

CENG 303 Programming Assignment - 3

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C++ programming language is used for this assignment.

There is a source and a header file in the project and their names are obs.cpp and obs.h respectively. First of all, these files should be included in the workspace environment. Also, I generated the main file so as to not waste your time. You can use this main file after adding obs.cpp and obs.h.

To run program, you can use any C++ compiler, but this compiler must support at least C++ 17 standard.

fillNameBufferFromTx function has been implemented to read names and surnames from txt file. After reading names and surnames, they will be used for generating random student. Firstly, this function should be called before infinitive loop.

randomStudentGenerator functions generates random object which its type is Student class.

There are three different functions for chaining and open addressing methods. These functions have been implemented to insert, find and delete process. These functions can be shown below.

```
int insert_chaining(std::unique_ptr<Student> p);
```

```
Student* find_chaining(Student&);
```

```
int delete_chaining(Student& student);
```

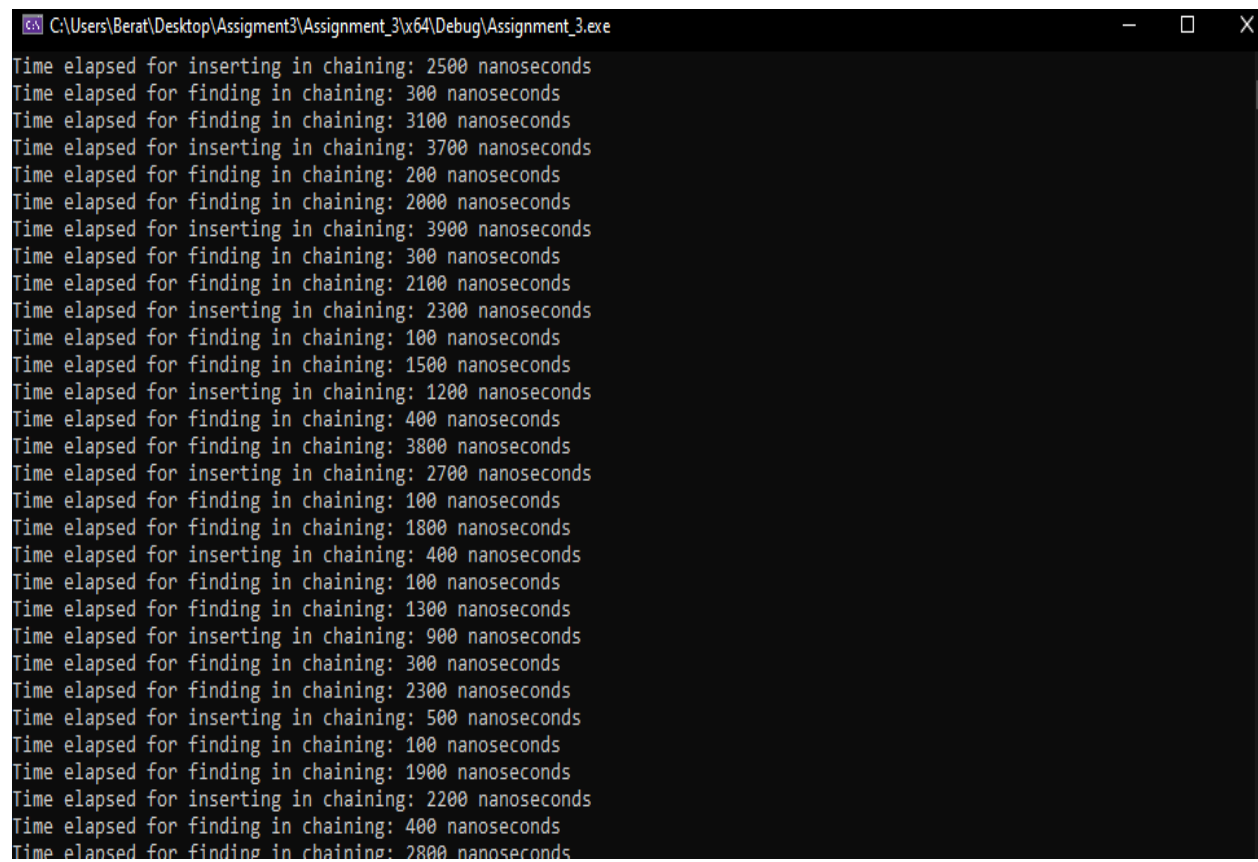
```
int insert_openAdressing(Student*);
```

```
Student* find_openAdressing(Student& student, int selection = 0);
```

```
int delete_openAdressing(Student&);
```

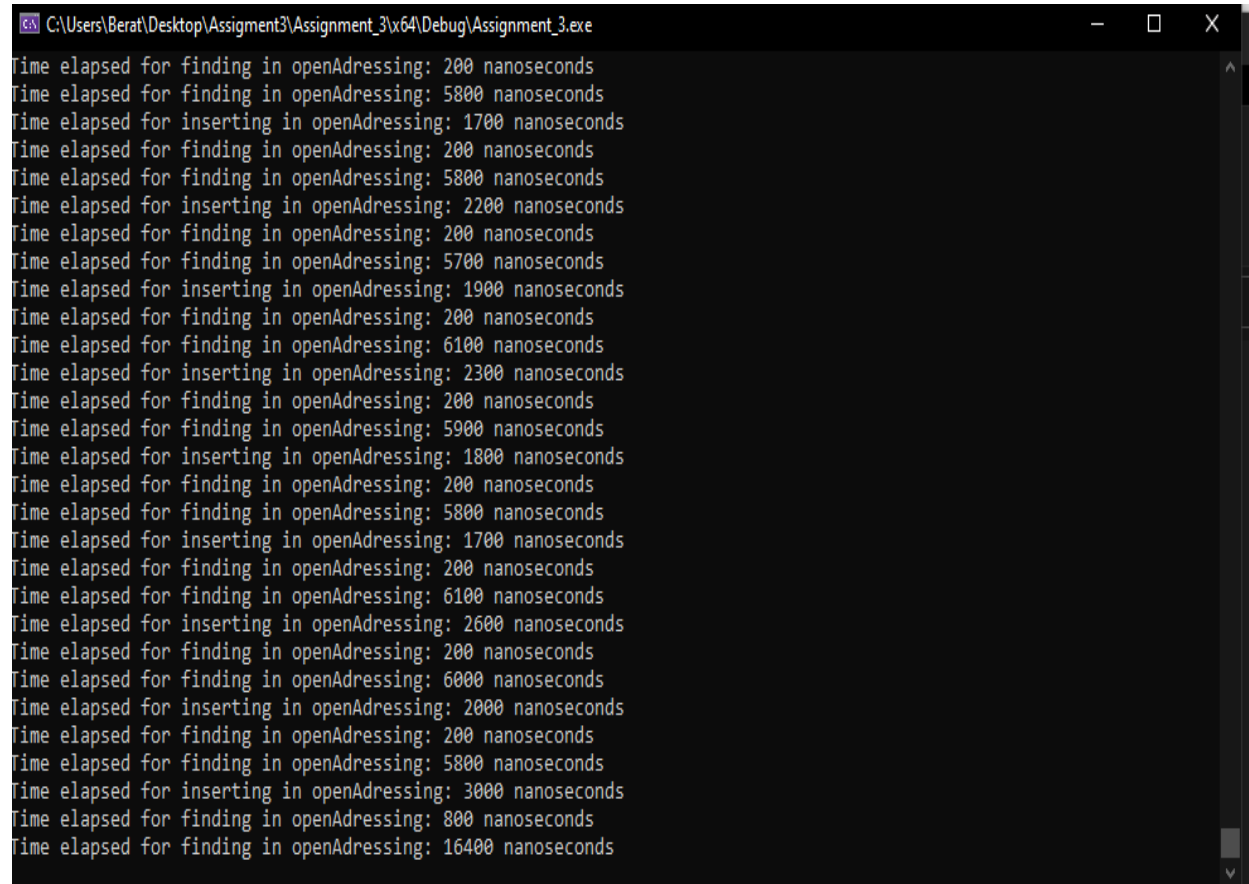
names.txt, surname.txt and primes.txt should be also located in workspace area as these files are used to generate students in fillNameBufferFromTx function.

Screenshoot for inserting, deleting and finding in chaining method.



```
C:\Users\Berat\Desktop\Assignment3\Assignment_3\x64\Debug\Assignment_3.exe
Time elapsed for inserting in chaining: 2500 nanoseconds
Time elapsed for finding in chaining: 300 nanoseconds
Time elapsed for finding in chaining: 3100 nanoseconds
Time elapsed for inserting in chaining: 3700 nanoseconds
Time elapsed for finding in chaining: 200 nanoseconds
Time elapsed for finding in chaining: 2000 nanoseconds
Time elapsed for inserting in chaining: 3900 nanoseconds
Time elapsed for finding in chaining: 300 nanoseconds
Time elapsed for finding in chaining: 2100 nanoseconds
Time elapsed for inserting in chaining: 2300 nanoseconds
Time elapsed for finding in chaining: 100 nanoseconds
Time elapsed for finding in chaining: 1500 nanoseconds
Time elapsed for inserting in chaining: 1200 nanoseconds
Time elapsed for finding in chaining: 400 nanoseconds
Time elapsed for finding in chaining: 3800 nanoseconds
Time elapsed for inserting in chaining: 2700 nanoseconds
Time elapsed for finding in chaining: 100 nanoseconds
Time elapsed for finding in chaining: 1800 nanoseconds
Time elapsed for inserting in chaining: 400 nanoseconds
Time elapsed for finding in chaining: 100 nanoseconds
Time elapsed for finding in chaining: 1300 nanoseconds
Time elapsed for inserting in chaining: 900 nanoseconds
Time elapsed for finding in chaining: 300 nanoseconds
Time elapsed for finding in chaining: 2300 nanoseconds
Time elapsed for inserting in chaining: 500 nanoseconds
Time elapsed for finding in chaining: 100 nanoseconds
Time elapsed for finding in chaining: 1900 nanoseconds
Time elapsed for inserting in chaining: 2200 nanoseconds
Time elapsed for finding in chaining: 400 nanoseconds
Time elapsed for finding in chaining: 2800 nanoseconds
```

Screenshoot for inserting, deleting and finding in openAdressing method.



```
C:\Users\Berat\Desktop\Assignment3\Assignment_3\x64\Debug\Assignment_3.exe
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5800 nanoseconds
Time elapsed for inserting in openAdressing: 1700 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5800 nanoseconds
Time elapsed for inserting in openAdressing: 2200 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5700 nanoseconds
Time elapsed for inserting in openAdressing: 1900 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 6100 nanoseconds
Time elapsed for inserting in openAdressing: 2300 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5900 nanoseconds
Time elapsed for inserting in openAdressing: 1800 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5800 nanoseconds
Time elapsed for inserting in openAdressing: 1700 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 6100 nanoseconds
Time elapsed for inserting in openAdressing: 2600 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 6000 nanoseconds
Time elapsed for inserting in openAdressing: 2000 nanoseconds
Time elapsed for finding in openAdressing: 200 nanoseconds
Time elapsed for finding in openAdressing: 5800 nanoseconds
Time elapsed for inserting in openAdressing: 3000 nanoseconds
Time elapsed for finding in openAdressing: 800 nanoseconds
Time elapsed for finding in openAdressing: 16400 nanoseconds
```