FMI Ticket System

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Chapter 1

FMI Tickets System

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Source Code https://github.com/Syndamia/FMI-OOP-P1_TicketSystem

1.1 About

The "FMI Ticket System" is a small project, designed for managing the seats for different events. You can create or cancel an event in any available hall, reserve or straight out buy tickets for any given event and create some reports.

1.2 Structure overview

The project is roughly divided into 4 main components: User Interface, Services, Models and Generic fig1.

- The User Interface is the messenger between a user and the underlying application. All input and output is handled here.
- Services contain the business logic of the whole application. All requests to do anything like buying a ticket or creating an event must be sent to here.
- Models are the general classes that are used in the previous two layers.
- Generic is a place for all code that is can be used independently from the project. Stuff like Date, String or List.

This offers a fairly modular and flexible architecture, which should make big changes or additions to the code easier and more pain-free.

1.3 Acknowledgements

Wikipedia Leap year calculation for Date
https://en.wikipedia.org/wiki/Leap_year#Gregorian_calendar

StackOverflow Way to clear the console in Toolbox.hpp
https://stackoverflow.com/a/52895729/12036073

1.4 Figures

Figure 1: Overview of the "FMI Ticket System" design

Figure 1.1 Not available in LaTeX!

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 5

Class Documentation

5.1 Command Class Reference

Stores a 256 character name and a function pointer to be executed when calling run()

`#include <Command.h>`

Public Member Functions

- **Command** ()

  Leaves name empty and exec function pointer to nullptr.
- Command (const char *nameInMenu, void(*exec)())

  Copies contents of nameInMenu and stores exec.
- void run () const

  Executes the stored function pointer.
- const char * **get_nameInMenu** () const

5.1.1 Detailed Description

Stores a 256 character name and a function pointer to be executed when calling run()

Menu uses this class for a more generic implementation of it's navigate function.

5.1.2 Constructor & Destructor Documentation

5.1.2.1 Command()

```
Command::Command (
            const char * nameInMenu,
            void(*)() exec )
```

Copies contents of nameInMenu and stores exec.

Parameters

nameInMenu	C-style string, class stores at most 255 characters (last character is always terminating zero)
exec	Function pointer that will be executed when run() is called. Can be nullptr.

5.1.3 Member Function Documentation

5.1.3.1 run()

```
void Command::run ( ) const
```

Executes the stored function pointer.

Executes the stored function pointer, when it's not nullptr. Otherwise does nothing.

The documentation for this class was generated from the following files:

- src/Generic/ConsoleInterface/Command.h
- src/Generic/ConsoleInterface/Command.cpp

5.2 Date Class Reference

Stores a day, month and year.

```
#include <Date.h>
```

Public Member Functions

- **Date** ()
  Sets date as 01 May 2022.
- Date (const char *str)
  Parses string.
- Date (unsigned short day, unsigned short month, unsigned short year)
  Sets day, month and year.
- unsigned short **get_day** () const
  Returns the day.
- bool set_day (unsigned short day)
  Sets the day.
- unsigned short **get_month** () const
  Returns the month.
- bool set_month (unsigned short month)
  Sets the month.
- unsigned short **get_year** () const
  Returns the year.

- bool set_year (unsigned short year)

  Sets the year.
- String createString () const

  Returns the date as a String object.
- void read (std::istream &istr)

  Reads date from stream.
- void write (std::ostream &ostr)

  Writes date to stream.
- int compare (const Date &other) const

  Compares two dates.

5.2.1 Detailed Description

Stores a day, month and year.

5.2.2 Constructor & Destructor Documentation

5.2.2.1 Date() [1/2]

```
Date::Date (
            const char * str )
```

Parses string.

Parameters

str	C-style string

Values are initialized with zeroes. Then it parses the string:

Skips spaces, saves day with atoi, skips two characters, skips spaces, saves month with atoi, skips two characters, skips spaces, saves year with atoi.

Values are validated with setters. You should always have spaces between day, month and year and no non-numeric characters between them.

Remarks

If there are non-numeric characters, as per atoi() spec, the appropriate property is zero.

5.2.2.2 Date() [2/2]

```
Date::Date (
            unsigned short day,
            unsigned short month,
            unsigned short year )
```

Sets day, month and year.

Initializes values with zeroes and then uses setters to save the function arguments.

5.2.3 Member Function Documentation

5.2.3.1 compare()

```
int Date::compare (
            const Date & other ) const
```

Compares two dates.

Returns

-1 if this $<$ other, 1 if this $>$ other, 0 if this == other

5.2.3.2 createString()

```
String Date::createString ( ) const
```

Returns the date as a String object.

Returns

String object in the format "day.month.year"

Note

Currently there isn't any way to change the formatting

5.2.3.3 read()

```
void Date::read (
            std::istream & istr )
```

Reads date from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.2.3.4 set_day()

```
bool Date::set_day (
            unsigned short newDay )
```

Sets the day.

Returns

Whether newDay was saved or not

If newDay is equal to 0, or is more than the appropriate days in the month, the day isn't set.

5.2.3.5 set_month()

```
bool Date::set_month (
            unsigned short newMonth )
```

Sets the month.

Returns

Whether newMonth was saved or not

If newMonth is equal to 0 or is more than 12, the month isn't set.

5.2.3.6 set_year()

```
bool Date::set_year (
            unsigned short newYear )
```

Sets the year.

Returns

Whether year was saved or not

Year isn't set when newYear is zero

5.2.3.7 write()

```
void Date::write (
            std::ostream & ostr )
```

Writes date to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

The documentation for this class was generated from the following files:

- src/Generic/Date/Date.h
- src/Generic/Date/Date.cpp

5.3 Event Class Reference

Stores an event's hall, name, date, bought tickets and reservations.

`#include <Event.h>`

Public Member Functions

- **Event** ()
  Calls default constructors on data.
- **Event** (const Hall &hall, String name, Date date)
  Copies given hall and sets name and date.
- const Hall & **get_hall** () const
  Returns constant reference Hall in which event will be held.
- const String & **get_name** () const
  Returns constant reference to name of event.
- const Date & **get_date** () const
  Returns constant reference to date on which event will be held.
- OrderedList< Ticket > & **get_tickets** ()
  Returns reference to bought tickets.
- const OrderedList< Ticket > & **get_tickets** () const
  Returns constant reference to bought tickets.
- OrderedList< Reservation > & **get_reservations** ()
  Returns reference to reservations.
- const OrderedList< Reservation > & **get_reservations** () const
  Returns constant reference to reservations.
- void read (std::istream &istr)
  Reads Event from stream.
- void write (std::ostream &ostr)
  Writes Event to stream.
- int compare (const Event &other)
  Compares two events.

5.3.1 Detailed Description

Stores an event's hall, name, date, bought tickets and reservations.

5.3.2 Member Function Documentation

5.3.2.1 compare()

```
int Event::compare (
            const Event & other )
```

Compares two events.

Returns

compare of halls, or if they are equal, compare of dates

5.3.2.2 read()

```
void Event::read (
            std::istream & istr )
```

Reads Event from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function). Stored types must have defined a read() function.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.3.2.3 write()

```
void Event::write (
            std::ostream & ostr )
```

Writes Event to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function). Stored types must have defined a read() function.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

The documentation for this class was generated from the following files:

- src/Models/Event.h
- src/Models/Event.cpp

5.4 EventService Class Reference

Each EventService stores all events and a pointer to HallService.

`#include <EventService.h>`

Public Member Functions

- **EventService** (const HallService *hs)

  Sets HallService pointer and initializes events List.
- **EventService** (const HallService *hs, const Event *events, unsigned eventCount)

  Sets HallService pointer and copies values from events into events List.
- StatusCode createEvent (int hallNumber, const String &name, const Date &date)

  Creates an Event, with the given hallNumber, name and date.
- StatusCode cancelEvent (const char *name, const Date &date)

  Cancels an Event with the given name and date.
- StatusCode reserveTicket (const char *name, const Date &date, const char *password, const char *note, const Ticket &ticket)

  Creates a Reservation for an Event by name and date.
- StatusCode cancelTicketReservation (const char *name, const Date &date, const Ticket &ticket)

  Cancels a Reservation for a ticket.
- StatusCode ticketIsReserved (const char *name, const Date &date, const Ticket &ticket)

  Whether a ticket is a reserved or not.
- StatusCode buyTicket (const char *name, const Date &date, const Ticket &ticket, const char *password, String *reservationNoteOutput)

  Buys ticket, assuming it is reserved and stores the reservation note.
- StatusCode buyTicket (const char *name, const Date &date, const Ticket &ticket)

  Buys ticket, assuming it isn't reserved.
- String createSeatingString (const char *name, const Date &date, unsigned *seatsPerRow)

Creates a special String for status of all seats in given Event (by name and date) and returns seatsPerRow in given pointer.

- List< Event > queryMostWatched (unsigned topN)
- List< Event > queryInsufficientlyVisited ()
- StatusCode reportReservations (const char *name, const Date &date)

  Creates a report that lists all Events (with given name and date) and their reserved tickets.
- StatusCode reportBoughtTickets (int hallNumber, const Date &start, const Date &end, bool all=false)

  Creates a report that Lists all Events (with given name and date) and number of bought tickets.
- StatusCode load ()

  Loads Events from a database file.
- StatusCode save ()

  Saves Events to a database file.

5.4.1 Detailed Description

Each EventService stores all events and a pointer to HallService.

5.4.2 Member Function Documentation

5.4.2.1 buyTicket() [1/2]

```
StatusCode EventService::buyTicket (
            const char * name,
            const Date & date,
            const Ticket & ticket )
```

Buys ticket, assuming it isn't reserved.

Calls buyTicket with Reservation, but sets password and noteOutput to nullptr.

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

E_TicketAlreadyBought **if** A ticket for the given row and seat has already been bought

E_TicketAlreadyReserved **if** The seat and row are reserved, but given password is nullptr

E_WrongReservationPassword **if** The seat and row are reserved, but given password is incorrect

Success **otherwise**

5.4.2.2 buyTicket() [2/2]

```
StatusCode EventService::buyTicket (
            const char * name,
            const Date & date,
            const Ticket & ticket,
            const char * password,
            String * reservationNoteOutput )
```

Buys ticket, assuming it is reserved and stores the reservation note.

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

E_TicketAlreadyBought **if** A ticket for the given row and seat has already been bought

E_TicketAlreadyReserved **if** The seat and row are reserved, but given password is nullptr

E_WrongReservationPassword **if** The seat and row are reserved, but given password is incorrect

Success **otherwise**

5.4.2.3 cancelEvent()

```
StatusCode EventService::cancelEvent (
            const char * name,
            const Date & date )
```

Cancels an Event with the given name and date.

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

Success **otherwise**

5.4.2.4 cancelTicketReservation()

```
StatusCode EventService::cancelTicketReservation (
            const char * name,
            const Date & date,
            const Ticket & ticket )
```

Cancels a Reservation for a ticket.

Canceling a reservation doesn't require password and doesn't return the Reservation's note

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

W_TicketHadNotBeenReserved **Ticket** hadn't been reserved in the first place

Success **otherwise**

5.4.2.5 createEvent()

```
StatusCode EventService::createEvent (
            int hallNumber,
            const String & name,
            const Date & date )
```

Creates an Event, with the given hallNumber, name and date.

Uses HallService pointer to get Hall from hallNumber

Returns

E_HallDoesntExist **if** hallNumber doesn't correspond to any Hall, saved in HallService

E_EventWillOverlap **if** Event's date overlaps with another event in the same Hall

Success **otherwise**

5.4.2.6 createSeatingString()

```
String EventService::createSeatingString (
            const char * name,
            const Date & date,
            unsigned * seatsPerRow )
```

Creates a special String for status of all seats in given Event (by name and date) and returns seatsPerRow in given pointer.

Each seat in the Hall of the Event is represented by a single character, where 'R' means the seat is reserved, 'B' means the seat is bought and ' ' if it's neither.

Returns

Empty String **if** No Event with the given name and date exists

Proper String **otherwise**

5.4.2.7 load()

```
StatusCode EventService::load ( )
```

Loads Events from a database file.

Looks for file named "eventsDatabse.fmits", which is just a binary file, and then reads it with the "read" function in events List.

Returns

E_FileCouldNotBeOpened **if** The files couldn't be opened/Doesn't exist

Success **otherwise**

5.4.2.8 queryInsufficientlyVisited()

```
List< Event > EventService::queryInsufficientlyVisited ( )
```

Returns

A List of events which have attracted sales of less than 10% of the Hall's seat

5.4.2.9 queryMostWatched()

```
List< Event > EventService::queryMostWatched (
            unsigned topN )
```

Returns

A List of topN most watched Events

Events are sorted from index 0 to last index decreasingly by number of watchers. Watchers count for an Event is the amount of bought tickets.

If there are less events than topN, all events are returned.

5.4.2.10 reportBoughtTickets()

```
StatusCode EventService::reportBoughtTickets (
            int hallNumber,
            const Date & start,
            const Date & end,
            bool all = false )
```

Creates a report that Lists all Events (with given name and date) and number of bought tickets.

Parameters

hallNumber	Number of the Event's Hall
start	Starting Date from which to take Events
end	Ending Date until which to take Evnets (including)

Report is saved in a file named "boughtTickets.txt" in the current directory.

All Events are inserted into the file with the << operator and a setting of 0b01001.

Returns

E_FileCouldNotBeOpened **if** Report file couldn't be created

Success **otherwise**

5.4.2.11 reportReservations()

```
StatusCode EventService::reportReservations (
            const char * name,
            const Date & date )
```

Creates a report that lists all Events (with given name and date) and their reserved tickets.

Parameters

name	C-style string, if it is equal to "ALL", reservations from all Events on the given date will be reported
date	If day, month and year are equal to 0, reservations from all dates will be reported

Report is saved in a file in the current directory, named "report-NAME-DATE.txt", where NAME is the given name, and DATE is the given date or "ALL" if the date is 0/0/0

All Events are inserted into the file with the << operator and a setting of 0b00101.

Returns

E_FileCouldNotBeOpened **if** Report file couldn't be created

Success **otherwise**

5.4.2.12 reserveTicket()

```
StatusCode EventService::reserveTicket (
            const char * name,
            const Date & date,
            const char * password,
            const char * note,
            const Ticket & ticket )
```

Creates a Reservation for an Event by name and date.

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

E_TicketAlreadyBought **if** A ticket for the given row and seat has already been bought

E_TicketAlreadyReserved **if** A reservation has already been placed on the given row and seat

Success **otherwise**

5.4.2.13 save()

```
StatusCode EventService::save ( )
```

Saves Events to a database file.

Looks for file named "eventsDatabse.fmits", which is just a binary file, and then writes to it with the "write" function in events List.

Returns

E_FileCouldNotBeOpened **if** The files couldn't be opened

Success **otherwise**

5.4.2.14 ticketIsReserved()

```
StatusCode EventService::ticketIsReserved (
            const char * name,
            const Date & date,
            const Ticket & ticket )
```

Whether a ticket is a reserved or not.

Returns

E_EventDoesNotExist **if** No Event with the given name and date exists

W_TicketHadNotBeenReserved **Ticket** hadn't been reserved in the first place

Success **otherwise**

The documentation for this class was generated from the following files:

- src/Services/EventService.h
- src/Services/EventService.cpp

5.5 Hall Class Reference

Each hall contains a number, rows and seats per row.

```
#include <Hall.h>
```

Public Member Functions

- **Hall** ()

  Sets values to 0.
- **Hall** (int number)

  Sets values, except number, to 0.
- **Hall** (int number, unsigned rows, unsigned seatsPerRow)

  Sets values.
- int **get_number** () const

  Returns a Hall's number.
- unsigned **get_rows** () const

  Returns a Hall's row count.
- unsigned **get_seatsPerRow** () const

  Return a Hall's seats per row count.
- void read (std::istream &istr)

  Reads Hall from stream.
- void write (std::ostream &ostr) const

  Writes Hall to steam.
- int compare (const Hall &other) const

  Compare two Halls.

5.5.1 Detailed Description

Each hall contains a number, rows and seats per row.

5.5.2 Member Function Documentation

5.5.2.1 compare()

```
int Hall::compare (
            const Hall & other ) const
```

Compare two Halls.

Returns

-1 if number < other.number, 1 if number > other.number, 0 if number == other.number

5.5.2.2 read()

```
void Hall::read (
            std::istream & istr )
```

Reads Hall from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.5.2.3 write()

```
void Hall::write (
            std::ostream & ostr ) const
```

Writes Hall to steam.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

The documentation for this class was generated from the following files:

- src/Models/Hall.h
- src/Models/Hall.cpp

5.6 HallService Class Reference

Each HallService stores all halls.

```
#include <HallService.h>
```

Public Member Functions

- **HallService** (const Hall *halls, unsigned hallCount)
  Copies halls from parameters.
- const OrderedList< Hall > & **get_halls** () const
  Returns a constant reference to halls.
- StatusCode load ()
  Loads Halls to a database file.
- StatusCode save ()
  Saves Halls to a database file.

5.6.1 Detailed Description

Each HallService stores all halls.

5.6.2 Member Function Documentation

5.6.2.1 load()

```
StatusCode HallService::load ( )
```

Loads Halls to a database file.

Looks for file named "hallsDatabse.fmits", which is just a binary file, and then reads it with the "read" function in events List.

Returns

E_FileCouldNotBeOpened **if** The files couldn't be opened/Doesn't exist

Success **otherwise**

5.6.2.2 save()

```
StatusCode HallService::save ( )
```

Saves Halls to a database file.

Looks for file named "hallsDatabse.fmits", which is just a binary file, and then writes to it with the "write" function in events List.

Returns

E_FileCouldNotBeOpened **if** The files couldn't be opened

Success **otherwise**

The documentation for this class was generated from the following files:

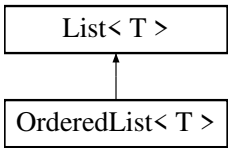
- src/Services/HallService.h
- src/Services/HallService.cpp

5.7 List< T > Class Template Reference

Templated class that stores an array of elements in dynamic memory.

`#include <List.hpp>`

Inheritance diagram for List< T >:



Public Member Functions

- **List** (const T *elements, unsigned elementsCount)
  Copies all elements in given array.
- void add (const T &element)
  Adds an element.
- void insertAt (const T &element, unsigned index)
  Inserts element at given index.
- bool removeAt (unsigned index)
  Removes element at index.
- unsigned findIndex (const T &element) const
  Finds the index of element.
- bool contain (const T &element) const
- T & **operator[ ]** (unsigned index)
  Returns reference to element at index.
- const T & **operator[ ]** (unsigned index) const
  Returns constant reference to element at index.
- List< T > & **operator+=** (const List< T > other)
  Appends elements from other list.
- std::istream & read (std::istream &istr)
  Reads from stream.
- std::ostream & write (std::ostream &ostr) const
  Writes to stream.
- unsigned get_length () const
  Returns the length.
- unsigned get_count () const
  Returns the count.
- List & **operator=** (const List &other)
- **List** (const List &other)
- **List** (List &&other)
- List & **operator=** (List &&other)

Protected Member Functions

- void **resize** ()
- void **free** ()
- void **copyFrom** (const List &other)

Protected Attributes

- T * **elements**
- unsigned **length**
- unsigned **count**

5.7.1 Detailed Description

template<typename T>
class List< T >

Templated class that stores an array of elements in dynamic memory.

Warning

findIndex(), contain(), read(), write(), operator<<() and operator>>() require the type to have defined a couple of functions.

See also

findIndex()

contain()

read()

write()

operator<<()

operator>>()

5.7.2 Member Function Documentation

5.7.2.1 add()

```
template<typename T >
void List< T >::add (
            const T & element )
```

Adds an element.

Resizes internal array if there is no space for additional elements.

5.7.2.2 contain()

```
template<typename T >
bool List< T >::contain (
            const T & element ) const
```

Returns

Whether the element is contained in the current List

Warning

Function depends on findIndex(), which means the same "compare" function must be defined in the type

See also

findIndex()

5.7.2.3 findIndex()

```
template<typename T >
unsigned List< T >::findIndex (
            const T & element ) const
```

Finds the index of element.

Returns

Index of element. If element isn't found, returns the count of element.

Warning

The function depends on the type having a function "compare" defined, which takes two elements and returns a number <0 if elem1 < elem2, >0 if elem1 > elem2, 0 if elem1 == elem2

Note

Searching is done linearly

5.7.2.4 get_count()

```
template<typename T >
unsigned List< T >::get_count
```

Returns the count.

Count is the amount of elements that are stored.

5.7.2.5 get_length()

```
template<typename T >
unsigned List< T >::get_length
```

Returns the length.

Length is the size of the underlying array (allocated memory).

5.7.2.6 insertAt()

```
template<typename T >
void List< T >::insertAt (
            const T & element,
            unsigned index )
```

Inserts element at given index.

If index is after the last element, the element is just added. Otherwise all elements after the index are shifted right and element is put in place.

Resizes internal array if there is no space for additional elements.

5.7.2.7 read()

```
template<typename T >
std::istream & List< T >::read (
            std::istream & istr )
```

Reads from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function). Any stored values are deleted and replaced with those from the stream.

Warning

The function depends on the type having a function "read" defined, which takes an std::istream& and writes it's data to it. Return type doesn't matter.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.7.2.8 removeAt()

```
template<typename T >
bool List< T >::removeAt (
            unsigned index )
```

Removes element at index.

Returns

Wether element could be removed

If index is after that of the last element, nothing is done and false is returned. Otherwise elements after index are shifted right and count is reduced.

5.7.2.9 write()

```
template<typename T >
std::ostream & List< T >::write (
            std::ostream & ostr ) const
```

Writes to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function).

Warning

The function depends on the type having a function "write" defined, which takes an std::ostream& and writes it's data to it. Return type doesn't matter.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

The documentation for this class was generated from the following file:

- src/Generic/List/List.hpp

5.8 Menu Class Reference

Handles navigation between multiple commands.

```
#include <Menu.h>
```

Public Member Functions

- **Menu** ()

  Sets name as "Menu", leaves all flags to false and creates an empty Command list.
- Menu (const char ∗title, bool backExistsApp, bool isSubMenu)

  Copies title, saves flags and creates and empty Command list.
- Menu (const char ∗title, bool backExistsApp, bool isSubMenu, const Command ∗commands, unsigned commandCount)

  Copies title, saves flags and copies commands.
- void **addCommand** (const Command &command)

  Adds a command to the internal Command list.
- void registerError (const char ∗message) const

  Tell Menu to show an error message next time it prints.
- void registerWarning (const char ∗message) const

  Tell Menu to show a warning message next time it prints.
- void registerSuccess (const char ∗message) const

  Tell Menu to show a success message next time it prints.
- void navigate () const

  Lists commands and after user input executes an appropriate command run() function.

5.8.1 Detailed Description

Handles navigation between multiple commands.

Shows the title, then below it an Error/Warning/Success message if set, lists all command options as an enumerated list, takes command index and calls the chosen command's run() function.

5.8.2 Constructor & Destructor Documentation

5.8.2.1 Menu() [1/2]

```
Menu::Menu (
            const char * title,
            bool backExistsApp,
            bool isSubMenu )
```

Copies title, saves flags and creates and empty Command list.

Parameters

title	C-style string, class stores at most 255 characters (last character is always terminating zero)
backExistsApp	Flag whether or not to list the 0-th option as "Exit", rather than "Go Back"
isSubMenu	Flag whether or not to show the title as a subTitle or not

5.8.2.2 Menu() [2/2]

```
Menu::Menu (
            const char * title,
            bool backExistsApp,
            bool isSubMenu,
            const Command * commands,
            unsigned commandCount )
```

Copies title, saves flags and copies commands.

Parameters

title	C-style string, class stores at most 255 characters (last character is always terminating zero)
backExistsApp	Flag whether or not to list the 0-th option as "Exit", rather than "Go Back"
isSubMenu	Flag whether or not to show the title as a subTitle or not
commands	Pointer to an array of Command instances
commandCount	Number of elements that "commands" points to

5.8.3 Member Function Documentation

5.8.3.1 navigate()

```
void Menu::navigate ( ) const
```

Lists commands and after user input executes an appropriate command run() function.

Prints the title, then an Error/Warning/Sucess message (if set), prints all command names as an ordered list (starting from 1), waits for user input to select one of those commands (by list number) and finally executes the appropriate command's run() function.

After the run() function exists, everything is reprinted. The 0 list index is always "Go Back"/"Exit" and it always stops the reprinting loop.

If there are no commands, prints "Menu is empty!". If user input doesn't correspond to any command, registers an error message and reprints.

5.8.3.2 registerError()

```
void Menu::registerError (
            const char * message ) const
```

Tell Menu to show an error message next time it prints.

Parameters

message	C-style string, saves to pointer for later reuse when showing the message.

Stores the message pointer in a global variable (in the cpp file) and sets it's type as an Error in another global variable (in the cpp file).

The next time the whole Menu is shown, the message will appear below the title.

5.8.3.3 registerSuccess()

```
void Menu::registerSuccess (
            const char * message ) const
```

Tell Menu to show a success message next time it prints.

Parameters

message	C-style string, saves to pointer for later reuse when showing the message.

Stores the message pointer in a global variable (in the cpp file) and sets it's type as Success in another global variable (in the cpp file).

The next time the whole Menu is shown, the message will appear below the title.

5.8.3.4 registerWarning()

```
void Menu::registerWarning (
            const char * message ) const
```

Tell Menu to show a warning message next time it prints.

Parameters

message	C-style string, saves to pointer for later reuse when showing the message.

Stores the message pointer in a global variable (in the cpp file) and sets it's type as a Warning in another global variable (in the cpp file).

The next time the whole Menu is shown, the message will appear below the title.

The documentation for this class was generated from the following files:

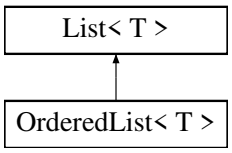
- src/Generic/ConsoleInterface/Menu.h
- src/Generic/ConsoleInterface/Menu.cpp

5.9 OrderedList< T > Class Template Reference

Inherits List, but contains it's elements in a sorted manner.

```
#include <OrderedList.hpp>
```

Inheritance diagram for OrderedList< T >:



Public Member Functions

- **OrderedList** (const T *elements, unsigned elementsCount)
- void add (T element)=delete
- void insertAt (T element, unsigned index)=delete
- void insert (T element)

  Inserts an element at a sorted position.

Additional Inherited Members

5.9.1 Detailed Description

template<typename T>
class OrderedList< T >

Inherits List, but contains it's elements in a sorted manner.

Warning

Outside those defined in List, insert() requires the type to have defined a "compare" of functions.

See also

insert()

5.9.2 Member Function Documentation

5.9.2.1 add()

```
template<typename T >
void OrderedList< T >::add (
            T element )  [delete]
```

Warning

Function is deleted, use insert() instead

See also

insert()

5.9.2.2 insert()

```
template<typename T >
void OrderedList< T >::insert (
            T element )
```

Inserts an element at a sorted position.

Warning

The function depends on the type having a function "compare" defined, which takes two elements and returns a number <0 if elem1 < elem2, >0 if elem1 > elem2, 0 if elem1 == elem2

Note

Insertion is done linearly

5.9.2.3 insertAt()

```
template<typename T >
void OrderedList< T >::insertAt (
            T element,
            unsigned index )  [delete]
```

Warning

Function is deleted, use insert() instead

See also

insert()

The documentation for this class was generated from the following file:

- src/Generic/List/OrderedList.hpp

5.10 Reservation Class Reference

Each Reservations contains a ticket, a password and a note.

```
#include <Reservation.h>
```

Public Member Functions

- **Reservation** ()
  Sets ticket as default value and leaves password and note blank.
- **Reservation** (const Ticket &ticket)
  Sets ticket and leaves password and note blank.
- **Reservation** (const Ticket &ticket, const char *password, const char *note)
  Sets ticket, password and note.
- const Ticket & **get_ticket** () const
  Returns constant reference to ticket.
- const char * **get_password** () const
  Returns constant C-style string to password.
- const char * **get_note** () const
  Returns constant C-style string to note.
- void read (std::istream &istr)
  Reads Reservation from stream.
- void write (std::ostream &ostr) const
  Writes Reservation to stream.
- int compare (const Reservation &other) const
  Compares two Reservations.

Friends

- std::istream & operator>> (std::istream &istr, Reservation &reservation)
  Reads Reservation from stream with >> operator.
- std::ostream & operator<< (std::ostream &ostr, const Reservation &reservation)
  Writes Reservation to stream with << operator.

5.10.1 Detailed Description

Each Reservations contains a ticket, a password and a note.

5.10.2 Member Function Documentation

5.10.2.1 compare()

```
int Reservation::compare (
            const Reservation & other ) const
```

Compares two Reservations.

Returns

Compares tickets

5.10.2.2 read()

```
void Reservation::read (
            std::istream & istr )
```

Reads Reservation from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function). Uses ticket's read() function.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.10.2.3 write()

```
void Reservation::write (
            std::ostream & ostr ) const
```

Writes Reservation to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function). Uses ticket's write() function.

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

5.10.3 Friends And Related Function Documentation

5.10.3.1 operator<<

```
std::ostream & operator<< (
            std::ostream & ostr,
            const Reservation & reservation )  [friend]
```

Writes Reservation to stream with << operator.

Uses the stream's << operator to write the ticket only.

Note

Best used with std::cout or text std::ofstream

5.10.3.2 operator>>

```
std::istream & operator>> (
            std::istream & istr,
            Reservation & reservation )  [friend]
```

Reads Reservation from stream with >> operator.

Uses the stream's >> operator to read and parse the ticket. Password and note are left blank.

Note

Best used with std::cin or text std::ifstream

The documentation for this class was generated from the following files:

- src/Models/Reservation.h
- src/Models/Reservation.cpp

5.11 String Class Reference

Public Member Functions

- String (unsigned length)
  The underlying array is allocated with length (+ 1) size.
- String (const char *str)
  Copies str.
- const char * **get_cstr** () const
  Returns internal C-style string.
- unsigned **get_length** () const
  Returns number of characters in string.
- char & **operator[ ]** (unsigned index)
  Returns a character reference (from the underlying C-style string) at the given index.
- String & operator+= (const char *str)
  Appends a C-style string.
- String & operator+= (unsigned number)
  Appends a number.
- **String** (const String &other)
- String & **operator=** (const String &other)
- **String** (String &&other)
- String & **operator=** (String &&other)
- void read (std::istream &istr)
  Reads String from stream.
- void write (std::ostream &ostr) const
  Writes String to stream.
- int compare (const String &other) const
  Compares two strings.

Friends

- std::istream & operator>> (std::istream &istr, String &event)

  Reads String from stream with >> operator.
- std::ostream & operator<< (std::ostream &ostr, const String &event)

  Writes String to stream with << operator.

5.11.1 Constructor & Destructor Documentation

5.11.1.1 String() [1/2]

```
String::String (
            unsigned length )
```

The underlying array is allocated with length (+ 1) size.

Allocated with length + 1 size, so there is a terminating zero at the end.

5.11.1.2 String() [2/2]

```
String::String (
            const char * str )
```

Copies str.

\params str C-style string

5.11.2 Member Function Documentation

5.11.2.1 compare()

```
int String::compare (
            const String & other ) const
```

Compares two strings.

\params other C-style string

Returns

strcmp between underlying C-style string and "other"

5.11.2.2 operator+=() [1/2]

```
String & String::operator+= (
            const char * str )
```

Appends a C-style string.

\params str C-style string

5.11.2.3 operator+=() [2/2]

```
String & String::operator+= (
            unsigned number )
```

Appends a number.

Converts the number to a C-style string and then uses += to append it.

5.11.2.4 read()

```
void String::read (
            std::istream & istr )
```

Reads String from stream.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function). First reads the string length, then the underlying C-style string (including terminating zero).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.11.2.5 write()

```
void String::write (
            std::ostream & ostr ) const
```

Writes String to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function). First writes the string length, then the underlying C-style string (including terminating zero).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

5.11.3 Friends And Related Function Documentation

5.11.3.1 operator<<

```
std::ostream & operator<< (
            std::ostream & ostr,
            const String & event )  [friend]
```

Writes String to stream with << operator.

Uses the stream's << operator to write the underlying C-style string

Note

Best used with std::cout or text std::ofstream

5.11.3.2 operator>>

```
std::istream & operator>> (
            std::istream & istr,
            String & event )  [friend]
```

Reads String from stream with >> operator.

Uses the stream's getline function to read the data.

Warning

It takes at most 1024 characters from the stream!

Note

Best used with std::cin or text std::ifstream

The documentation for this class was generated from the following files:

- src/Generic/String/String.h
- src/Generic/String/String.cpp

5.12 Ticket Class Reference

Each Ticket contains a row and a seat number.

`#include <Ticket.h>`

Public Member Functions

- **Ticket** ()
  Sets row and seat to zeroes.
- **Ticket** (unsigned row, unsigned seat)
  Sets row and seat.
- unsigned **get_row** () const
  Returns row.
- unsigned **get_seat** () const
  Returns seat.
- void read (std::istream &istr)
  Reads Ticket from stram.
- void write (std::ostream &ostr) const
  Writes Ticket to stream.
- int compare (const Ticket &other) const
  Compares two Tickets.

5.12.1 Detailed Description

Each Ticket contains a row and a seat number.

5.12.2 Member Function Documentation

5.12.2.1 compare()

```
int Ticket::compare (
            const Ticket & other ) const
```

Compares two Tickets.

Returns

If rows are equal, -1 if seat < other.seat, 1 if seat > other.seat, 0 if seat == other.seat, else the same, but for rows

5.12.2.2 read()

```
void Ticket::read (
            std::istream & istr )
```

Reads Ticket from stram.

Parameters

istr	An input stream

Directly reads bytes from stream (calls read() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ifstream

5.12.2.3 write()

```
void Ticket::write (
            std::ostream & ostr ) const
```

Writes Ticket to stream.

Parameters

ostr	An output stream

Directly writes bytes to stream (calls write() function).

Remarks

Doesn't alter the stream in any other way.

Note

Best used with binary ofstream

The documentation for this class was generated from the following files:

- src/Models/Ticket.h
- src/Models/Ticket.cpp

Chapter 6

File Documentation

6.1 src/Generic/ConsoleInterface/Command.h File Reference

Stores the declaration of class Command.

Classes

- class Command

  Stores a 256 character name and a function pointer to be executed when calling run()

6.1.1 Detailed Description

Stores the declaration of class Command.

6.2 Command.h

Go to the documentation of this file.

```
1 #ifndef HEADER_CONSOLEINTERFACE_COMMAND
2 #define HEADER_CONSOLEINTERFACE_COMMAND
3
12 class Command {
13     char nameInMenu[256];
14     void (*exec)();
15
16 public:
18     Command();
20     Command(const char* nameInMenu, void (*exec)());
22     void run() const;
23
24     const char* get_nameInMenu() const;
25 };
26
27 #endif
```

6.3 src/Generic/ConsoleInterface/Menu.h File Reference

Stores the declaration of class Menu.

```
#include "Command.h"
#include "../List/List.hpp"
```

Classes

- class Menu

  Handles navigation between multiple commands.

6.3.1 Detailed Description

Stores the declaration of class Menu.

6.4 Menu.h

Go to the documentation of this file.

```
1 #ifndef HEADER_CONSOLEINTERFACE_MENU
2 #define HEADER_CONSOLEINTERFACE_MENU
3
8 #include "Command.h"
9 #include "../List/List.hpp"
10
17 class Menu {
18     char title[256];
19     List<Command> menuOptions;
20
21     bool backExistsApp;
22     bool isSubMenu;
23
24 public:
26     Menu();
28     Menu(const char* title, bool backExistsApp, bool isSubMenu);
30     Menu(const char* title, bool backExistsApp, bool isSubMenu, const Command* commands, unsigned
       commandCount);
31
33     void addCommand(const Command& command);
34
36     void registerError(const char* message) const;
38     void registerWarning(const char* message) const;
40     void registerSuccess(const char* message) const;
41
43     void navigate() const;
44 };
45
46 #endif
```

6.5 src/Generic/ConsoleInterface/Toolbox.hpp File Reference

Stores a wide range of functions for simpler/more automated printing.

```
#include <iostream>
```

Macros

- #define **MAX_LINE_WIDTH** 1024

Functions

- void clear ()

  Clears the console screen.
- void titleBox (const char *title)

  Prints a title box.
- void subTitleBox (const char *title)

  Prints a title sub box.
- void successBox (const char *message)

  Prints a success box.
- void successSubBox (const char *message)

  Prints a success box as a sub box.
- void warningBox (const char *message)

  Prints a warning box.
- void warningSubBox (const char *message)

  Prints a warning box as a sub box.
- void errorBox (const char *message)

  Prints an error box.
- void errorSubBox (const char *message)

  Prints an error box as a sub box.
- void inputLineBox (const char *label, char *output, unsigned maxWidth, bool ignore=true)

  Prints label, gets a whole line of input and stores it to output.
- void inputLineSubBox (const char *label, char *output, unsigned maxWidth, bool ignore=true)

  Prints label as a sub box, gets a whole line of input and stores it to output.
- void pressEnterToContinue (bool ignore=true)

  Waits for user to press enter.
- void resetOrderedList (int starter=1)

  Resets the ordered list starting number.
- void table (unsigned startNumber, unsigned columns, const char *items)

  Prints a string as a table.
- void _printSubBoxSpacing ()

  Semi-internal function that prints the spacing for sub boxes.
- void _printInputBoxLabel (const char *label)

  Semi-internal function that prints the label of an input box.
- void _printOrderedListBeginning ()

  Semi-internal function that prints the latest ordered list index.
- template<typename T >
  void **read** (T *storage)

  Reads user input and stores it.
- template<typename T >
  void **read** (T &storage)

  Reads user input and stores it.
- template<typename T >
  void **print** (const T *item)

  Prints given item.
- template<typename T >
  void **print** (const T &item)

  Prints given item.
- template<typename T >
  void **printLine** (const T *item)

  Prints given item and an endline character.

- template<typename T >
  void **printLine** (const T &item)

  Prints given item and an endline character.
- template<typename T >
  void **printOrderedListElem** (const T &elem)

  Prints the element as the latest list item.
- template<typename T >
  void **inputBox** (const char *label, T *output)

  Prints a label and then reads user input and stores it.
- template<typename T >
  void inputSubBox (const char *label, T *output)

6.5.1 Detailed Description

Stores a wide range of functions for simpler/more automated printing.

Adds a lot of functions for printing.

Remarks

iostream is included by necessity (templated functions), you should only use the provided functions, if you can.

6.5.2 Function Documentation

6.5.2.1 _printInputBoxLabel()

```
void _printInputBoxLabel (
            const char * label )
```

Semi-internal function that prints the label of an input box.

Parameters

label	C-style string, there are no size checks so it could wrap

Prints "(+)" and then the given label. It doesn't create spacing after label, so it should exist in the label itself.

Remarks

Semi-internal means the function is defined in the header out of necessity (for templated functions)

6.5.2.2 _printOrderedListBeginning()

```
void _printOrderedListBeginning ( )
```

Semi-internal function that prints the latest ordered list index.

Prints the latests ordered list index, surrounded by square brackets, and increments the ordered list index.

Remarks

There are no size checks, so list index could overflow.

Semi-internal means the function is defined in the header out of necessity (for templated functions)

6.5.2.3 _printSubBoxSpacing()

```
void _printSubBoxSpacing ( )
```

Semi-internal function that prints the spacing for sub boxes.

Sub boxes are like normal boxes, but indented with 4 spaces.

6.5.2.4 clear()

```
void clear ( )
```

Clears the console screen.

Erases display and moves cursor to top left corner via ANSI escape sequences: ESC[2J ESC[1;1H

Warning

Not all terminals support any or all ANSI escape sequences

Note

Source: https://stackoverflow.com/a/52895729/12036073

6.5.2.5 errorBox()

```
void errorBox (
            const char * message )
```

Prints an error box.

Parameters

message	C-style string, there are no size checks so it could wrap

Error boxes start with "<E>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

6.5.2.6 errorSubBox()

```
void errorSubBox (
            const char * message )
```

Prints an error box as a sub box.

Parameters

message	C-style string, there are no size checks so it could wrap

Error boxes start with "<E>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

See also

_printSubBoxSpacing()

6.5.2.7 inputLineBox()

```
void inputLineBox (
            const char * label,
            char * output,
            unsigned maxWidth,
            bool ignore )
```

Prints label, gets a whole line of input and stores it to output.

Parameters

label	C-style string, there are no size check so it could wrap
output	Pointer to a char array
maxWidth	Maximum count of characters to read from user input. output MUST be able to hold that many characters!
ignore	Whether or not to ignore the first new-line delimiter. true by default, should be set to false only when an inputLineBox/SubBox has been issued directly prior or when it's the very first issued box command.

Prints "(+)" before the label.

6.5.2.8 inputLineSubBox()

```
void inputLineSubBox (
            const char * label,
            char * output,
            unsigned maxWidth,
            bool ignore )
```

Prints label as a sub box, gets a whole line of input and stores it to output.

Parameters

label	C-style string, there are no size check so it could wrap
output	Pointer to a char array
maxWidth	Maximum count of characters to read from user input. output MUST be able to hold that many characters!
ignore	Whether or not to ignore the first new-line delimiter. true by default, should be set to false only when an inputLineBox/SubBox has been issued directly prior or when it's the very first issued box command.

Prints "(+)" before the label.

See also

_printSubBoxSpacing()

6.5.2.9 inputSubBox()

```
template<typename T >
void inputSubBox (
            const char * label,
            T * output )
```

Prints a label with sub box spacing and then reads user input and stores it

See also

_printSubBoxSpacing()

6.5.2.10 pressEnterToContinue()

```
void pressEnterToContinue (
            bool ignore )
```

Waits for user to press enter.

Parameters

ignore	Whether or not to ignore the first new-line delimiter. true by default, should be set to false only when an inputLineBox/SubBox has been issued directly prior or when it's the very first issued box command.

Prints a "Press enter to continue" message and waits for the user

6.5.2.11 resetOrderedList()

```
void resetOrderedList (
            int starter )
```

Resets the ordered list starting number.

Parameters

starter	Sets the starting number by which ordered list will enumerate

Remarks

Although starter can be a negative number, ordered list will always increment up the number.

6.5.2.12 subTitleBox()

```
void subTitleBox (
            const char * title )
```

Prints a title sub box.

Parameters

title	C-style string, there are no size checks so it could wrap

Prints the title, surrounded by "---".

6.5.2.13 successBox()

```
void successBox (
            const char * message )
```

Prints a success box.

Parameters

message	C-style string, there are no size checks so it could wrap

Success boxes start with "<S>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

6.5.2.14 successSubBox()

```
void successSubBox (
            const char * message )
```

Prints a success box as a sub box.

Parameters

message	C-style string, there are no size checks so it could wrap

Success boxes start with "<S>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

See also

_printSubBoxSpacing()

6.5.2.15 table()

```
void table (
            unsigned startNumber,
            unsigned columns,
            const char * items )
```

Prints a string as a table.

Parameters

startNumber	The number by which column and row enumeration begins
columns	How many columns the table should have
items	C-style string, each cell is a single character from the string

Prints a string as a grid/table of characters from top to bottom, left to right. The first character is on the top left, the last one is on the bottom right.

Table is printed until a terminating zero is encountered. The rows are "calculated" from the columns count and the items length.

6.5.2.16 titleBox()

```
void titleBox (
            const char * title )
```

Prints a title box.

Parameters

title	C-style string, there are no size checks so it could wrap

Prints the title, surrounded by "===".

6.5.2.17 warningBox()

```
void warningBox (
            const char * message )
```

Prints a warning box.

Parameters

message	C-style string, there are no size checks so it could wrap

Warning boxes start with "<W>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

6.5.2.18 warningSubBox()

```
void warningSubBox (
            const char * message )
```

Prints a warning box as a sub box.

Parameters

message	C-style string, there are no size checks so it could wrap

Warning boxes start with "<W>" and print the message.

Remarks

Success/Warning/Error boxes start with "<C>" where C is an appropriate character.

See also

_printSubBoxSpacing()

6.6 Toolbox.hpp

Go to the documentation of this file.

```
1 #ifndef HEADER_CONSOLEINTERFACE_TOOLBOX
2 #define HEADER_CONSOLEINTERFACE_TOOLBOX
3
4 #include <iostream>
5
14 #define MAX_LINE_WIDTH 1024
15
17 void clear();
19 void titleBox(const char* title);
21 void subTitleBox(const char* title);
22
24 void successBox(const char* message);
26 void successSubBox(const char* message);
28 void warningBox(const char* message);
30 void warningSubBox(const char* message);
32 void errorBox(const char* message);
34 void errorSubBox(const char* message);
35
37 void inputLineBox(const char* label, char* output, unsigned maxWidth, bool ignore = true);
39 void inputLineSubBox(const char* label, char* output, unsigned maxWidth, bool ignore = true);
41 void pressEnterToContinue(bool ignore = true);
42
44 void resetOrderedList(int starter = 1);
45
47 void table(unsigned startNumber, unsigned columns, const char* items);
48
50 void _printSubBoxSpacing();
52 void _printInputBoxLabel(const char* label);
54 void _printOrderedListBeginning();
55
57 template <typename T>
58 void read(T* storage) {
59     std::cin » storage;
60 }
61
63 template <typename T>
64 void read(T& storage) {
65     std::cin » storage;
66 }
67
69 template <typename T>
70 void print(const T* item) {
71     std::cout « item;
72 }
73
75 template <typename T>
76 void print(const T& item) {
77     std::cout « item;
78 }
79
81 template <typename T>
82 void printLine(const T* item) {
83     std::cout « item « std::endl;
84 }
85
87 template <typename T>
88 void printLine(const T& item) {
89     std::cout « item « std::endl;
90 }
91
93 template <typename T>
94 void printOrderedListElem(const T& elem) {
95     _printOrderedListBeginning();
96     printLine(elem);
97 }
98
100 template <typename T>
```

```
101 void inputBox(const char* label, T* output) {
102     _printInputBoxLabel(label);
103     std::cin » *output;
104 }
105
108 template <typename T>
109 void inputSubBox(const char* label, T* output) {
110     _printSubBoxSpacing();
111     _printInputBoxLabel(label);
112     std::cin » *output;
113 }
114
115 #endif
```

6.7 src/Generic/Date/Date.h File Reference

Stores the declaration of class Date.

```
#include <istream>
#include <ostream>
#include "../String/String.h"
```

Classes

- class Date

  Stores a day, month and year.

Functions

- std::istream & operator>> (std::istream &istr, Date &dt)

  Reads date from stream with >> operator.
- std::ostream & operator<< (std::ostream &ostr, const Date &dt)

  Writes date to stream with << operator.

6.7.1 Detailed Description

Stores the declaration of class Date.

6.7.2 Function Documentation

6.7.2.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & ostr,
            const Date & dt )
```

Writes date to stream with << operator.

Uses the stream's << operator to write the date in the format "day.month.year"

Note

Best used with std::cout or text std::ofstream

6.7.2.2 operator>>()

```
std::istream & operator>> (
             std::istream & istr,
             Date & dt )
```

Reads date from stream with >> operator.

Uses the stream's >> operator to read and parse the day, month and year.

Note

Best used with std::cin or text std::ifstream

6.8 Date.h

Go to the documentation of this file.

```
1 #ifndef HEADER_DATE
2 #define HEADER_DATE
3
8 #include <istream>
9 #include <ostream>
10 #include "../String/String.h"
11
14 class Date {
15     unsigned short day;
16     unsigned short month;
17     unsigned short year;
18
19     bool isLeapYear();
20     unsigned short daysInMonth();
21
22 public:
24     Date();
26     Date(const char* str);
28     Date(unsigned short day, unsigned short month, unsigned short year);
29
31     unsigned short get_day() const;
33     bool set_day(unsigned short day);
35     unsigned short get_month() const;
37     bool set_month(unsigned short month);
39     unsigned short get_year() const;
41     bool set_year(unsigned short year);
42
44     String createString() const;
45
47     void read(std::istream& istr);
49     void write(std::ostream& ostr);
51     int compare(const Date& other) const;
52 };
53
55 std::istream& operator»(std::istream& istr, Date& dt);
57 std::ostream& operator«(std::ostream& ostr, const Date& dt);
58
59 #endif
```

6.9 src/Generic/List/List.hpp File Reference

Stores declaration and definition of templated class List.

```
#include <istream>
#include <ostream>
```

Classes

- class List< T >

  Templated class that stores an array of elements in dynamic memory.

Functions

- template<typename T >
  std::istream & operator>> (std::istream &istr, List< T > &obj)

  Reads List from stream with >> operator.
- template<typename T >
  std::ostream & operator<< (std::ostream &ostr, const List< T > &obj)

  Writes List to stream with << operator.

6.9.1 Detailed Description

Stores declaration and definition of templated class List.

6.9.2 Function Documentation

6.9.2.1 operator<<()

```
template<typename T >
std::ostream & operator<< (
            std::ostream & ostr,
            const List< T > & obj )
```

Writes List to stream with << operator.

Uses the stream's << operator to write the count and then all objects.

Warning

The function depends on the type having the operator << defined, which takes an std::ostream& and writes it's data to it. Return type doesn't matter.

Note

Best used with std::cout or text std::ofstream

6.9.2.2 operator>>()

```
template<typename T >
std::istream & operator>> (
             std::istream & istr,
             List< T > & obj )
```

Reads List from stream with >> operator.

Uses the stream's >> operator to read and parse the elements. The first item in the stream should be the count.

Warning

The function depends on the type having the operator >> defined, which takes an std::istream& and writes it's data to it. Return type doesn't matter.

Note

Best used with std::cin or text std::ifstream

6.10 List.hpp

Go to the documentation of this file.

```
1 #ifndef HEADER_LIST
2 #define HEADER_LIST
3
8 #include <istream>
9 #include <ostream>
10
21 template <typename T>
22 class List {
23 protected:
24     T* elements;
25     unsigned length;
26     unsigned count;
27
28     void resize();
29     void free();
30     void copyFrom(const List& other);
31
32 public:
34     List(const T* elements, unsigned elementsCount);
36     void add(const T& element);
38     void insertAt(const T& element, unsigned index);
40     bool removeAt(unsigned index);
42     unsigned findIndex(const T& element) const;
43     bool contain(const T& element) const;
45     T& operator[](unsigned index);
47     const T& operator[](unsigned index) const;
48
50     List<T>& operator+=(const List<T> other);
51
53     std::istream& read(std::istream& istr);
55     std::ostream& write(std::ostream& ostr) const;
56
58     unsigned get_length() const;
60     unsigned get_count() const;
61
62     List();
63     List& operator=(const List& other);
64     List(const List& other);
65     ~List();
66
67     List(List&& other);
68     List& operator=(List&& other);
69 };
70
72 template <typename T>
73 std::istream& operator»(std::istream& istr, List<T>& obj);
75 template <typename T>
```

```
76 std::ostream& operator«(std::ostream& ostr, const List<T>& obj);
77
78 /* Private */
79
80 template <typename T>
81 void List<T>::resize() {
82     length = (length == 0) ? 8 : length « 1;
83     T* temp = new T[length];
84     for (int i = 0; i < count; i++)
85         temp[i] = elements[i];
86     delete[] elements;
87     elements = temp;
88 }
89
90 template <typename T>
91 void List<T>::free() {
92     delete[] elements;
93 }
94
95 template <typename T>
96 void List<T>::copyFrom(const List& other) {
97     elements = new T[other.length];
98     for (int i = 0; i < other.count; i++)
99         elements[i] = other.elements[i];
100     length = other.length;
101     count = other.count;
102 }
103
104 /* Public */
105
106 template <typename T>
107 List<T>::List(const T* elements, unsigned elementsCount) {
108     length = 8;
109     count = elementsCount;
110     this->elements = new T[length];
111     for (unsigned i = 0; i < count; i++)
112         this->elements[i] = elements[i];
113 }
114
118 template <typename T>
119 void List<T>::add(const T& element) {
120     if (length == count) resize();
121
122     elements[count++] = element;
123 }
124
131 template <typename T>
132 void List<T>::insertAt(const T& element, unsigned index) {
133     if (index >= count) {
134         add(element);
135         return;
136     }
137     if (length == count) resize();
138
139     for (unsigned i = count; i > index; i--)
140         elements[i] = elements[i - 1];
141
142     elements[index] = element;
143     count++;
144 }
145
151 template <typename T>
152 bool List<T>::removeAt(unsigned index) {
153     if (index >= count) return false;
154
155     for (int i = index; i < count; i++)
156         elements[i] = elements[i + 1];
157     count--;
158     return true;
159 }
160
166 template <typename T>
167 unsigned List<T>::findIndex(const T& element) const {
168     unsigned ind = 0;
169     while (ind < count && elements[ind].compare(element) != 0)
170         ind++;
171     return ind;
172 }
173
179 template <typename T>
180 bool List<T>::contain(const T& element) const {
181     return findIndex(element) < count;
182 }
183
184 template <typename T>
185 T& List<T>::operator[](unsigned index) {
186     return elements[index];
```

```
187 }
188
189 template <typename T>
190 const T& List<T>::operator[](unsigned index) const {
191     return elements[index];
192 }
193
194 template <typename T>
195 List<T>& List<T>::operator+=(const List<T> other) {
196     for (unsigned i = 0; i < other.length; i++)
197         add(other[i]);
198     return *this;
199 }
200
210 template <typename T>
211 std::istream& List<T>::read(std::istream& istr) {
212     istr.read((char*)&length, sizeof(length));
213     istr.read((char*)&count, sizeof(count));
214
215     delete[] elements;
216     elements = new T[length];
217
218     for (int i = 0; i < count; i++)
219         elements[i].read(istr);
220
221     return istr;
222 }
223
232 template <typename T>
233 std::ostream& List<T>::write(std::ostream& ostr) const {
234     ostr.write((const char*)&length, sizeof(length));
235     ostr.write((const char*)&count, sizeof(count));
236
237     for (int i = 0; i < count; i++)
238         elements[i].write(ostr);
239
240     return ostr;
241 }
242
246 template <typename T>
247 unsigned List<T>::get_length() const {
248     return length;
249 }
250
254 template <typename T>
255 unsigned List<T>::get_count() const {
256     return count;
257 }
258
259 // Rule of 4
260
261 template <typename T>
262 List<T>::List() : List(nullptr, 0) {}
263
264 template <typename T>
265 List<T>& List<T>::operator=(const List& other) {
266     if (this != &other) {
267         free();
268         copyFrom(other);
269     }
270     return *this;
271 }
272
273 template <typename T>
274 List<T>::List(const List& other) {
275     copyFrom(other);
276 }
277
278 template <typename T>
279 List<T>::~List() {
280     free();
281 }
282
283 // Move semantics
284
285 template <typename T>
286 List<T>::List(List&& other) {
287     length = other.length;
288     count = other.count;
289     elements = other.elements;
290     other.elements = nullptr;
291 }
292
293 template <typename T>
294 List<T>& List<T>::operator=(List&& other) {
295     if (this != &other) {
296         free();
```

```
297         length = other.length;
298         count = other.count;
299         elements = other.elements;
300         other.elements = nullptr;
301     }
302     return *this;
303 }
304
305 /* Outside of class */
306
314 template <typename T>
315 std::istream& operator»(std::istream& istr, List<T>& obj) {
316     List<T> newObj;
317     unsigned count;
318     istr » count;
319
320     T temp;
321     for (int i = 0; i < count; i++) {
322         istr » temp;
323         obj.add(temp);
324     }
325
326     return istr;
327 }
328
335 template <typename T>
336 std::ostream& operator«(std::ostream& ostr, const List<T>& obj) {
337     ostr « obj.get_count() « std::endl;
338     for (int i = 0; i < obj.get_count(); i++)
339         ostr « obj[i];
340
341     return ostr;
342 }
343
344
345 #endif
```

6.11 src/Generic/List/OrderedList.hpp File Reference

Stores declaration and definition of templated class OrderedList.

```
#include "List.hpp"
```

Classes

- class OrderedList< T >

  Inherits List, but contains it's elements in a sorted manner.

6.11.1 Detailed Description

Stores declaration and definition of templated class OrderedList.

6.12 OrderedList.hpp

Go to the documentation of this file.

```
1 #ifndef HEADER_ORDEREDLIST
2 #define HEADER_ORDEREDLIST
3
8 #include "List.hpp"
9
15 template <typename T>
16 class OrderedList : public List<T> {
17 public:
```

```
18      OrderedList();
19      OrderedList(const T* elements, unsigned elementsCount);
20
24      void add(T element) = delete;
28      void insertAt(T element, unsigned index) = delete;
29
31      void insert(T element);
32  };
33
34  template <typename T>
35  OrderedList<T>::OrderedList() : OrderedList(nullptr, 0) {}
36
37  template <typename T>
38  OrderedList<T>::OrderedList(const T* elements, unsigned elementsCount) : List<T>::List(elements,
        elementsCount) {}
39
44  template <typename T>
45  void OrderedList<T>::insert(T element) {
46      if (List<T>::length == List<T>::count) List<T>::resize();
47
48      unsigned insertionInd = 0;
49      while (insertionInd < List<T>::count && List<T>::elements[insertionInd].compare(element) < 0)
50          insertionInd++;
51
52      List<T>::insertAt(element, insertionInd);
53  }
54
55  #endif
```

6.13 src/Generic/String/String.h File Reference

Stores declaration of class String.

```
#include <istream>
#include <ostream>
```

Classes

- class String

6.13.1 Detailed Description

Stores declaration of class String.

6.14 String.h

Go to the documentation of this file.

```
1  #ifndef HEADER_STRING
2  #define HEADER_STRING
3
8  #include <istream>
9  #include <ostream>
10
11 class String {
12      char* str;
13      unsigned length;
14
15      void free();
16      void copyFrom(const String& other);
17
18 public:
20      String(unsigned length);
22      String(const char* str);
```

```
24      const char* get_cstr() const;
26      unsigned get_length() const;
28      char& operator[](unsigned index);
29
31      String& operator+=(const char* str);
33      String& operator+=(unsigned number);
34
35      String();
36      String(const String& other);
37      String& operator=(const String& other);
38      ~String();
39
40      String(String&& other);
41      String& operator=(String&& other);
42
44      void read(std::istream& istr);
46      void write(std::ostream& ostr) const;
48      int compare(const String& other) const;
49
51      friend std::istream& operator»(std::istream& istr, String& event);
53      friend std::ostream& operator«(std::ostream& ostr, const String& event);
54  };
55
56  #endif
```

6.15 src/main.cpp File Reference

Entry point for application.

```
#include "Services/EventService.h"
#include "Services/HallService.h"
#include "Models/Hall.h"
#include "UserInterface/FMITicketSystemConsoleUI.h"
```

Functions

- int main ()

6.15.1 Detailed Description

Entry point for application.

Contains the main() function.

6.15.2 Function Documentation

6.15.2.1 main()

```
int main ( )
```

Creates instances of HallService and EventService and executes runUI() function.

6.16 src/Models/Event.h File Reference

Stores the declaration of class Event.

```
#include "../Generic/List/OrderedList.hpp"
#include "../Generic/Date/Date.h"
#include "../Generic/String/String.h"
#include "Hall.h"
#include "Ticket.h"
#include "Reservation.h"
#include <istream>
#include <ostream>
```

Classes

- class Event

  Stores an event's hall, name, date, bought tickets and reservations.

Functions

- std::istream & operator>> (std::istream &istr, Event &event)

  Reads Event from stream with >> operator.
- void configureEventInsertionOp (unsigned setting)

  Configures how Event should be shown, when written to stream with << operator.
- std::ostream & operator<< (std::ostream &ostr, const Event &event)

  Writes Event to stream with << operator.

6.16.1 Detailed Description

Stores the declaration of class Event.

6.16.2 Function Documentation

6.16.2.1 configureEventInsertionOp()

```
void configureEventInsertionOp (
            unsigned setting )
```

Configures how Event should be shown, when written to stream with << operator.

Parameters

setting	A number, defining the different options. It's best if it is passed as binary number.

Sets a configuration setting for how operator<< should behave. Setting is stored as a global variable in the cpp file, so it's independent of Event instance.

Each bit in the number is a certain setting. Each bit from left to right represents one of these options, from top to bottom:

1. Write count of bought tickets (available only if 5. is set)
2. Write count of reserved tickets (available only if 5. is set)
3. Write reservations
4. Write bought tickets
5. Write Hall information

Example

To configure printing the Hall information, bought tickets count and the bought tickets themselves, you would do:

```
configureEventInsertionOp(0b10011);
```

6.16.2.2 operator<<()

```
std::ostream & operator<< (
            std::ostream & ostr,
            const Event & event )
```

Writes Event to stream with << operator.

Uses the stream's << operator to write all internal data, following setting from configureEventInsertionOp() Stored types must have defined operator <<.

Note

Best used with std::cout or text std::ofstream

6.16.2.3 operator>>()

```
std::istream & operator>> (
            std::istream & istr,
            Event & event )
```

Reads Event from stream with >> operator.

Uses the stream's >> operator to read and parse all internal values. Stored types must have defined operator >>.

Note

Best used with std::cin or text std::ifstream

6.17 Event.h

Go to the documentation of this file.

```
1 #ifndef HEADER_MODEL_EVENT
2 #define HEADER_MODEL_EVENT
3
8 #include "../Generic/List/OrderedList.hpp"
9 #include "../Generic/Date/Date.h"
10 #include "../Generic/String/String.h"
11 #include "Hall.h"
12 #include "Ticket.h"
13 #include "Reservation.h"
14 #include <istream>
15 #include <ostream>
16
19 class Event {
20     Hall hall;
21     String name;
22     Date date;
23     OrderedList<Ticket> tickets;
24     OrderedList<Reservation> reservations;
25
26 public:
28     Event();
30     Event(const Hall& hall, String name, Date date);
31
33     const Hall& get_hall() const;
35     const String& get_name() const;
37     const Date& get_date() const;
38
40     OrderedList<Ticket>& get_tickets();
42     const OrderedList<Ticket>& get_tickets() const;
44     OrderedList<Reservation>& get_reservations();
46     const OrderedList<Reservation>& get_reservations() const;
47
49     void read(std::istream& istr);
51     void write(std::ostream& ostr);
53     int compare(const Event& other);
54 };
55
57 std::istream& operator»(std::istream& istr, Event& event);
59 void configureEventInsertionOp(unsigned setting);
61 std::ostream& operator«(std::ostream& ostr, const Event& event);
62
63 #endif
```

6.18 src/Models/Hall.h File Reference

Stores the declaration of class Hall.

```
#include <istream>
#include <ostream>
```

Classes

- class Hall

  Each hall contains a number, rows and seats per row.

Functions

- std::istream & operator>> (std::istream &istr, Hall &hall)

  Reads Hall from stream with >> operator.
- std::ostream & operator<< (std::ostream &ostr, const Hall &hall)

  Writes Hall to stream with << operator.

6.18.1 Detailed Description

Stores the declaration of class Hall.

6.18.2 Function Documentation

6.18.2.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & ostr,
            const Hall & hall )
```

Writes Hall to stream with << operator.

Uses the stream's << operator to write all internal data.

Note

Best used with std::cout or text std::ofstream

6.18.2.2 operator>>()

```
std::istream & operator>> (
            std::istream & istr,
            Hall & hall )
```

Reads Hall from stream with >> operator.

Uses the stream's >> operator to read and parse all internal values.

Note

Best used with std::cin or text std::ifstream

6.19 Hall.h

Go to the documentation of this file.

```
1 #ifndef HEADER_MODEL_HALL
2 #define HEADER_MODEL_HALL
3
8 #include <istream>
9 #include <ostream>
10
13 class Hall {
14     int number;
15     unsigned rows;
16     unsigned seatsPerRow;
17
18 public:
20     Hall();
22     Hall(int number);
24     Hall(int number, unsigned rows, unsigned seatsPerRow);
25
27     int get_number() const;
29     unsigned get_rows() const;
31     unsigned get_seatsPerRow() const;
32
34     void read(std::istream& istr);
36     void write(std::ostream& ostr) const;
38     int compare(const Hall& other) const;
39
40 };
41
43 std::istream& operator»(std::istream& istr, Hall& hall);
45 std::ostream& operator«(std::ostream& ostr, const Hall& hall);
46
47 #endif
```

6.20 src/Models/Reservation.h File Reference

Stores the declaration of class Reservation.

```
#include "Ticket.h"
#include <istream>
#include <ostream>
```

Classes

- class Reservation

  Each Reservations contains a ticket, a password and a note.

Macros

- #define **PASSWORD_LEN** 8
- #define **NOTE_LEN** 32

6.20.1 Detailed Description

Stores the declaration of class Reservation.

6.21 Reservation.h

Go to the documentation of this file.

```
1 #ifndef HEADER_MODEL_RESERVATION
2 #define HEADER_MODEL_RESERVATION
3
8 #include "Ticket.h"
9 #include <istream>
10 #include <ostream>
11
12 #define PASSWORD_LEN 8
13 #define NOTE_LEN 32
14
17 class Reservation {
18     Ticket ticket;
19     char password[PASSWORD_LEN];
20     char note[NOTE_LEN];
21
22 public:
24     Reservation();
26     Reservation(const Ticket& ticket);
28     Reservation(const Ticket& ticket, const char* password, const char* note);
29
31     const Ticket& get_ticket() const;
33     const char* get_password() const;
35     const char* get_note() const;
36
38     void read(std::istream& istr);
40     void write(std::ostream& ostr) const;
42     int compare(const Reservation& other) const;
43
45     friend std::istream& operator»(std::istream& istr, Reservation& reservation);
47     friend std::ostream& operator«(std::ostream& ostr, const Reservation& reservation);
48 };
49
50 #endif
```

6.22 src/Models/Ticket.h File Reference

Stores the declaration of class Ticket.

```
#include <istream>
#include <ostream>
```

Classes

- class Ticket

  Each Ticket contains a row and a seat number.

Functions

- std::istream & operator>> (std::istream &istr, Ticket &ticket)

  Reads Ticket from stream with >> operator.
- std::ostream & operator<< (std::ostream &ostr, const Ticket &ticket)

  Writes Ticket to stream with << operator.

6.22.1 Detailed Description

Stores the declaration of class Ticket.

6.22.2 Function Documentation

6.22.2.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & ostr,
            const Ticket & ticket )
```

Writes Ticket to stream with << operator.

Uses the stream's << operator to write row and seat, separated by a space.

Note

Best used with std::cout or text std::ofstream

6.22.2.2 operator>>()

```
std::istream & operator>> (
            std::istream & istr,
            Ticket & ticket )
```

Reads Ticket from stream with >> operator.

Uses the stream's >> operator to read and parse row and seat.

Note

Best used with std::cin or text std::ifstream

6.23 Ticket.h

Go to the documentation of this file.

```
1 #ifndef HEADER_HEADER_TICKET
2 #define HEADER_HEADER_TICKET
3
8 #include <istream>
9 #include <ostream>
10
13 class Ticket {
14     unsigned row;
15     unsigned seat;
16
17 public:
19     Ticket();
21     Ticket(unsigned row, unsigned seat);
22
24     unsigned get_row() const;
26     unsigned get_seat() const;
27
29     void read(std::istream& istr);
31     void write(std::ostream& ostr) const;
33     int compare(const Ticket& other) const;
34 };
35
37 std::istream& operator»(std::istream& istr, Ticket& ticket);
39 std::ostream& operator«(std::ostream& ostr, const Ticket& ticket);
40
41 #endif
```

6.24 src/Services/EventService.h File Reference

Stores the declaration of class EventService.

```
#include "../Generic/List/OrderedList.hpp"
#include "../Generic/Date/Date.h"
#include "../Models/Event.h"
#include "HallService.h"
#include "StatusCode.h"
```

Classes

- class EventService

  Each EventService stores all events and a pointer to HallService.

6.24.1 Detailed Description

Stores the declaration of class EventService.

6.25 EventService.h

Go to the documentation of this file.

```
1 #ifndef HEADER_SERVICES_EVENTSERVICE
2 #define HEADER_SERVICES_EVENTSERVICE
3
8 #include "../Generic/List/OrderedList.hpp"
9 #include "../Generic/Date/Date.h"
10 #include "../Models/Event.h"
11 #include "HallService.h"
12 #include "StatusCode.h"
13
16 class EventService {
17     OrderedList<Event> events;
18
19     const HallService* hs;
20
21     unsigned indexOfEvent(const char* name, const Date& date);
22
23 public:
25     EventService(const HallService* hs);
27     EventService(const HallService* hs, const Event* events, unsigned eventCount);
28
30     StatusCode createEvent(int hallNumber, const String& name, const Date& date);
32     StatusCode cancelEvent(const char* name, const Date& date);
33
35     StatusCode reserveTicket(const char* name, const Date& date, const char* password, const char* note,
       const Ticket& ticket);
37     StatusCode cancelTicketReservation(const char* name, const Date& date, const Ticket& ticket);
39     StatusCode ticketIsReserved(const char* name, const Date& date, const Ticket& ticket);
40
42     StatusCode buyTicket(const char* name, const Date& date, const Ticket& ticket, const char* password,
       String* reservationNoteOutput);
44     StatusCode buyTicket(const char* name, const Date& date, const Ticket& ticket);
45
47     String createSeatingString(const char* name, const Date& date, unsigned* seatsPerRow);
48
50     List<Event> queryMostWatched(unsigned topN);
52     List<Event> queryInsufficientlyVisited();
53
55     StatusCode reportReservations(const char* name, const Date& date);
57     StatusCode reportBoughtTickets(int hallNumber, const Date& start, const Date& end, bool all = false);
58
60     StatusCode load();
62     StatusCode save();
63 };
64
65 #endif
```

6.26 src/Services/HallService.h File Reference

Stores the declaration of class HallService.

```
#include "../Generic/List/OrderedList.hpp"
#include "../Models/Hall.h"
#include "StatusCode.h"
```

Classes

- class HallService

  Each HallService stores all halls.

6.26.1 Detailed Description

Stores the declaration of class HallService.

6.27 HallService.h

Go to the documentation of this file.

```
1 #ifndef HEADER_SERVICES_HALLSERVICE
2 #define HEADER_SERVICES_HALLSERVICE
3
8 #include "../Generic/List/OrderedList.hpp"
9 #include "../Models/Hall.h"
10 #include "StatusCode.h"
11
14 class HallService {
15     OrderedList<Hall> halls;
16
17 public:
19     HallService(const Hall* halls, unsigned hallCount);
20
22     const OrderedList<Hall>& get_halls() const;
23
25     StatusCode load();
27     StatusCode save();
28 };
29
30 #endif
```

6.28 src/Services/StatusCode.h File Reference

Stores declaration of enum StatusCode.

Enumerations

- enum StatusCode {
  Success , **W_TicketHadNotBeenReserved** , **E_FileCouldNotBeOpened** , **E_HallDoesntExist** ,
  E_EventWillOverlap , **E_EventDoesNotExist** , **E_TicketAlreadyBought** , **E_TicketAlreadyReserved** ,
  E_ReservationDoesNotExist , **E_WrongReservationPassword** }

  Used for communication between Services and what uses them.

6.28.1 Detailed Description

Stores declaration of enum StatusCode.

6.28.2 Enumeration Type Documentation

6.28.2.1 StatusCode

```
enum StatusCode
```

Used for communication between Services and what uses them.

Most functions in Services return a StatusCode.

Those starting with W should be considered Warning, and those starting with E should be considered Errors.

6.29 StatusCode.h

Go to the documentation of this file.

```
1 #ifndef HEADER_SERVICES_STATUSCODE
2 #define HEADER_SERVICES_STATUSCODE
3
14 enum StatusCode {
15     Success,
16
17
18     W_TicketHadNotBeenReserved,
19
20
21     E_FileCouldNotBeOpened,
22
23     E_HallDoesntExist,
24
25     E_EventWillOverlap,
26     E_EventDoesNotExist,
27
28     E_TicketAlreadyBought,
29     E_TicketAlreadyReserved,
30     E_ReservationDoesNotExist,
31     E_WrongReservationPassword,
32 };
33
34 #endif
```

6.30 src/UserInterface/FMITicketSystemConsoleUI.h File Reference

Stores declaration of runUI function.

```
#include "../Services/EventService.h"
#include "../Services/HallService.h"
```

Functions

- void runUI (EventService *eventService, HallService *hallService)

  Runs the console interface for the ticket system.

6.30.1 Detailed Description

Stores declaration of runUI function.

6.30.2 Function Documentation

6.30.2.1 runUI()

```
void runUI (
            EventService * eventService,
            HallService * hallService )
```

Runs the console interface for the ticket system.

Stores EventService and HallService pointers in internal global variables, calls EventService and HallService load() functions, initializes all menus, navigates the main menu and finally calls EventService and HallService save() functions

6.31 FMITicketSystemConsoleUI.h

Go to the documentation of this file.

```
1 #ifndef HEADER_FMITICKETSYSTEMCONSOLEUI
2 #define HEADER_FMITICKETSYSTEMCONSOLEUI
3
8 #include "../Services/EventService.h"
9 #include "../Services/HallService.h"
10
12 void runUI(EventService* eventService, HallService* hallService);
13
14 #endif
```