CENG 241 OBJECT ORIANTED PROGRAMMING

FALL TERM PROJECT REPORT

<< Hospital Reservation System >>

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1- INTRODUCTION

The hospital reservation system allows patients to easily and remotely make appointments from the relevant hospital departments.

1.1 Purpose

Today, in most hospitals,people line up to make an appoinment,and some people get help from acquaintances working in that hospital,which exposes injustice.
The aim of this Project is to reduce the complexity,crowd of people and avoid the favoritism.

1.2 Scope

Within the scope of the project, a system plan was created by collecting and analyzing the data required in a hospital system. Then, an algorithm was considered in order to transform it into a code, and thoughts were transferred to the code. It is specified how the application works, by creating a class diagram. Finally, whether this program is running has been tested.

2- DESIGN

2.1 Approach

The program includes features that can meet the needs of a patient. It is simple but has fast access to the information to be viewed.

2.2 System

The main screen of the program is as in the figure.

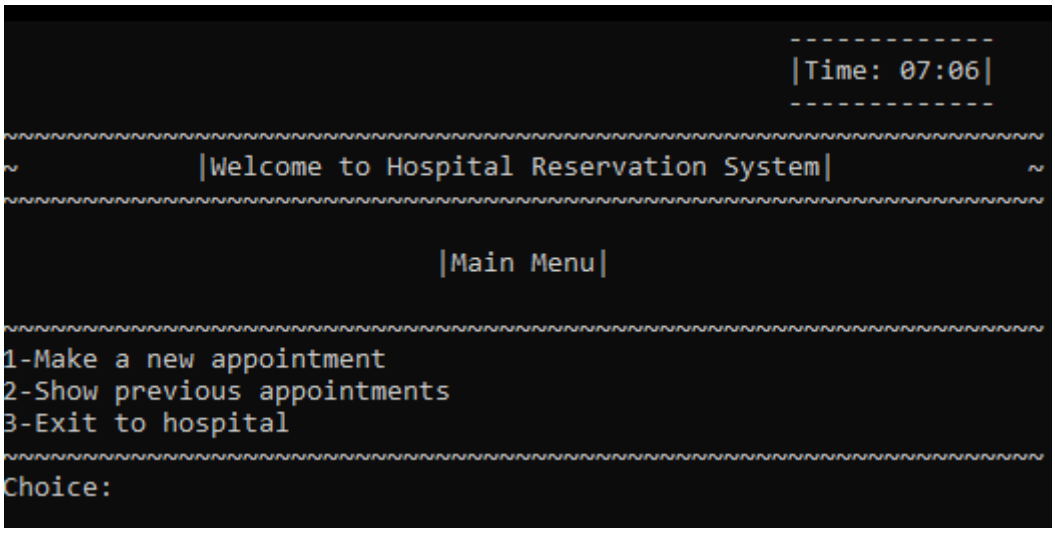


Figure 1.Main Page

With this program, the user can make a new appoinment that the desired hospital departments due to entering some personal information.
We run the program by entering the number of the operation we want in the select section.

For example, we can continue our process by choosing the first operation.

```
Due to the corona virus please enter your 10 digit HES code:
ABCDEFG123
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your name: Ahmet
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your surname: Kasap
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your gender(m/f):
m
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your blood type(A|B|AB|0):
AB
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your 10 digit phone number(5*********):
5354715898
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter your 11 digit national id:
30258746913
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
                    |Patient Information|
Name: Ahmet
Surname: Kasap
Gender(m/f):m
Blood type: AB
Phone number:5354715898
National id:30258746913
HES code: ABCDEFG123
```

Figure 2. Patient Personal Information

The user must enter some personal info before the selecting departments.

```
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
                     |Departments|
1. Emergency
2. Nutrition and Dietetics
3. Ear Nose Throat
4. Psychology
5. Dental Health
6. Dermatology
7. Cardiology
8. Chest Diseases
9. Physiotheraphy
10. General Surgery
11. Back to main menu
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Enter the department you want: _
```

Figure 3. Selecting Departments

We can continue our process by choosing the any operation we want.

For example ,we choose 4th option Psychology.

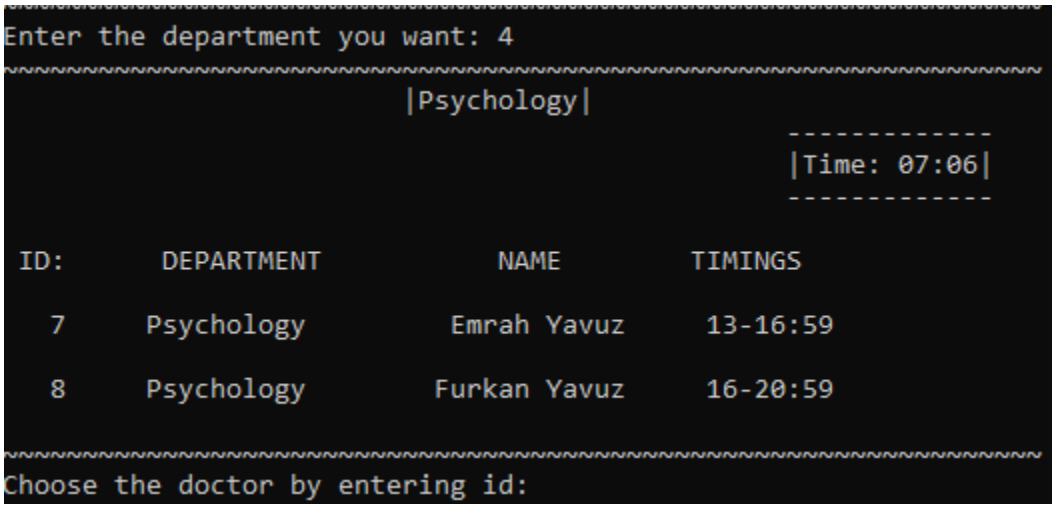


Figure 4. List of Department Doctors

In all the options we can see the doctor's name and id. Now we should choose doctor whose hour available for us and also doctor.

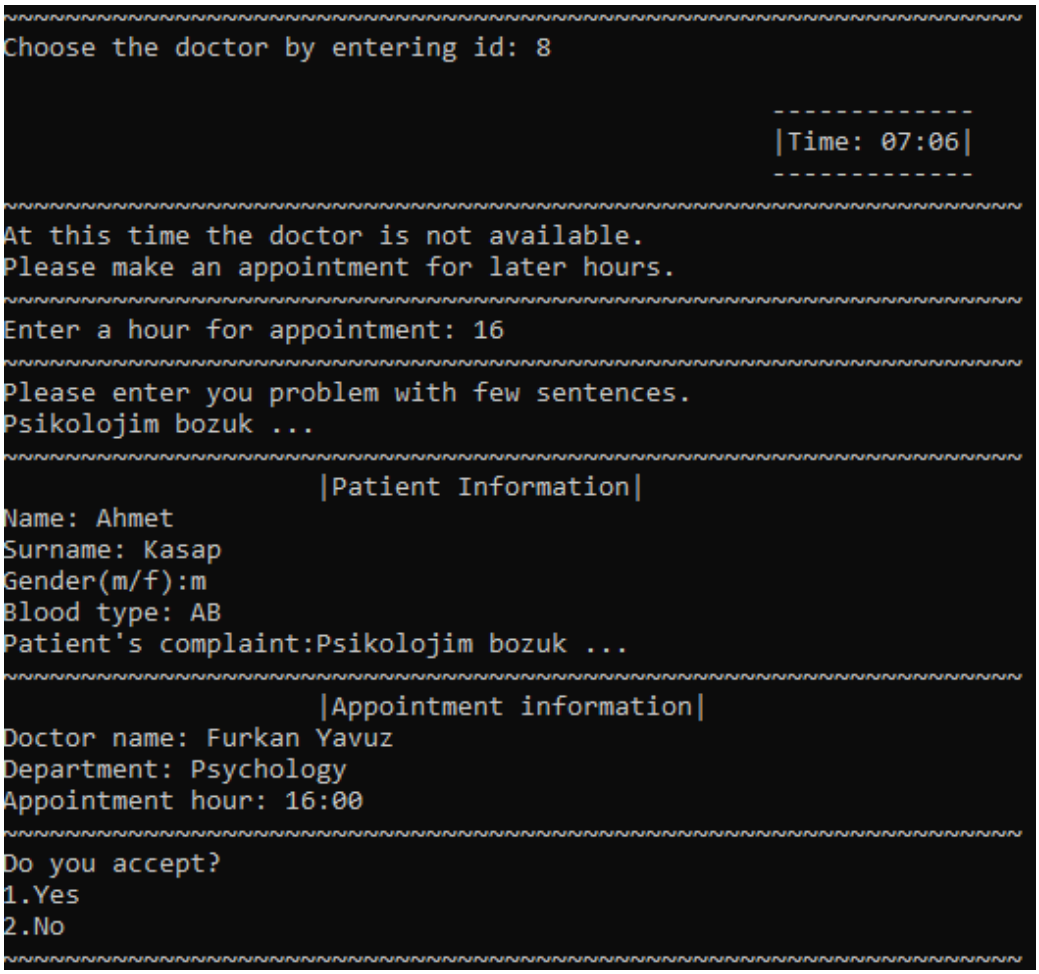


Figure 5. Acccept and See The Info

In this part, we can make an appointment. For now or for future time.
Let’s choose option 1 and reserv the doctor for now.

Figure 6.Retrun to Main Menu

If we make a new appointment we can continue as above.
The appointment has been recorded. Now we can exit and go to main menu via -11- .

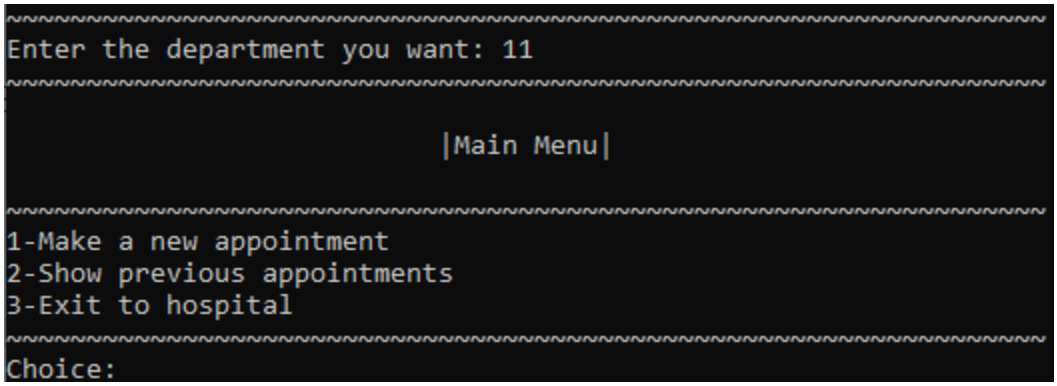


Figure 7 . Main Menu

In this part we can choose 2 and we can see the previous appointments.

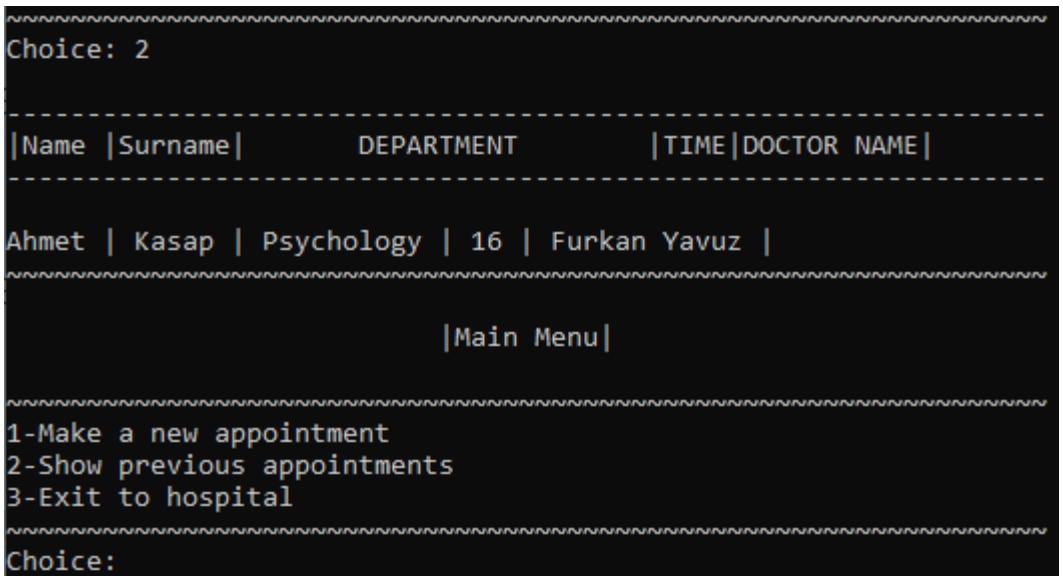


Figure 8. Previous Appointments

Finally, we can exit the whole system entering

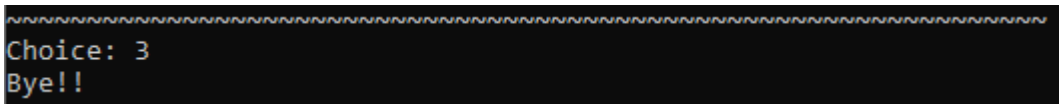


Figure 9. EXIT

2.3 System Design

In the system, We have 4 class : Depratment, Doctor, Patient and Person.

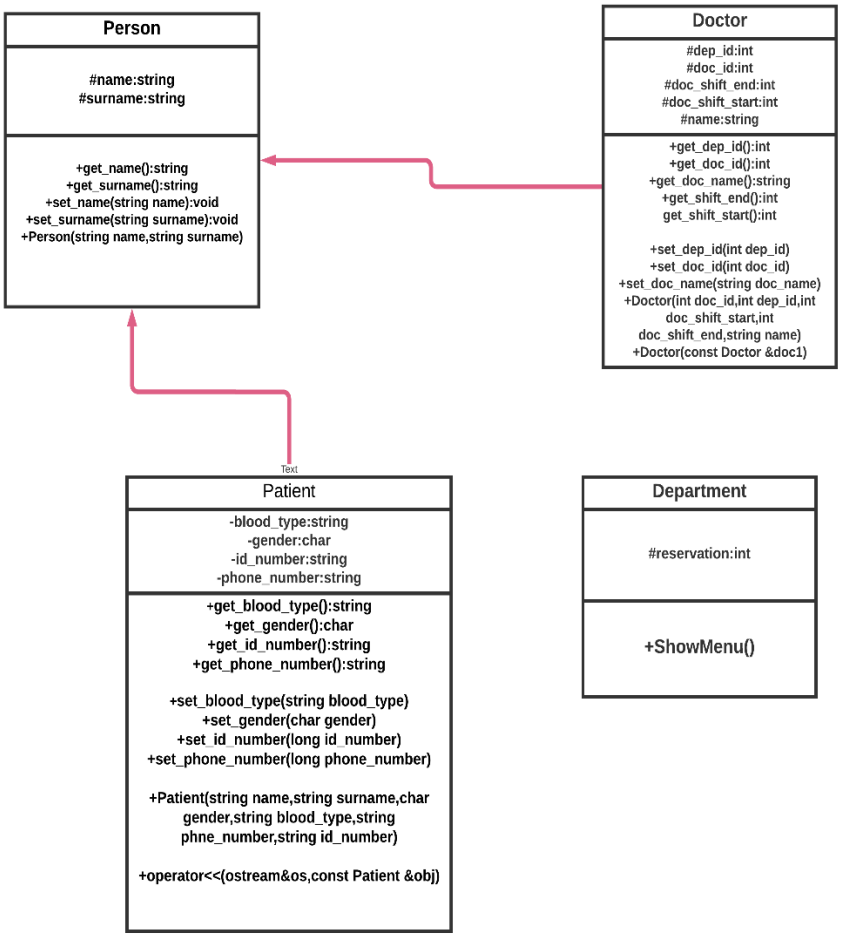
The Person class is the parent of the patient class. There is an inheritance relationship between them. In the system, it is aimed to protect the system by using private and protected attributes.

Protected attributes can be used with friend function if desired.

This system includes the file proccessing subject. Some data has used by writing on file and reading from file.

This system also has data encapsulation, we also use get and set functions to access variables within the class.

The class diagram representation of the software is as follows:


Person
#name:string
#surname:string
+get_name():string
+get_surname():string
+set_name(string name):void
+set_surname(string surname):void
+Person(string name,string surname)
Doctor
#dep_id:int
#doc_id:int
#doc_shift_end:int
#doc_shift_start:int
#name:string
+get_dep_id():int
+get_doc_id():int
+get_doc_name():string
+get_shift_end():int
get_shift_start():int
+set_dep_id(int dep_id)
+set_doc_id(int doc_id)
+set_doc_name(string doc_name)
+Doctor(int doc_id,int dep_id,int
doc_shift_start,int
doc_shift_end,string name)
+Doctor(const Doctor &doc1)
Text
Patient
-blood_type:string
-gender:char
-id_number:string
-phone_number:string
+get_blood_type():string
+get_gender():char
+get_id_number():string
+get_phone_number():string
+set_blood_type(string blood_type)
+set_gender(char gender)
+set_id_number(long id_number)
+set_phone_number(long phone_number)
+Patient(string name,string surname,char
gender,string blood_type,string
phne_number,string id_number)
+operator<<(ostream&os,const Patient &obj)
Department
#reservation:int
+ShowMenu()

3- CONCLUSION

This project is an example created for the needs of health institutions and hospitals.
It is an application that has been tried to be exemplified by using the topics (functions, class, inheritence, constructors, destructors, etc.) we see in CENG241 course content of this semester. It is a system that has been created with a C++ object-oriented software language. It can be developed according to needs and can be setting an example for the users in the field.