Object Oriented Programming Hmw1

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At the beginning, we should design appointment system for new identity card. We have two different list which are these in the following:

-Citizen with Appointment

-Citizen with no Appointment

So we need divide the list depend on HasApp -> True or False

I am parsing and divide the file with the respect to “/t” tab. I obtain Citizen of idNo’s , Name’s, Surname’s etc. I am containing with stl vector (Citizen of idNo’s, Name’s, Surname’s etc.)

```
vector<string> idNo;//we need to obtain to read input txt file so that after parsing,
vector<string> Name;//we divided by string input txt file besides that we must contain idNo's,Name's,Surname's,HasApp's etc. with vector strin
vector<string> Surname;
vector<string> hasApp;
vector<string> appDate;
vector<string> appSlot;
vector<string> entryClock;

ifstream inputfile;//open the data
inputfile.open("input.txt");//open input.txt
string line;
string delimeter="\t";//set with tab  to get the names,surnames etc.

getline(inputfile,line);

    while (getline(inputfile,line)){//read line by line

    size_t pos = 0;
    string token;
    string::size_type sz;
```

At this point I could design my Time.h and Citizen.h . I built these class to assignment’s attributes and class methods. I create a Time constructor which is included to convert from string to integer because of my attributes. I create a Citizen constructor which is included to convert from string to whatever ı want to attributes types. In Time class, I have to compare entry clock and dates to understand who citizen comes from early and arrange to appointment fairly at this way. Hereby, I should build operator overloading functions to arrange dealing with these problems fairly as I could use these functions in Civil Registry Class.

```
#include <cstring>
#include <sstream>
#include <cstdlib>

using namespace std;

class Time{
        int day;//these are our attributes which told us in assignment
        int month;
        int year;
        int hour;
        int minute;

        public:
            Time(string date, string entry);// we need to create a Time constructor to set up date and entry time.
            Time getTime();//we can get time object for use by other class
            bool operator<(const Time &);// we need to compare our date time to set appointment sorting.
            bool operator>(const Time &);//we need to compare our date time to set appointment sorting.
            bool operator==(const Time &);//we need to compare our date time to set appointment sorting.
};
Time::Time(string date, string entry){
Time Time::getTime(){
bool Time::operator<(const Time &indata){
bool Time::operator>(const Time &indata){
bool Time::operator==(const Time &indata){

#endif
```

In Citizen class, I have already converted the respect to attributes types. I build char *(idNoName,Surname),bool HasApp and Time objects (obtain entry and date) to be able to create a citizen class. I must use destructor function to destroy char * arrays to prevent memory leak problems. And I create getAppTime and getName class getter functions (because of private attributes for the data hiding) to access easier in Civil Registry Class.

```
7   using namespace std;
8
9   class Citizen{
10      char *idNo;//these are our attributes which told us in assignment
11      char *Name;
12      char *surName;
13      bool hasApp;
14      Time *appTime;
15      char *appSlot;
16      public:
17          Citizen(){};
18          char * getName()const;// we need to show name by name our objects so this getter func. is necessary
19          void setName(string name);
20          bool getHasApp(){
29          Citizen(string id,string name,string surname,string hasapp,string appslot,string date,string entry){
54          Time & getAppTime();
55          ~Citizen();
56  };
57  Time  & Citizen::getAppTime(){
60
61  char  * Citizen::getName()const {
64
65  Citizen::~Citizen(){
72
73  #endif
```

Civil Registry Class has two attributes which are wApp and wOutApp stl list and three methods which are insert,remover and print functions. At this class, I compare the dates and entry clock (accessing to operator overloading functions) with respect to HasApp and decide which list is selected and to adding push_back or push_front Citizen Objects (accoring to operator overloading function) in insert function. In remover function, I give integer argument to decide which list remover pop_front objects. In print function , I could show the list elements.

```
3   #include<iostream>
4   #include <cstring>
5   #include <list>
6   #include <iterator>
7   #include "Citizen.h"
8   #include <cctype>
9   #include "Time.h"
10  using namespace std;
11
12  class CivilRegistry{
13      list<Citizen> wApp;//Civil Registry attributes
14      list<Citizen> wOutApp;
15
16      public:
17          CivilRegistry(){};//CivilRegistry Constructor
18
19          void insertCitizen(Citizen & c){// we need insert   Citizen argument respect to operator overloading functions.
59          void removerCitizen(int a){
68                  void print(){
82  };
83
84
85
86  #endif
```

At the end of the main.cpp, we should create Citizen objects arrays and we need to insert these citizens in Civil Registry class. As we could remove(pop_front) and print them all.

```
int size = Name.size();//we need to know how many citizen size
Citizen a[size];//we need  create with Citizen objects up to size.
CivilRegistry b;//we need create civil registry object to sending Citizen's Objects ,we should insert,remove  with this.
for (int i=0;i<idNo.size();i++){


    Citizen new_citizen = Citizen(idNo[i],Name[i],Surname[i],hasApp[i],appSlot[i],appDate[i],entryClock[i]);//we should create a newCitizen constr
    a[i] = new_citizen;//then we need contain this new-citizen object with a[i]citizens

    b.insertCitizen(a[i]);//Now we have Citizen and we could insert our list with Civil Registry object

}
    b.print();//As we can show our list objects to know the results.

    b.removerCitizen(1);// to test remover func. for wApp list
    b.removerCitizen(0);//to test remover func. for wOutApp list
    //b.print();// As we could show remover list elements.

return 0;
```

Note: My all attributes are private and my all methods are public because of data hiding. I did not need to use any static ,const etc in attributes.