



# Home Work

## Data Science & Machine Learning

Data Analysis, Pandas,  
Data Visualization

۱. فایل تمرین را در پنل خود آپلود کنید.

۲. title فایل تمرین به صورت (نام تمرین+نام و نام خانوادگی) به انگلیسی باشد.

۳. در صورتی که سوال و یا ابهامی دارید در گروه چت تلگرامی بپرسید.

Have you ever wondered when the best time of year to book a hotel room is? Or the optimal length of stay in order to get the best daily rate? What if you wanted to predict whether or not a hotel was likely to receive a disproportionately high number of special requests?

Use the attached dataset and explore and analyze the data to discover important factors that governs booking.

## Data Cleaning:

As a first step, explore the data and preprocess it in order to be **cleaned:**

۱. Check for missing values and find the best practice to deal with them
۲. Convert the dtypes to appropriate ones according to the values
۳. Check for the duplicate values and remove them from data
۴. According to the columns and their meanings, do any other preprocessings necessary for further analysis

## Analysis:

۱. There are two types of hotels in the dataset, which type of hotels booked most? Plot a pie chart to show the results.
۲. What percentage of bookings were cancelled? What type of chart do you suggest to show the results?
۳. Based on different hotel types, what percentage of bookings were cancelled? What type of chart do you suggest to show the results?

۴. In different years, what type of hotels were booked most and booked least? Draw a proper countplot to show the results.
۵. According to different hotel types, how 'adr' changes in different months?
۶. Check hotel wise daily rates mean, standard deviation, median, min and max.
۷. Extract the number of bookings per country and investigate that most of the guests are from which countries?
۸. According to the 'market\_segment' most of the guests book their rooms on what channels?
۹. What other useful analysis can you extract?

### Notes:

Write proper markdowns according to your results and include the highlighting points from each analysis

**Happy Analyzing 😊**