	Yes	YES	A
10	36	Male	USA	CT	Yes	NO	A
11	29	Female	USA	IL	Yes	NO	B
12	23	Male	UK	NA	No	YES	D
13	32	Male	USA	TN	No	YES	C
14	46	Male	USA	MD	Yes	YES	A

Initially, we will have 14 different data in our set, and each data has 8 different features: ID, Age, Gender, Country, State, History, Work and Score.