

# Big HW app.

Made by

Ханин Вадим 201-2

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Supervisor name:

Жуликов Георгий Александрович

The task was to make a GUI app using Qtcreator that would allow working with data about countries and their expenses.

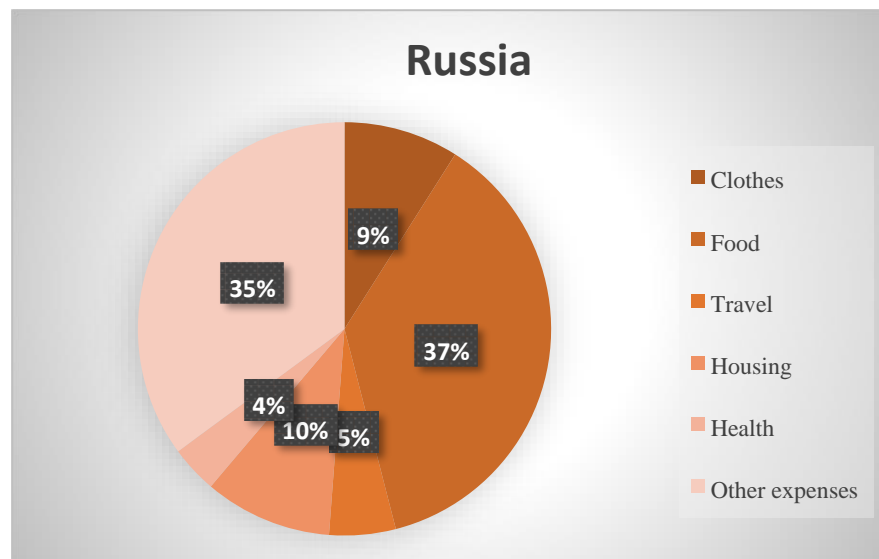
### Project specification.

The given project is focused on comparing three different countries and their monthly expenses. There is the sample data on average monthly expenditures in each country and there are several things that you should do with it:

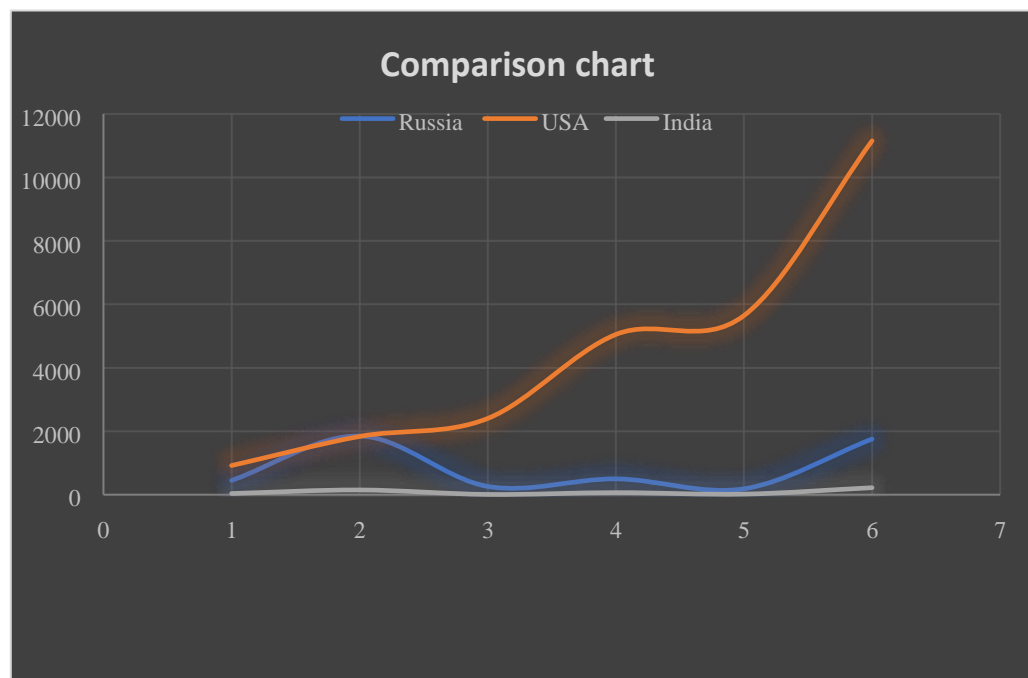
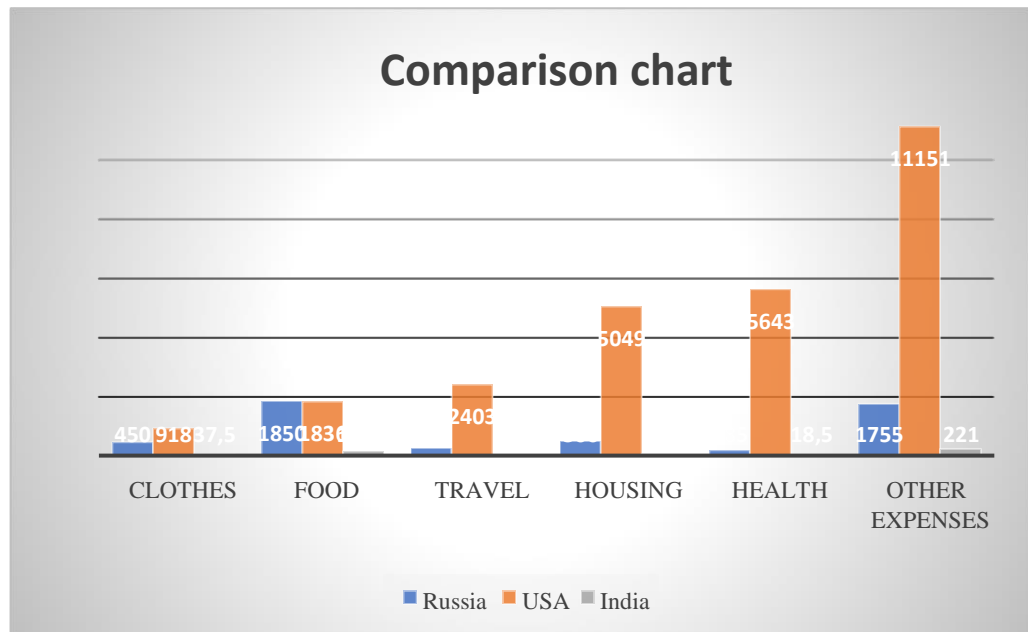
Category/Country	Russia	USA	India
Clothes	450	918	37,5
Food	1850	1836	149,5
Travel	260	2403	7,5
Housing	500	5049	66
Health	185	5643	18,5
Other expenses	1755	11151	221
Result	5000	27000	500

At the intersection of countries and categories, the dollar amount that is spent on the corresponding category in the selected country per month is recorded.

1. Create a **button** that makes a pie chart of the percentage of spending in Russia. Look at the example:



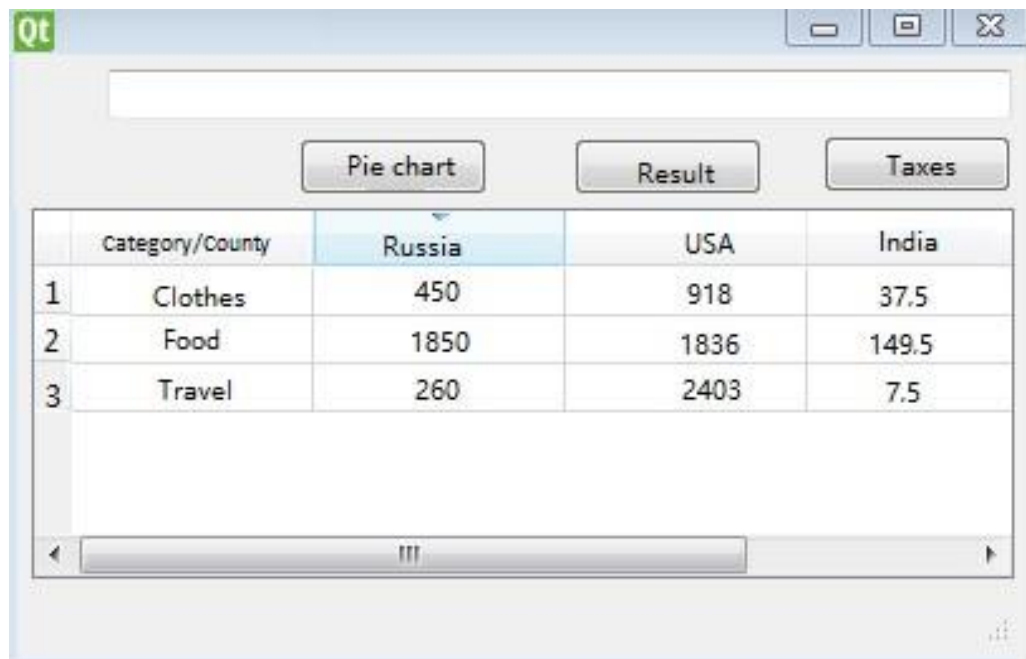
2. Based on the example pie chart of the percentage of expenditures for Russia, you should make **comparative charts** for other countries (USA, India).
3. Make **a linear comparison charts** for all expenditures of all countries by the following examples:



4. Create a **button**, by clicking on which tax will be paid. Each country has its own tax (20% in Russia, 15% in USA, 18% in India). Numbers in the given table should be changed by the amount of tax in each country and category.
5. Create a **button** counting the sum of all categories for each country (that is the result in the last row of the table).

There is just a sample example of how this application can look like.

There are three buttons that are described above: Pie chart (of the percentage of spending in Russia); Result (counting the sum of all categories for each country) and Taxes (by clicking on which tax will be collected from each purchase).



	Category/County	Russia	USA	India
1	Clothes	450	918	37.5
2	Food	1850	1836	149.5
3	Travel	260	2403	7.5

But in your application the data should be in two lists (master-detail). You can do a list of countries in one and a list of categories for those countries in the other.

All data are integers (in dollars), which are entered into the corresponding cells of the table and stored there.

# Implementation details:

Code repository - <https://github.com/Papa-Vad/dsba-itop2021-hw1>

The libraries used:

- QApplication, QDialog, QMainWindow, QTransposeProxyModel, QAbstractTableModel, QList, QWidget, QStandardItemModel, QFile, QTextStream, QList, QFileDialog, iostream.

Program's functionality and code details:

- Load csv file, representing its data in a table. Using `QFileDialog::getOpenFileName(this)` to get the path.
  - Save the data to a csv file. Using `QFileDialog::getSaveFileName(this)` to get the path.
  - Edit any field by double clicking on it.
  - Adding a new line of data to the model by inserting it in the line edit field and then pressing "Add" button.
  - Deleting the chosen line, using the spinbox to get the number of the line. The spinbox is cyclical and is limited by the number of rows in the data.
- Implementation code:

```
void MainWindow::on_spinBox_2_valueChanged(int arg1)
{
    if (ui->spinBox_2->value() > myModel->rowCount())
    {
        ui->spinBox_2->setValue(1);
    }
    if (ui->spinBox_2->value() < 1)
    {
        ui->spinBox_2->setValue( myModel->rowCount());
    }
}
```

- Choosing the line for list view by spinbox. This spinbox have the same properties as the one mentioned above.
- The menu button is a way to access "load", "save as" and "about" buttons.
- When clicked, "about" button opens a dialog window called "About" where a logo and some general info about the program can be found.
- The logo is painted using `QPainter` and `QColor`.

## Results .

As the specification was not “perfect”, none of the task from it are implemented. However, the main task is achieved and the app works correctly, some additional things ,such as saving, are implemented. Here’s the example :

BigHW

menu

Data About Country #

1

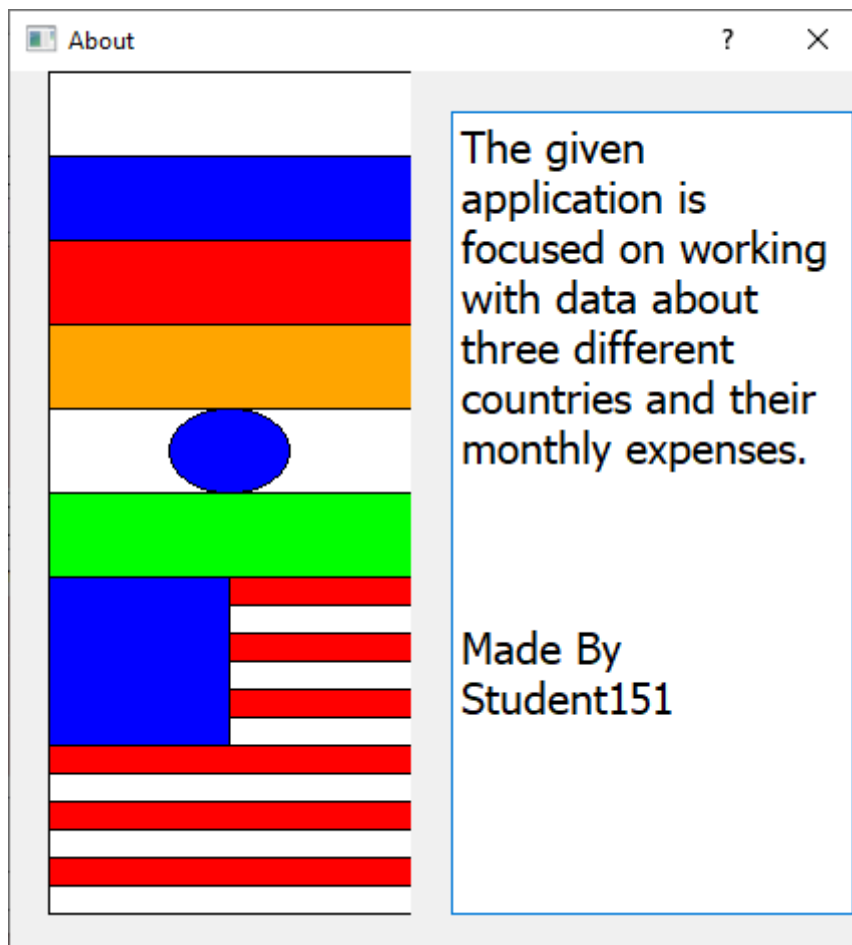
Russia  
450  
1850  
260  
500  
185  
1755

Countries

	country	clothes	food	travel	housing	health	otherExpenses
1	Russia	450	1850	260	500	185	1755
2	USA	918	1836	2403	5049	5643	11151
3	India	37.5	149.5	7.5	66	18.5	221

1 Delete

Add



## Discussion.

I also spent a while to make the code satisfy our code style. Nevertheless there are 2 functions : **fillModelWithData** and **saveModelAsFile**, which are not a part of any class. One may consider it as a violation of the code style, however, I believe that it is optimal to leave them there as I do not really think that they match any class.

## Conclusion,

Overall, the resulted app satisfies the tasks as it allows the user to add, update and removed correctly. However, some issues can be fixed in future, for example, crashes while trying to add an empty line. Ability to load a file one more time can also be added.