



# HOSTEL MANAGEMNET SYSETEM

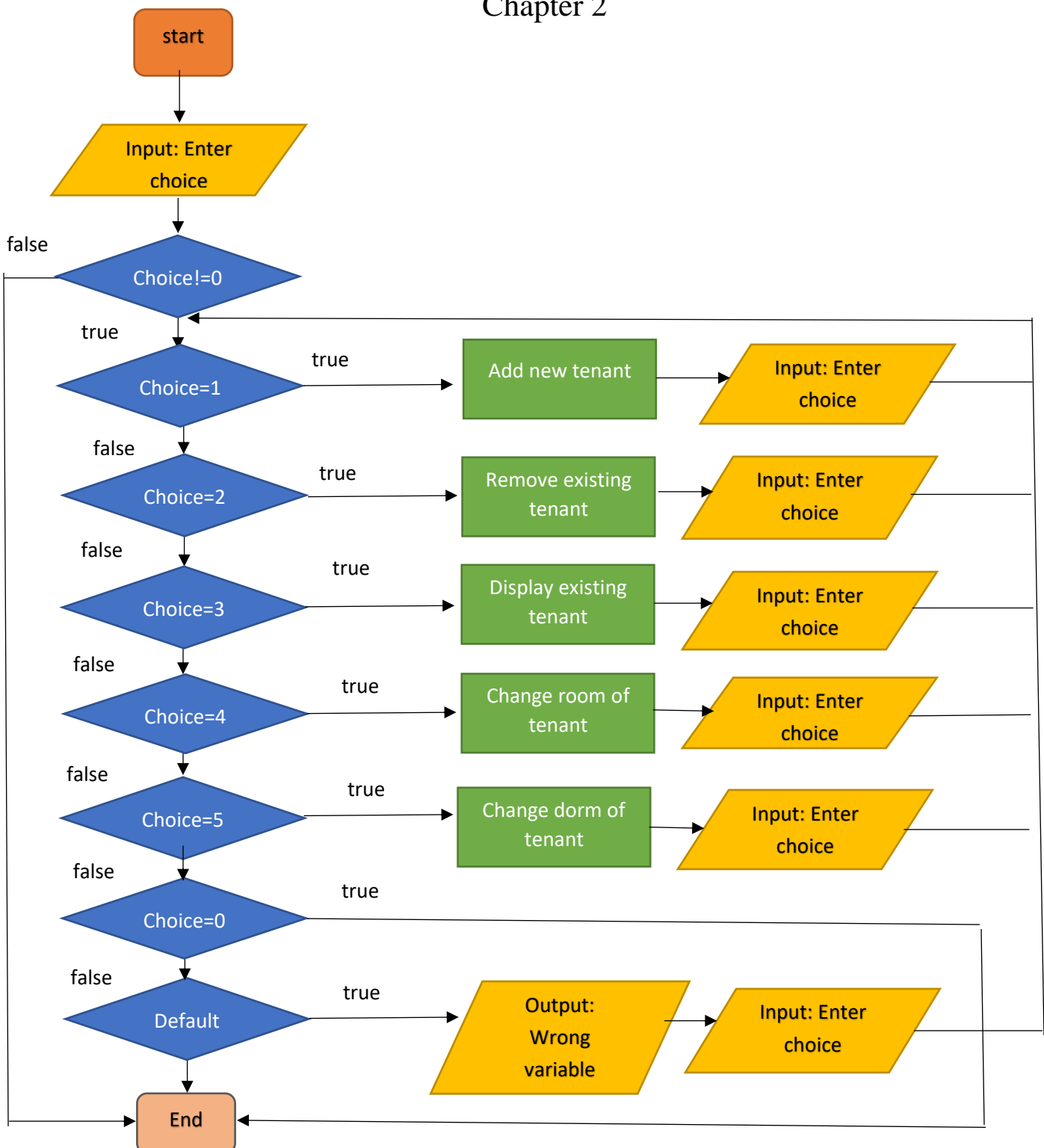
Documentation

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## Chapter 1

My task of final project is Hostel management system. It can manage students in dorms and organize. For example, you can add new tenant or remove the one who is moving out from dorm. Also, user can edit and display the existing data of tenant.

## Chapter 2



## Chapter 3

In sum there are 5 classes I used.

The first class is Person class. In this class you will find personal data such as first name, last name, email and phone number. The main reason why I created this class is to have base class for other class. The Person class has default constructor, destructor, set\_Person, getFname and getLname functions. I used set\_Person function to get data from user and reason why I didn't combine this function and constructor is to create person first then initialize it.

The second class is Student class, which is inheritance class of Person class. It has Neptun code and scientific degree as attributes. Same as person class it has set\_Student function instead of constructor for same reason.

The third class is Dorm class, which is abstract base class of Tenant class. It has two attributes: Dorm's name and room. Set\_Dorm, set\_new\_room and set\_new\_dorm can be found as methods of this class. Set\_new\_room and set\_new\_dorm functions are virtual, and will be used in the Tenant class.

The fourth class is ISerializable class, which is also abstract class of Tenant class and an idea of using it was taken from 9<sup>th</sup> laboratory work. It contains only two virtual functions: Load and Save.

The final class is Tenant class, which is multiple inheritance class of Student, Dorm and ISerializable classes. Tenant class has a lot of methods and operator overloading, but no attributes. It implements virtual functions of Dorm and ISerializable classes. To initialize new Tenant class object, need to use set\_new function, which call set\_Dorm and set\_Student functions. In Tenant class operator = and operator == are overloaded. Also, there is show\_tenant function, which shows all data of tenant. In the header Tenant file, but outside of Tenant class exist iequals function, which compares two string in lower case.

The program contains function.cpp and function.h files, which have functions: set\_up, saving\_tenant, line\_count, remove, search\_in\_array, display, wr\_to\_file, change\_room, change\_drom.

## Chapter 4

- <string> library header file is used in order to save all data of Tenant class, because it gives a lot of functions that is necessary for my program.
- <algorithm> library header file is used to implement iequals function.
- <iostream> library header file is used in order to use cin, cout.
- <fstream> library header file is used for file handling.
- Idea of using ISerializable class is taken from 9<sup>th</sup> laboratory work. It is used for file handling.
- iequals function is taken from internet source:  
<https://stackoverflow.com/questions/11635/case-insensitive-string-comparison-in-c>
- Idea of implementation of line\_count function is taken from internet source:  
<https://stackoverflow.com/questions/3482064/counting-the-number-of-lines-in-a-text-file>

## Chapter 5

In my final project selection form, I said my program will separate tenants by dorms (hostels) and write into different text file, but my program saves all tenant into same text file. Moreover, I wrote that I am considering to not use any external solution. I used quite a lot of library header files, took 2 functions from internet source and implemented some laboratory works. Also, I used inheritance, multiple inheritance, operator overloading and abstract class as extra points techniques.

## Chapter 6

I tested my program by entering typical data:

- Input is 1:

```
C:\Users\Munkh-Orgil\Documents\Homework\Hostel management\Debug
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options: 3
Enter First name of tenant: munkh-orgil
First Name: Munkh-Orgil
Last Name: Batbileg
Email: bmo@gmail.com
Phone number: 06208374390
Neptun code: P07GOF
Scientific degree: BSc
Dorm: kocsis
Room number: 100

Do you want to continue or to back main menu
Press Y for Continue and N to Back: n
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit
```

- Input is 3:

```
C:\Users\Munkh-Orgil\Documents\Homework\Hostel management\Debug\Hos
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options: 3
Enter First name of tenant: munkh-orgil
First Name: Munkh-Orgil
Last Name: Batbileg
Email: bmo@gmail.com
Phone number: 06208374390
Neptun code: P07GOF
Scientific degree: BSc
Dorm: kocsis
Room number: 100

Do you want to continue or to back main menu
Press Y for Continue and N to Back:
```

- Input is 4 and 5:

```
C:\Users\Munkh-Orgil\Documents\Homework\Hostel managen
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options: 4
Enter First name of tenant: munkh-orgil
Which room to change:300
Do you want to continue or to back main menu
Press Y for Continue and N to Back: n
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options: 5
Enter First name of tenant: munkh-orgil
Which dorm to change:visit
Do you want to continue or to back main menu
Press Y for Continue and N to Back: n
```

- Input is 2:

```
C:\Users\Munkh-Orgil\Documents\Homework\Hostel manage
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit
Please choose one of options: 2
Enter First name of tenant: munkh-orgil
Tenant successfully removed!
Do you want to continue or to back main menu
Press Y for Continue and N to Back:
```

Test with wrong variable:

- entering wrong variable at main menu and after options

```
Microsoft Visual Studio Debug Console
MAIN MENU
1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit
Please choose one of options: w
Please enter right variable!!! Please choose one of options:1
Enter a first name:asdgasd
Enter a last name:asdgasdg
Enter an email address:sdgsdag
Enter a phone number:sadgsda
Please enter Neptun code:asdgsgdag
Please enter which scientific degree:sadgasdg
Please enter in which dorm to move:asdgasd
Please enter in which room to move:sadgsda
Do you want to continue or to back main menu
Press Y for Continue and N to Back: asd
Please enter right variable!!!Please enter right variable!!!Please enter right variable!!!2
Please enter right variable!!!2
Please enter right variable!!!2
Please enter right variable!!!n
```

- Attempt to delete tenant who doesn't exist. Remove and change a room, a dorm options use same search function, therefore it will be same error with change a room and change a dorm.

Microsoft Visual Studio Debug Console

```
MAIN MENU

1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options:
2
Enter First name of tenant: asdgdsag
Error: No tenant found
Do you want to continue or to back main menu
Press Y for Continue and N to Back: n
```

- Attempt to delete tenant when there is no tenant:

C:\Users\Munkh-Orgil\Documents\Homework\Hc

```
MAIN MENU

1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options: 2
No tenants at all!
MAIN MENU

1) Add a new tenant.
2) Remove a tenant.
3) Display a tenant.
4) Change a room.
5) Change a dorm.
0) Exit

Please choose one of options:
```