

Air Traffic Disruptions Statistical Web Visualiser

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Abstract

This paper is focused on analysing whole process of parsing flight disruptions for Kiwi company. Main goal is to create web application which will create statistical analysis on provided flight disruptions and visualise them. Application should ensure easier access to all disruptions from various databases. During the process of creating web application I decided to create user friendly interface which will provide easy to use filters for people who want to access data from different sources. I created frontend and backend which will need to communicate together using API calls. One of most desired goals is to search in databases using proposed application. The web application should serve aviation providing company in managing flight disruptions and creating statistical analysis based on provided flight data.

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1. Introduction

Work aims to create statistical analysis of flight disruption data. Visualisation of data can always interpret connection among data better than raw data themselves.

Work creates web application for data visualisation. Raw data are shown in comprehensible form and statistical analysis of data is shown in graphs. Every graph is interactive, simply by clicking on provided value filters out needed data. Analysing all provided data in reasonable time and searching for specific data within dataset is key preferences of this work.

One of existing solutions is web page FlightRadar24¹ which maps all flights in real time. In [Figure 1](#) we can see what kind of data I would parse on. Mostly data regarding source and destination airports, arrival and departure. Along these metadata regarding whole project. My solution is created specially for company Kiwi.com which wants to visualise data from its databases.

Application creates environment from which all components are connected among each other. Communicating together within one page creates request for backend to fetch correct data for frontend.

In world full of accessible data, it is important to highlight existing trends within given dataset. Ap-

plication does this by interpreting all data in visual form. Application is build specifically for Kiwi company to optimize its use. Its interactive, giving the user possibility to easily choose which data to display.

2. Design and solution

This work was made as a reference to Kiwi company need of data visualiser. In my work there are 4 parts of application which should work. There is application frontend, application backend. Frontend should visualise all data that come to it and create requests for further processing. Backend should collect all data and create statistical analysis over it. As a part of simulating whole work, I also implemented database and database backend which should communicate with it. These are not main focuses of work but they are necessary part of work as this is usual architecture that is followed.

In [Figure 2](#) we can see mock-up of application and intention on how it was supposed to look like. In [Figure 3, 4, 5](#), we can see actual application and all of its graphs. Upper part filters all data that are then shown on screen. Data table composes out of key values which should be visual. Upon clicking on row, we can see actual detail view of app. Lastly we can see all graphs which visualise data. Pie graphs and bar graphs are aggregation based on provided key. Line chart shows percentage of how many disruptions were parsed compared to skipped compared to failed

¹<https://www.flightradar24.com>

on backend.

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