

Bayram Saygılı 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

```
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:

```
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](#).