Bayram Saygili Progress Journal

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Introduction

This progress journal covers Bayram Saygili's work during their term at BDA 503 Fall 2022. Each section is an assignment or an individual work.

1 BDA-503 RMarkdown Assignment1

Hello !

My name is Bayram Saygili. Twelve years ago I graduated from civil engineering. I am currently working as an Project Specification Manager at Knauf, a German manufacturer of building materials.

Due to my position, I have always collected various data with traditional methods(calling,e mail,visiting etc) and grouped them within the company in order to understand the needs of our customers for years. (This customer is working on interior design, the decision maker of this company is Mr. Ali. etc.)

In the last few years, the construction industry will have understood how important data is, and it has been putting pressure on sales teams to actively use CRM programs such as Salesforce. In particular, the digital transformation process of the company I work for inspired me in data analysis / data interpretation.

For this reason, I wanted to further my "data collection and interpretation" work that I have been doing for years on this subject. That's why I'm here :)

Here is my Linkedin profile

1.1 RStudio Global 2022 "Saving 1,000 hours with RStudio: selling R in your workplace"

Tiger Tang explains the steps of the automation project he started with R and the gains he gained at the end of the process. After completing the automation project, the company; 20+ R Users, 60+ R Business users and 12,000 hours of Manual Hours.

Here is the link.

1.2 R Some Related Posts

1.2.1 Resource 1 - How to Learn R Programming ?

This article discusses what the R program is, what it is used for, which top companies use R, and what can be done in the world of data science using R.

Here is the link.

1.2.2 Resource 2 - R software: unfriendly but probably the best

This article presents an overview of R from the beginning to the present. The R programming character is likened to a difficult friend.

Here is the link.

1.2.3 Resource 3 - The 5 Surprising Things You Can Do With R

This article lays out what can be done with R, from data visualization to making statistical predictions.

Here is the link

2 In Class Assignment

```r
library(dplyr)

nycflights13::planes %>%
  group_by(manufacturer) %>%
  summarise(num_planes = n()) %>%
  arrange(desc(num_planes)) %>%
  head(10)
```

```
# A tibble: 10 x 2
   manufacturer                  num_planes
   <chr>                              <int>
 1 BOEING                              1630
 2 AIRBUS INDUSTRIE                     400
 3 BOMBARDIER INC                       368
 4 AIRBUS                               336
 5 EMBRAER                              299
 6 MCDONNELL DOUGLAS                    120
 7 MCDONNELL DOUGLAS AIRCRAFT CO        103
 8 MCDONNELL DOUGLAS CORPORATION         14
 9 CANADAIR                               9
10 CESSNA                                 9
```

2.1 Finding the top 10 most popular models of planes based on the number of planes manufactured by each model:

```r
library(dplyr)

nycflights13::planes %>%
  group_by(model) %>%
  summarise(num_planes = n()) %>%
  arrange(desc(num_planes)) %>%
```

```
  head(10)
```

```
# A tibble: 10 x 2
   model        num_planes
   <chr>             <int>
 1 737-7H4             361
 2 A320-232            256
 3 CL-600-2B19         171
 4 CL-600-2D24         123
 5 737-824             122
 6 MD-88               117
 7 EMB-145LR           114
 8 737-3H4             105
 9 EMB-145XR           104
10 757-232              94
```

3 OR_Assignment

Swiss energy company Alpiq wanted to optimize its short-term management of its hydroelectric power plants in order to improve efficiency and profitability. In order to achieve this, Alpiq needed a flexible and fast solution that could take into account the technical constraints of each plant, such as the number of available turbines and pumps, the number of hours each engine could run, and the volume of water in a dam.

After testing a range of commercial and open-source solvers, Alpiq chose Gurobi Optimization due to its customization options, speed, and optimality. With Gurobi, Alpiq was able to optimize the performance of its pool of power plants by taking advantage of their synergies, and by better predicting the energy it needed to store and generate in the future.

Alpiq also received support from the Gurobi team, which helped to ensure that the solver was set up correctly. In the future, Alpiq plans to use a solver to model various market processes and technical challenges in order to quickly respond to changing market conditions.

Please review the case study from the link.