1. Title

Restaurant rating manager
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2.Problem statement

Making a GUI application using some development patterns. Also, there was a problem with the dataset because there were a lot of mistakes. These mistakes were the reason why my program crashed

3.Individual Problem Specification

There was a problem. A student who made a specification did not add the link to the dataset. This was a reason why I should use a different dataset. That is why i could not solve some problems in my specification
So, the specification was changed a little bit

The problem in specification:
Restaurants
The app contains descriptions of restaurants in a city and their menus. The data model is:
Restaurant name, restaurant address, type of cuisine, working hours, number of places, average check, dish, price of dishes.
The master in the data model is the restaurant's name.

Basic features:

Show list of dishes at each restaurant

Choose the necessary dishes at a certain restaurant and get their prices

Export the menu from a CSV file and also import the current menu into a CSV file

Extra features:

Add the field "city" to the data model and create the possibility to filter by city

Create the possibility to filter by type of cuisine Export the menu of a selected restaurant into a CSV file Create the possibility to add a new restaurant from a CSV file

Using new dataset i was possible to complete only:
add new restaurant, filter the data by different cryteria

What I had to change:

The data model: Restaurant name, the number of votes, rating, restaurant address, type of cuisine, price(average check), working hours and additionally I added “Fare rating” (“Fare rating” is a special sort using a next formula:
(2.5*500 + rating*votes) / (500 + votes), where rating and votes are numbers from the dataset and 500 and 2.5 are special numbers:
500 - new virtual voters
2.5 - an average rating gotten from those new voters
Idea of “Fare sorting” is quite simple:

Issue:

Line 1 "6 votes, rating 5/5"

Row 2 "10,000 votes, rating 4.9/5"

If you sort by rating, the first one is higher.

The second item should probably be higher than the first in the rating, because it's obviously very good, and only a few people voted in the first.

When you add virtual people.

Line 1 "506 votes, rating 2.55/5"

Line 2 "10500 votes, rating 4.8/5"

If you sort by that rating (without displaying it), the second item is deservedly higher in the list)

https://github.com/TimurTsarev/dsba-itop2022-hw

4. Implementation details section

The information was taken from university workshops, Qt documentation, and different sites such as StackOverflow

QFile helped to work with a dataset: open it and get a data from that set and using another class QTextStream to parse the file and start to use data

Thanks to QAbstractTableModel it was possible to create a table in a ModelView and show all the data in this table sorting names of columns and data in rows in headerList and dataTable respectively.

QFileDialog allowed to open and save the data in the table in a mainwindow

Filtration was made using the proxymodels

QDialog, QWidgets, QTransposeProxyMode

Adding new rows with QDialog and connecting some buttons

QPainter was used to draw my own logo in the addition window “About”

5.Results and discussion

At the end of the working process a data from a dataset was successfully parsed and placed in a table. The table can be filtered by different criteria (depends by what column we should filter the table)

Also, it is possible to add and delete rows. Changed file can be saved

Also, it is possible using a second tableView and QLineEdit to find a particular restaurant, votes and so on.

Information about student and his own logo are located in a different special window which can be found in menuBar where can be found a button “Help”

6. Conclusion

During the working process I learned how to work with Qt, with datasets (parsing a CSV file, loading and saving this file), using QItemModel classes (QAbstractItemModel…), filtering table using basic proxyModel and sorting by special formula depending on some elements of a row in the table. Also, today I know how to use QPainter to create different paintings and mathematical objects.

In general, thanks to this project has become an understanding of how to write and run programs on a PC. I believe that it is an invaluable experience, because you can continue to work in Qt, and you can apply the knowledge and experience gained in other languages

As further improvement i will learn more about Qt and will try to improve my speed of making applications