Brief Outline Of Project

We are group 38 and our members are Cormac O Floinn, Ruslan Kirniev and Boyi Zhang.

Our project is an application that allows a user to sort through different data regarding flight details and see visual representations of that data, we used both graphs as well as text to achieve this.

We discussed and planned our project at labs and meetings. We struggled early on with getting to grips with the project but improved as we went on.

The following screenshots depict the basic functionality of our project

A picture containing calendar

Description automatically generated

A picture containing text, indoor, electronics, computer

Description automatically generated

A picture containing text, electronics, display

Description automatically generated

A picture containing text, indoor, electronics, computer

Description automatically generated

A picture containing text

Description automatically generated

A picture containing text, electronics, display, computer

Description automatically generated

Text

Description automatically generated with medium confidence

CORMAC

In the first two weeks I worked on loading in the data and sorting through it using an arrayList and a data class, this was actually the aspect of the project I found most challenging as I was unused to implementing data in processing, eventually I figured it out, implementing several different empty arrayLists, using the get and add functions to sort through the data, one arrayList was used to add all the data, using the data class I had created and the rest were used to store specific data types such as delays, e.t.c. Once I got used to sorting through data in processing the project became simpler.

I worked on the various queries and data visualizations in the first couple of weeks, implementing a sort by date query which outputted and visualised the number of cancelled flights per sector of the year, this allows users to see the effect of the time of the year on flight cancellations, for example there were significantly more cancelled flights in the first 3 months of the year than the next three, one could speculate due to winter weather.

The second query I implemented was a “sort by airport” query which was visualised with a line chart displaying the number of flights from various airports for the year.

The final query I implemented was a sort by delays and early departures query which looped through the arraylist of flights, and outputted visually bar charts containing the top 5 most delayed departures and the top 5 earliest departures. This query was most challenging as it required converting the 24 hour clock times given in the excel sheet to minutes, the difficulty laid in the variety of times, for example 7:35, 22:45 and 13:35 all required different executions to convert them into minutes. The fact that the times were initially Strings caused this difficulty as different algorithms were required for different times. Designing loops to extract certain flights from thousands was challenging, however the sort() function helped me greatly with this. Designing the bar charts for the earliest flights caused me some difficulty as it required the usage of a multiplier and some extra operations to construct.

I also implemented the various screens , events and widgets, this was relatively simple however the switch statements on events with various screens, colours, textSizes e.t.c became fairy tedious and did take up some time. On the main screen I implemented 3 widgets entitled “sort by date” which when pressed provides a drop down to refine the dates, the second widget is the sort by “airport widget” and thirdly a sort by delays widget which allows the user to choose between the earliest flights and those that were most delayed. Adding the relative widgets and graphs to their respective screens caused some difficulty as keeping track of several different events, widgets, screens and graphs at the same time was challenging.

Overall, I thoroughly enjoyed the project and am sure I am far better at coding through processing and java as a result.

RUSLAN

My name is Ruslan and I am a member of group #38 and I took part in developing a processing flights application. First, I must tell you what I did at the first Lab, when the teams were just created.

My task on the first Lab was to create a paper prototype which we used in the future to create our application’s design.

To create this prototype, I used a typical design that I have found on the Internet which I modified a little for our targets. We have implemented all buttons using widgets. Then I worked on creating and drawing chart bars. In this case, I had to collect data and analyze it to create some bar charts and display them on the screen. After fixing and debugging some problems I started developing queries with the team to define the database schema and design queries to retrieve and manipulate flight data. We had to create a query which would display the full number of flights during the year and another query to display all flights between exact dates. As we finished working on queries, our target was to create some sorting methods. One of the main tasks assigned to me was implementing a sorting method by name. This functionality allowed users to input departure city and arrival city from the keyboard, and the application would display all flights between those two cities. I had some trouble with displaying this output, but then I handled this problem.

To create this method, I had to create a textbox. This stuff had to take an input from user’s keyboard. Afterwards, I had to read the origin city name, origin state abbreviation, destination city name, destination state abbreviation that user has inputted. Next part was to check if the line of our data line contains city name or abbreviation, or any of the similar symbols in the line and display all matches on the screen. Also, we had to add some navigation buttons such as “find flight by name of the city”, “find flight by the airport” etc. One of the significant buttons was a “backward” one.

During this semester we discovered what GitHub is and how to use it. I would say that it is useful for version controlling and team/group work and projects. In addition, I have gained some experience of working in a team on this project, which is going to be significant for programmers.

BOYI

For the production of this system, I refer to many construction modes of flight query software. Although the programs we write with processing may not be able to achieve the effect of this sample, I hope that our system can rely on them as much as possible.

In addition to successful and effective practical functions, a project also needs a novel and eye-catching cover design. The easiest way is to color the background of the theme of the project.

But it is very simple to color the background alone, so I plan to let the color of the screen background of the home page be played randomly.

At the same time, add the theme statement of “Welcome to the flight query system!” on the background.

For the import of data, I used the LoadTable() function to complete, because this function can convert the data in the SCV file into a Table object, which can be easily used for further processing and visualization of the data.

In addition, I tried to set the page scroll bar for the information page, but I need to download the appropriate &quot;scroll bar&quot; library to complete it.

We tried many resources, but they don&#39;t seem to match the processing

software.

The next job is to draw the data in the form of a chart, In order to draw a bar chart, I used the reat() function provided in processing. There is more than one data, so I created an array and added it to the for loop to fulfill. For the user search, I did it by importing the &quot;controlP5&quot; library, because it is a library dedicated to handling GUIs, including buttons, textboxes, input boxes, etc. But this is a cumbersome process.I first imported the ControlP5 library in the program and created theControlP5 object. Each newly created object needs to be initialized insetup(), and the rest is to use the draw() function to draw out button.