

Low Level Design

NBA Draft Combine Measurements

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1. Introduction

1.1 What is Low-Level design document?

The goal of the LDD or Low-level design document (LLDD) is to give the internal logic design of the actual program code for the House Price Prediction dashboard. LDD describes the class diagrams

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with the methods and relations between classes and programs specs. It describes the modules so that the programmer can directly code the program from the document.

1.2 Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

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2. Architecture

Plotly Server Architecture

Almost every Data Science project requires some kind of visualization, like visualizing the input data, exploratory data analysis using histograms or scatter plots, finding outliers or plotting statistics using box and whisker plots, visualizing the relationship between nodes using network diagrams, checking the relationships between variables using correlation matrices, visualization techniques to help understand relationships within high-dimensional datasets, visualizing the performance of the models, or the train history, etc.

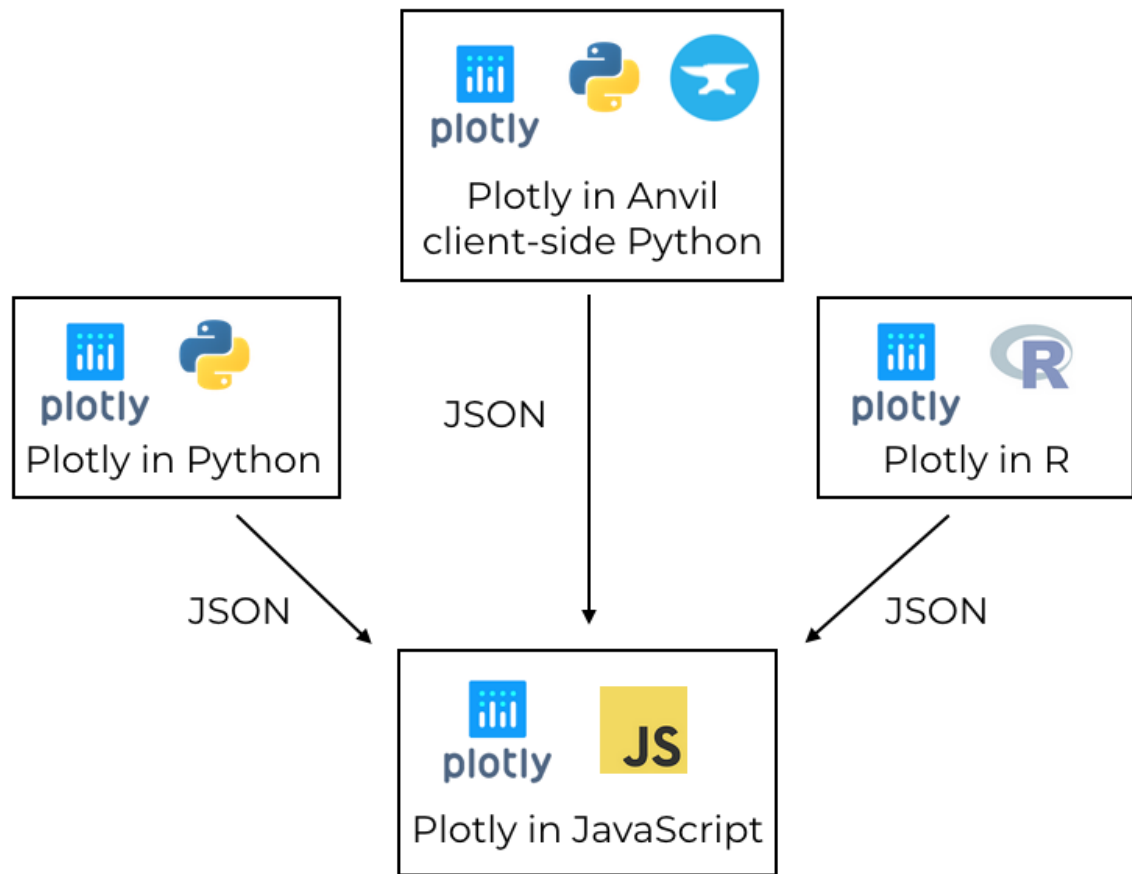
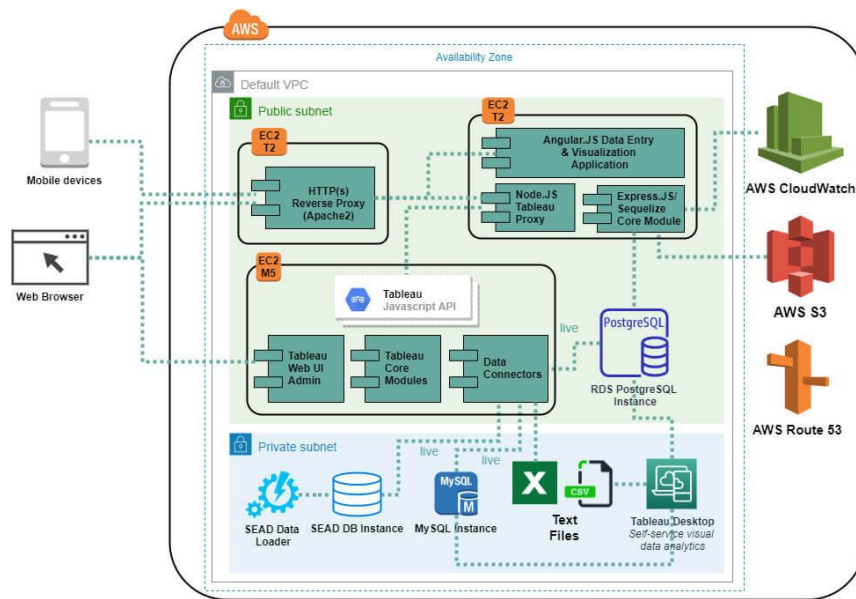


Tableau Server Architecture

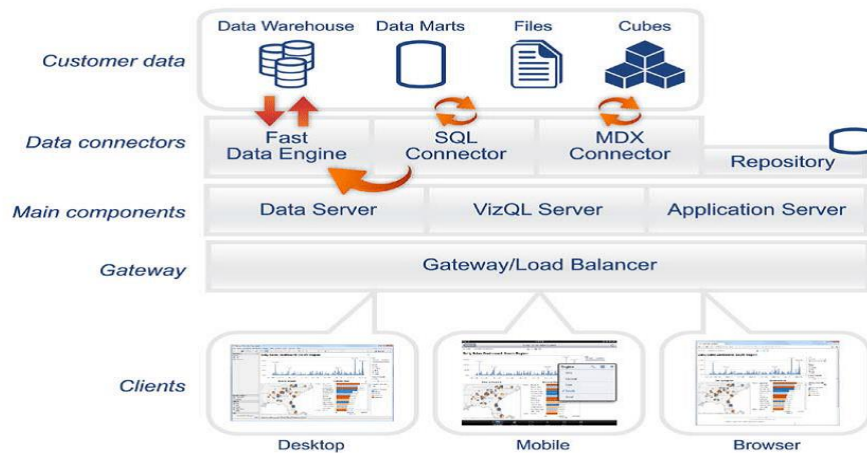


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Tableau Communication Flow



Workflow of Tableau

3. Architecture Description

3.1. Data Description

The data set contains :-

Draft Pick
Vertical (max)
Vertical (max reach)
Vertical (no step)
Vertical (no step reach)
weight
body fat
bench
agility
sprint

,etc. of the NBA players.

1.Year – In which year player played the match (in integer).

2.Body Fat - player's fat on his body (in float)

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3.Wingspan - player's wingspan (in float)

- 4.Sprint - player's sprint value (in float)
- 5.Bench - player's bench value (in float)
- 6.Standing Reach - player's standing reach value (in float)
- 7.Agility - player's agility value (in float)
- 8. Draft pick – player's draft pick value (in float)
- 9.Weight –Player's weight (in float)

3.2. Web Scrapping

Web scraping is a technique to automatically extract content and data from websites using bots. It is also known as web data extraction or web harvesting. Web scrapping is made simple now days, many tools are used for web scrapping. Some of python libraries used for web scrapping are BeautifulSoup, Scrapy, Selenium, etc.

3.3. Data Transformation

In the Transformation Process, we will convert our original datasets with other necessary attributes format. And will merge it with the Scrapped dataset.

3.4. Data Insertion from csv files

- 1 . Download the dataset from open sources(kaggle) or github and store it in your local system where you can easily access it.
- 2 Import important libraries required for viewing the dataset in your local IDE

3.5 Representation of results using python libraries

Step 1. Configuring Pandas, Numpy, Matplotlib, Seaborn

Launch Jupiter on your local system and import the libraries as shown in the picture.

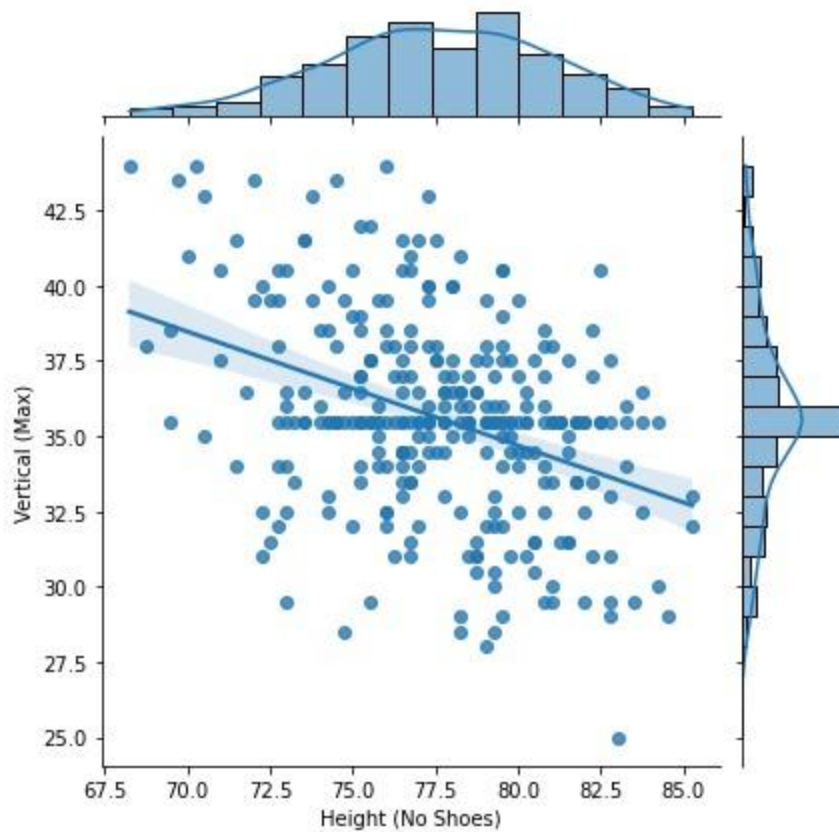
Importing Libraries

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import numpy as np
import cufflinks as cf
import plotly.express as px
import chart_studio.plotly as py
from plotly.offline import download_plotlyjs, init_notebook_mode, plot, iplot
init_notebook_mode(connected=True)
cf.go_offline()
import plotly.figure_factory as ff
from sklearn.impute import SimpleImputer
%matplotlib inline
```

Plots By using Seaborn

Height (No Shoes With Vertical (Max)

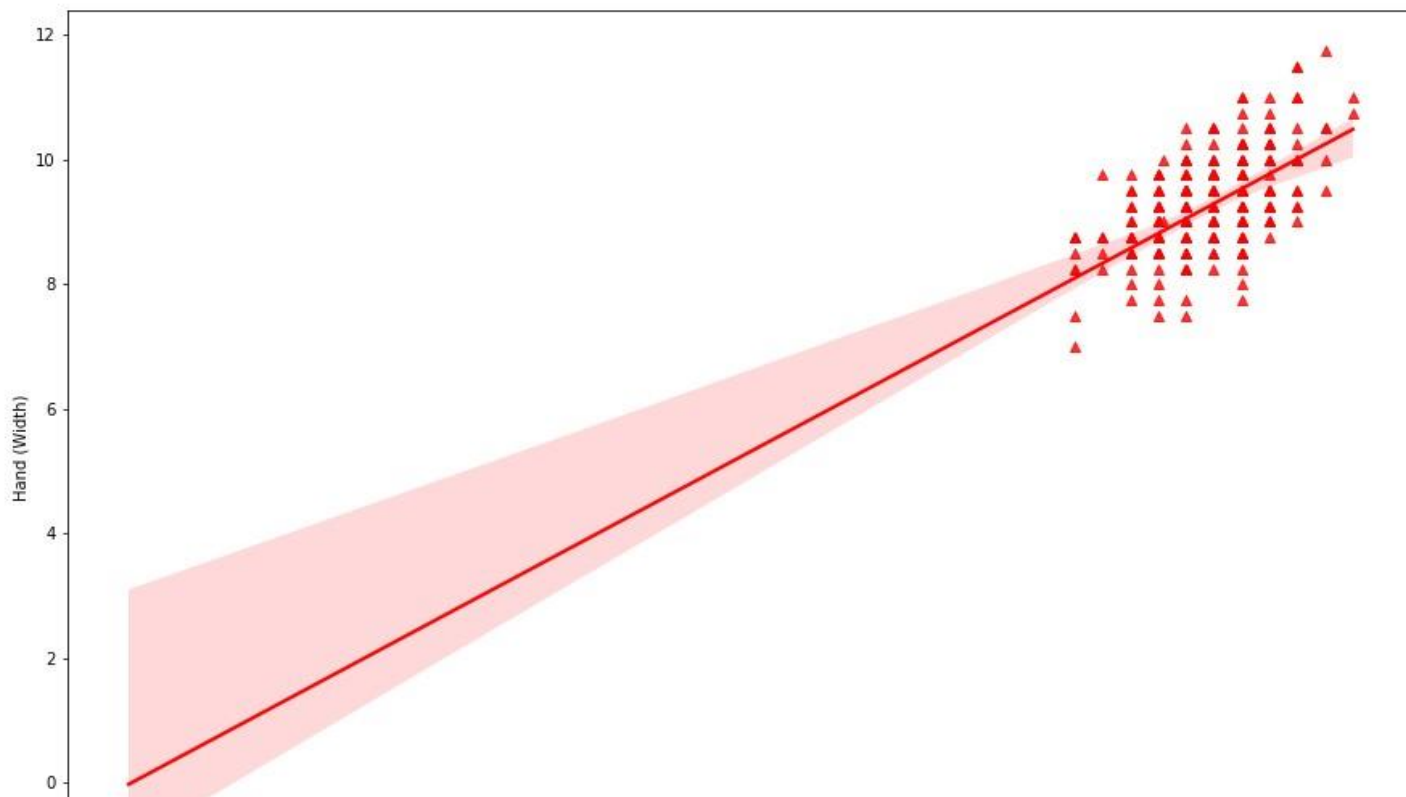
```
sns.jointplot(x="Height (No Shoes)", y="Vertical (Max)", data=new_df, kind="reg")  
<seaborn.axisgrid.JointGrid at 0x1ea1aaeec88>
```



```
## Height having negative slope with veertical (max)  
## two points data diverge from the mean estimator  
## Only one person having vertical max 25.0 is a outlier
```

Relation Between Hand (Length) and Hand (Width)

```
plt.figure(figsize=(15,10))
sns.regplot(x="Hand (Length)", y="Hand (Width)", data=new_df, fit_reg=True, scatter=True, color="red", marker="^")
<AxesSubplot:xlabel='Hand (Length)', ylabel='Hand (Width)'
```



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You need to initiate the Plotly Notebook with **init_notebook_mode** to use plotly in local environment, also note that when you call `py.iplot` it is still calling the plot function from online plotly module, you need to import the **iplot**(not plot) from **plotly.offline** and use it for offline plot and inside notebook rendering.

The cufflinks library binds the power of plotly with the flexibility of pandas for easy plotting cufflinks.

Step 3. Import plotly express

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```
import PLOTLY.EXPRESS
```



```
import plotly.express as px
```

To use the plotly express we need to first import plotly.express and then we can call different graphs of plotly.express.

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Installation

plotly may be installed using pip:

```
$ pip install plotly==5.8.0
```

or conda:

```
$ conda install -c plotly plotly=5.8.0
```

Step 4: Configuring Data Source

Importing and Combining All Dataframe

```
df1=pd.read_csv(r"2012_nba_draft_combine.csv")  
df2=pd.read_csv(r"2013_nba_draft_combine.csv")  
df3=pd.read_csv(r"2014_nba_draft_combine.csv")  
df4=pd.read_csv(r"2015_nba_draft_combine.csv")  
df5=pd.read_csv(r"2016_nba_draft_combine.csv")
```

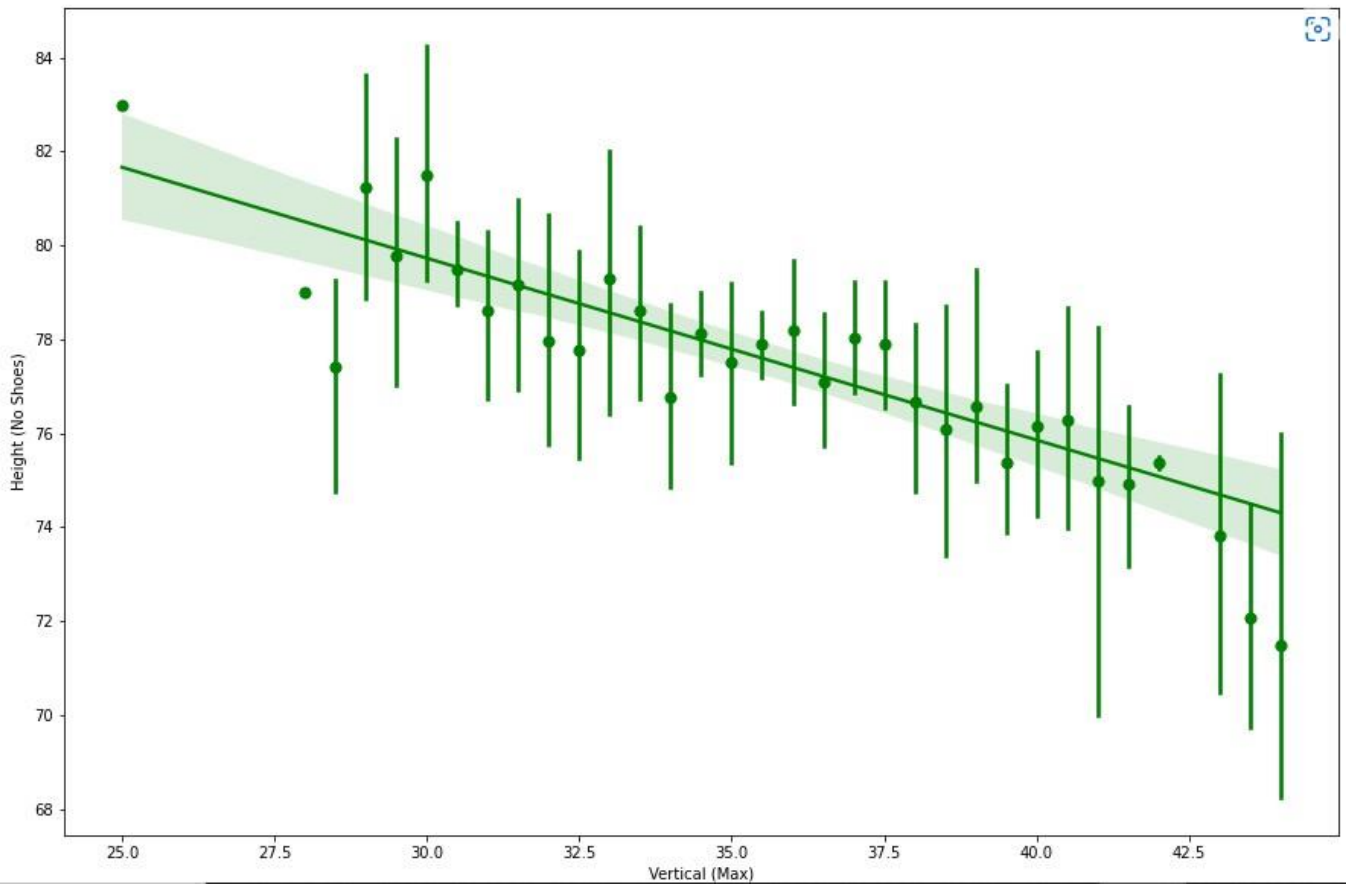
```
df=pd.concat([df1,df2,df3,df4,df5],ignore_index=True,axis=0)
```

The data can be found from open source and can be imported and merged using pandas.

Step 5: Deployment

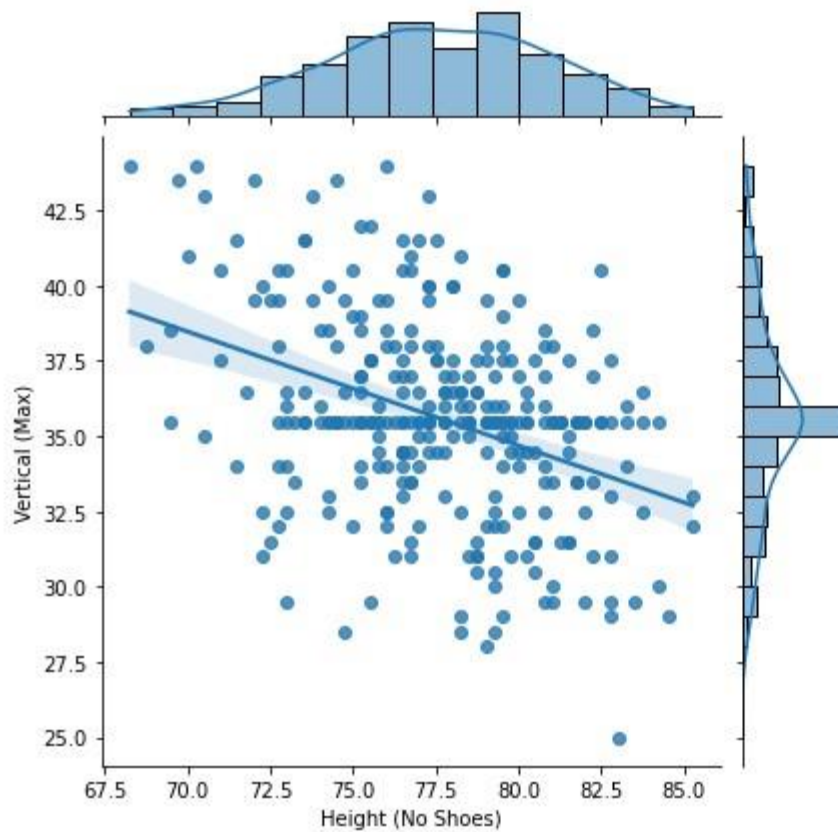
Once we have completed all the coding part ,then its time to deploy our model and check the result.

```
<AxesSubplot:xlabel='Vertical (Max)', ylabel='Height (No Shoes)'\>
```



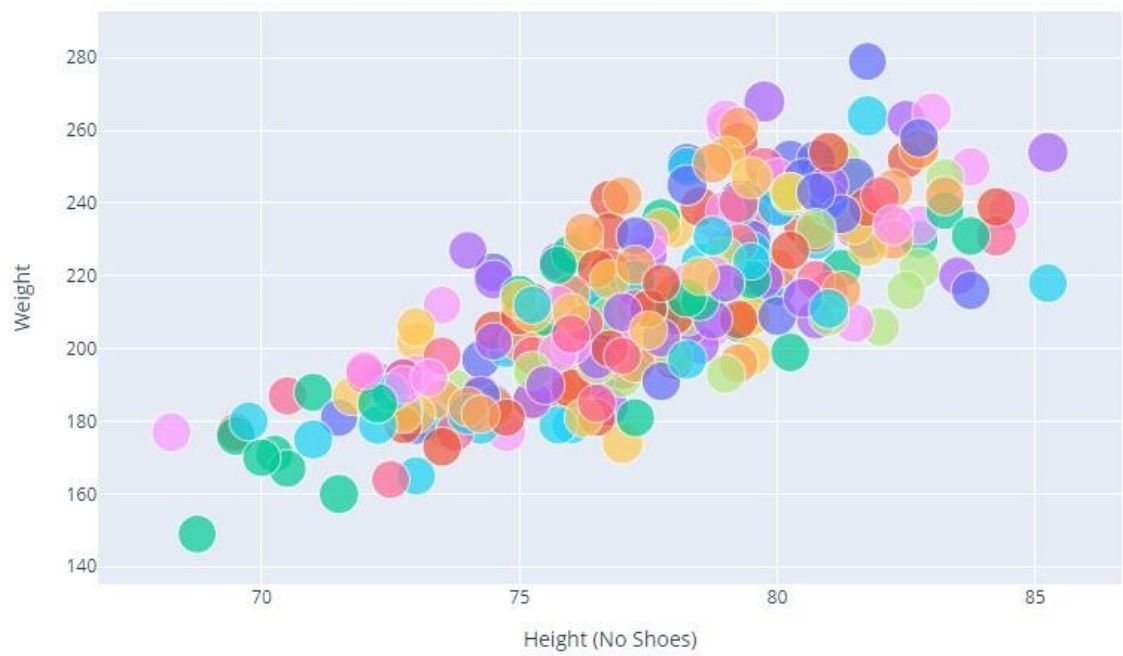
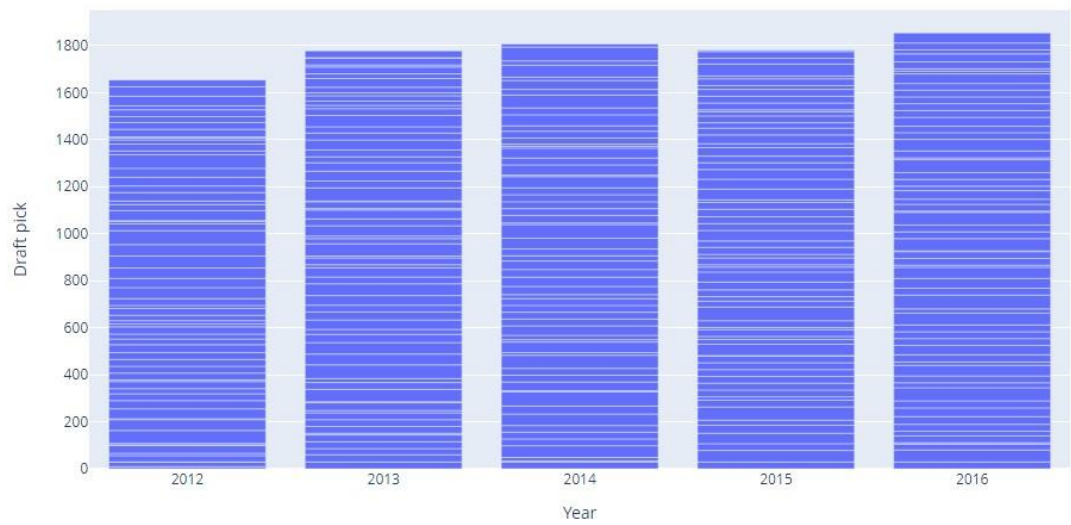
```
sns.jointplot(x="Height (No Shoes)", y="Vertical (Max)", data=new_df, kind="reg")
```

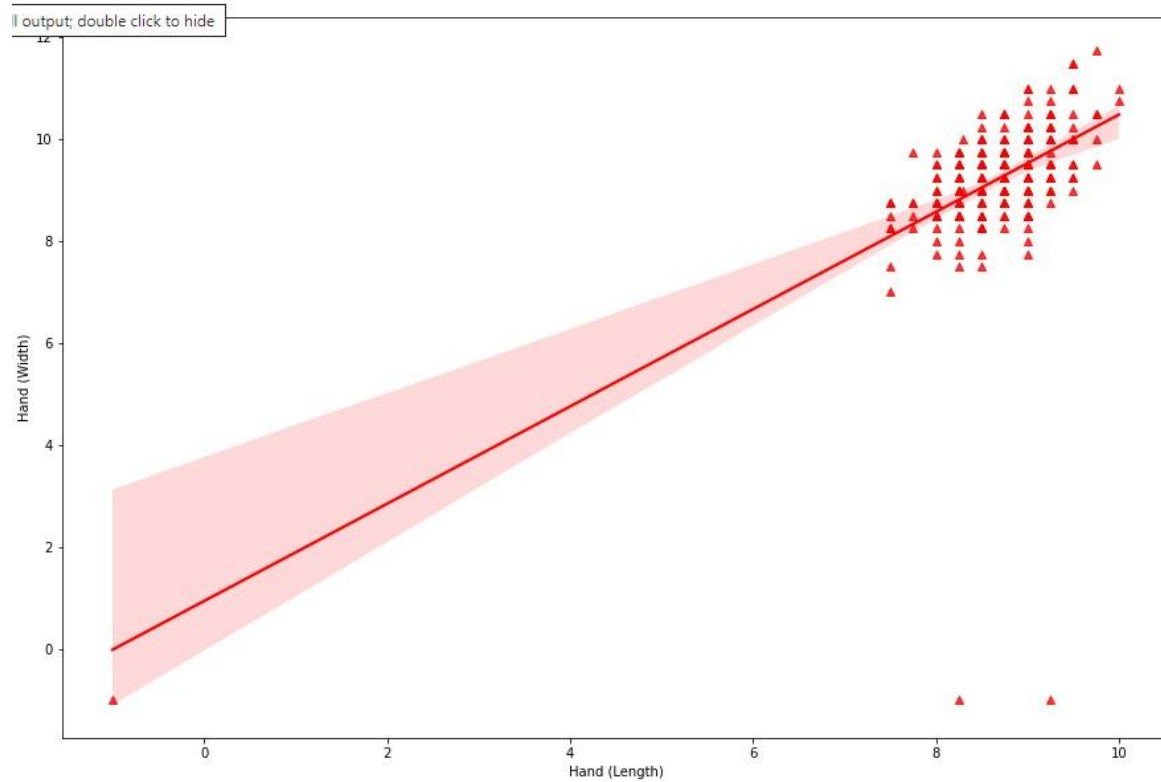
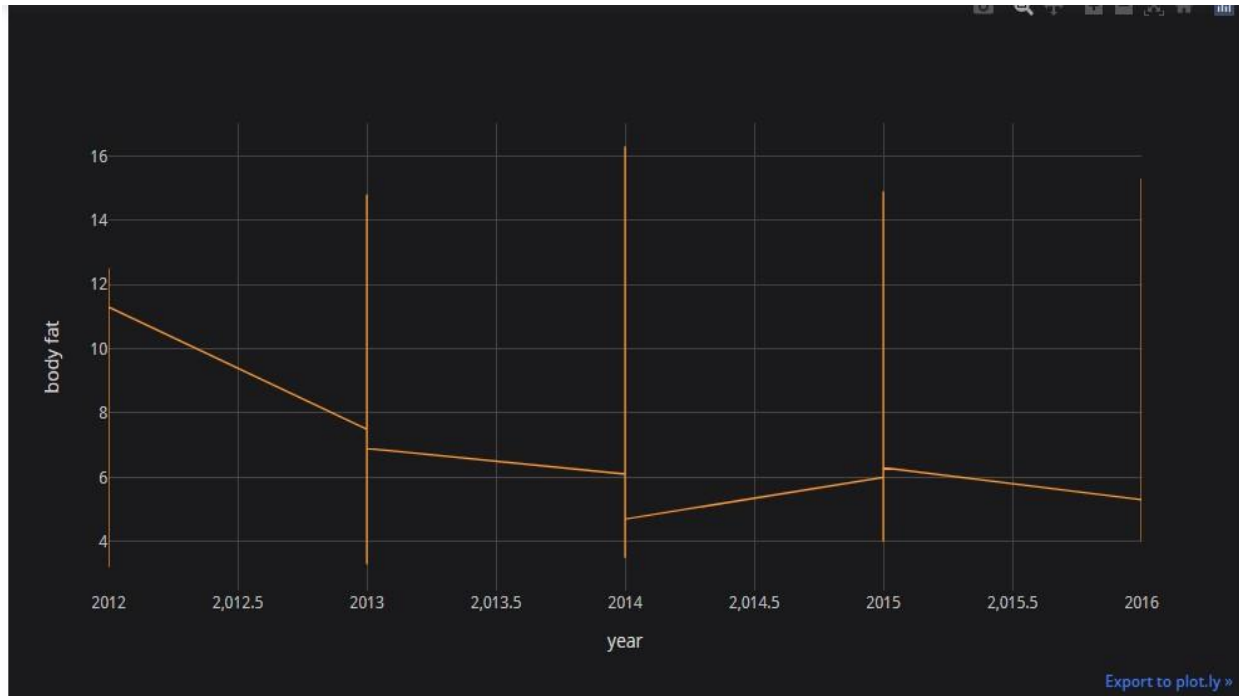
```
<seaborn.axisgrid.JointGrid at 0x1ea1aaec88>
```

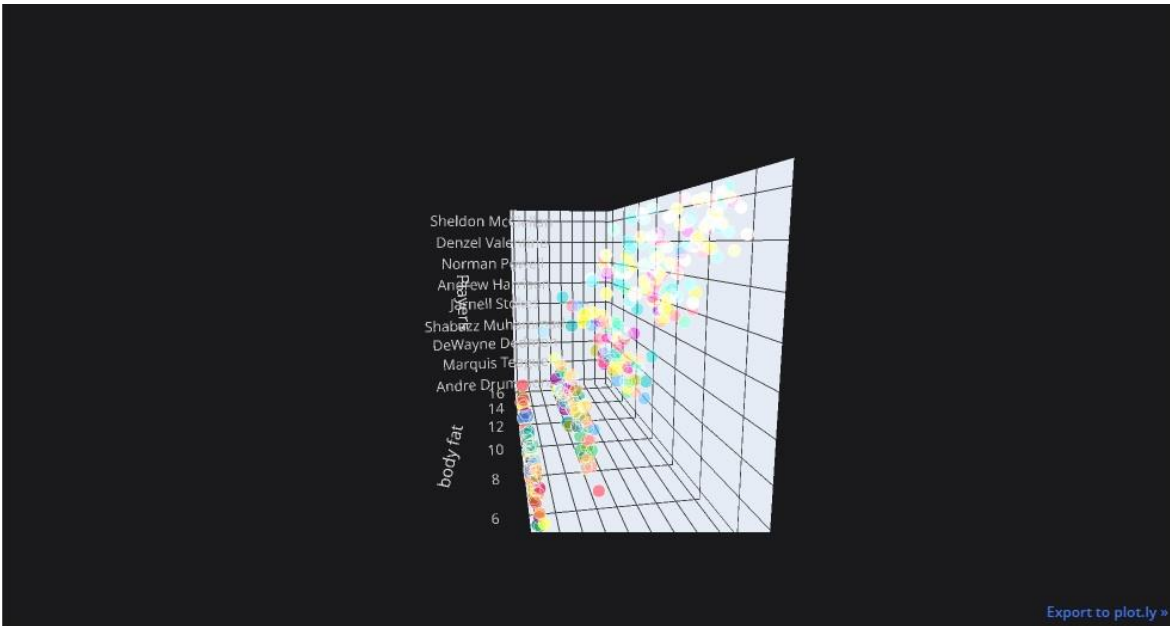


```
## Height having negative slope with vertical (max)  
## two points data diverge from the mean estimator  
## Only one person having vertical max 25.0 is a outlier
```


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Height With Body Fat

```
new_df.iplot(kind="surface",x="Height (No Shoes)",y="Body Fat",z="Player",theme="space",colorscale="rdylbu",xTitle="Height (No Shoes)",yTitle="Body Fat",zTitle="Player",fill=True)
```



