iNeuron

Low-Level Design

NBA Draft Combine Measurements

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1. NBA Draft Combine Measurement

DOCUMENT CONTROL

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2. NBA Draft Combine Measurement

Contents

1. Introduction…….. 04
1.1 What is Low-Level Design Document? ……..... 04
1.2 Scope ……..…..……..... 04
2. Architecture ……..……...… 05
3. Architecture Description ……. 06
3.1 Data Description…… 06
3.2 Web Scraping ……. 07
3.3 Data Transformation ……..…… 07
3.4 Data insertion from csv files ……07
3.5 Representation of results using python libraries ……. 07

3. NBA Draft Combine Measurement

1. Introduction

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

1.2 Scope

4. NBA Draft Combine Measurement

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.

5. NBA Draft Combine Measurement

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.

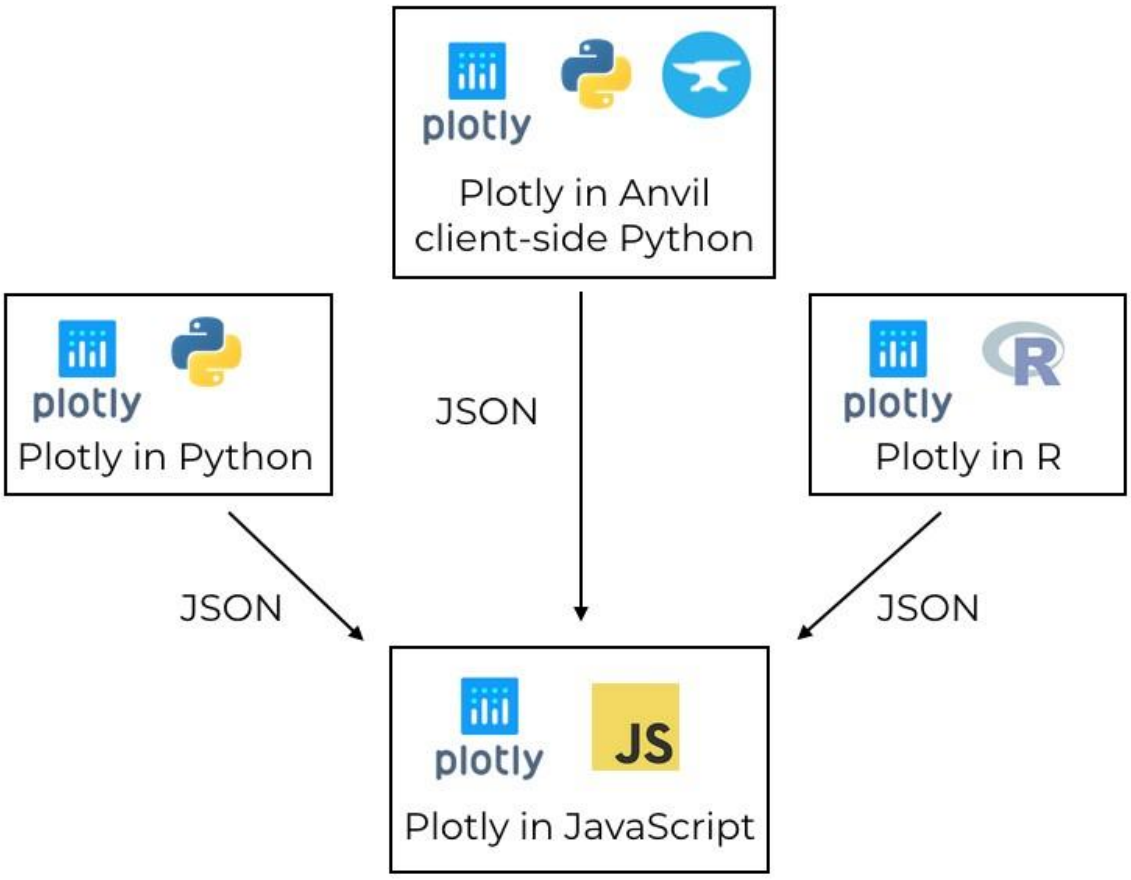


Tableau Server Architecture

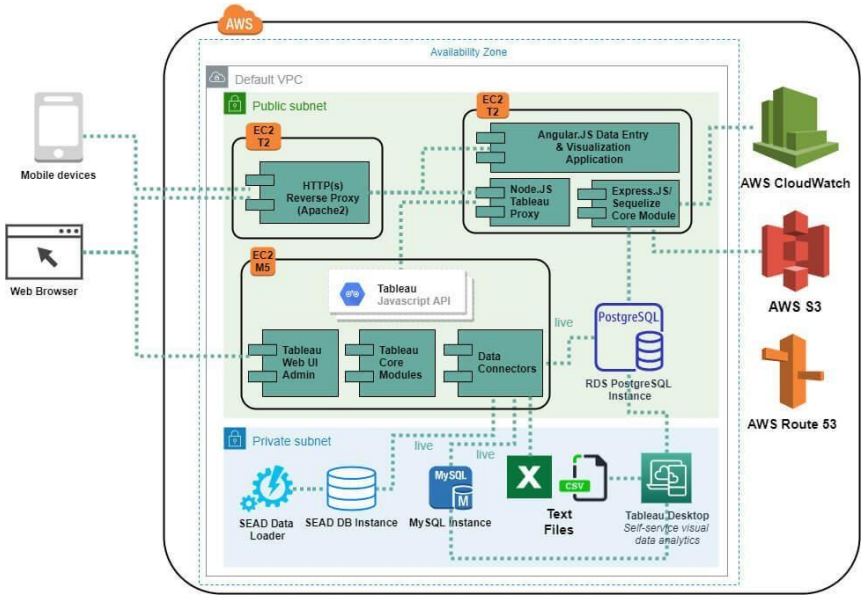
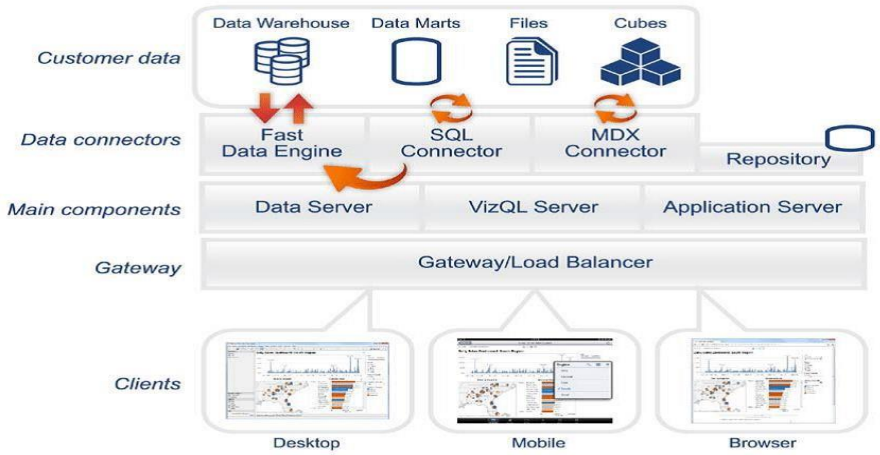


Tableau Communication Flow



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 the player played the match (in integer).

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

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 scraping is made simple nowadays, many tools are used for web scrapping. Some of the python libraries used for web scrapping are Beautiful Soup, 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

8. NBA Draft Combine Measurement

Step 1. Configuring Pandas, Numpy, Matplotlib, Seaborn

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

Importing Libraries

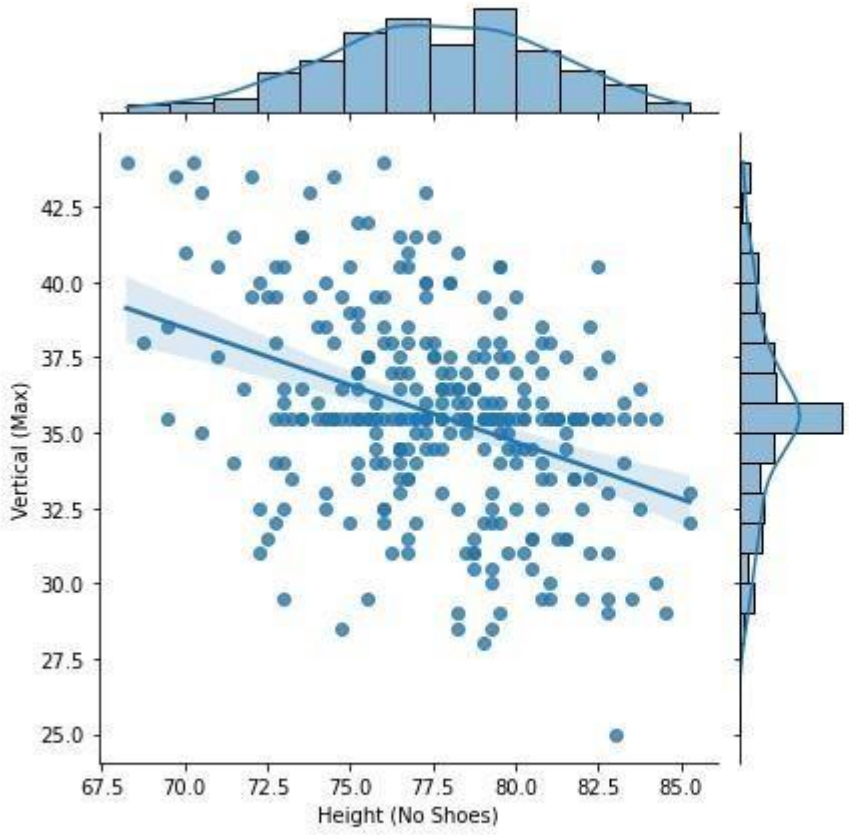
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import numpy as np
import cufflinks as cf
import plotly.express as px
import chart_studio.plotly as py
from plotly.offline import download_plotlyjs,init_notebook_mode,plot,iplot
init_notebook_mode(connected=True)
cf.go_offline()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



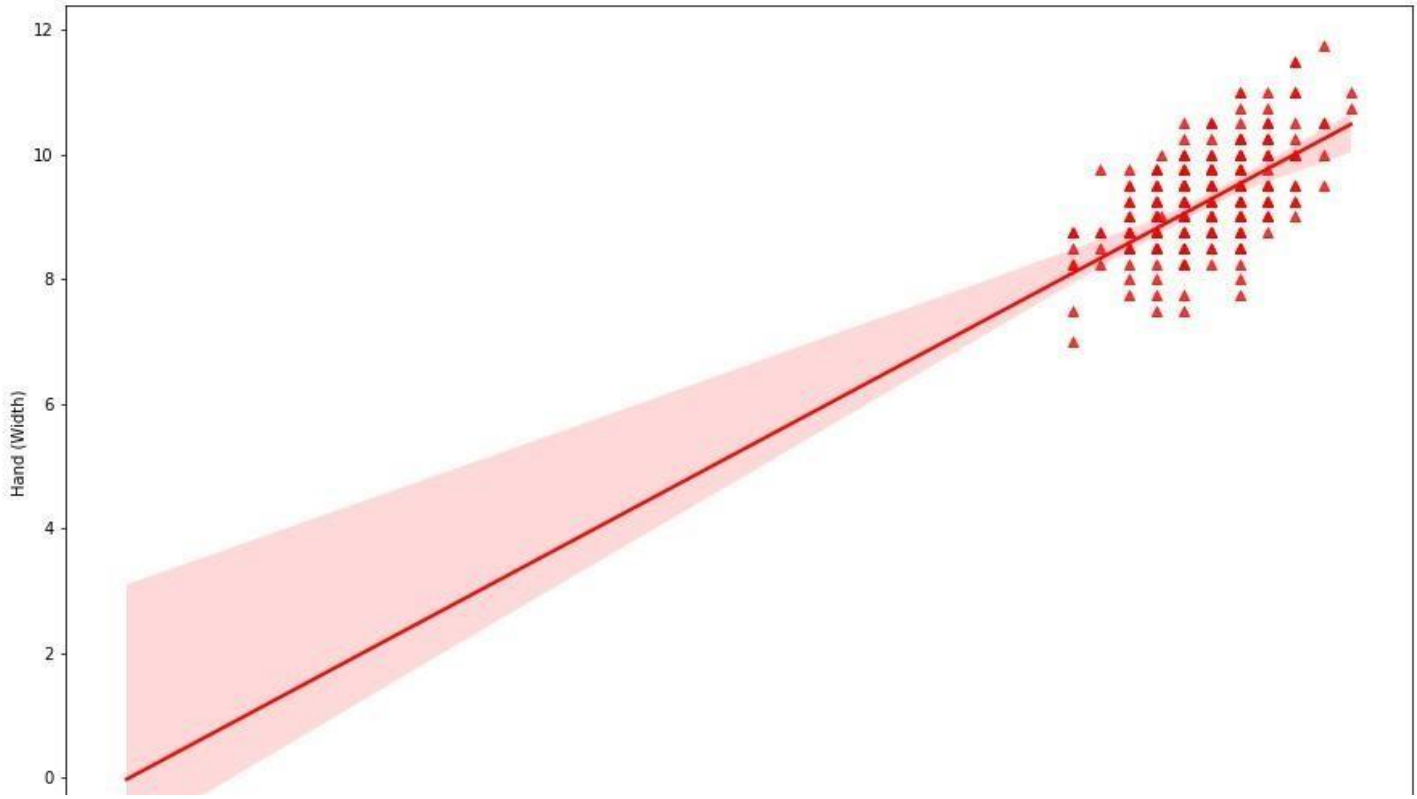

```
## Height having negative slope with veertical (max)
## two points data diverge fron the mean estimator
## Only one person having vertical max 25.0 is a outlier
```

9. NBA Draft Combine Measurement

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)'>
```



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

import PLOTLY.EXPRESS ¶

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

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

9 . NBA Draft Combine Measurement

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")
```

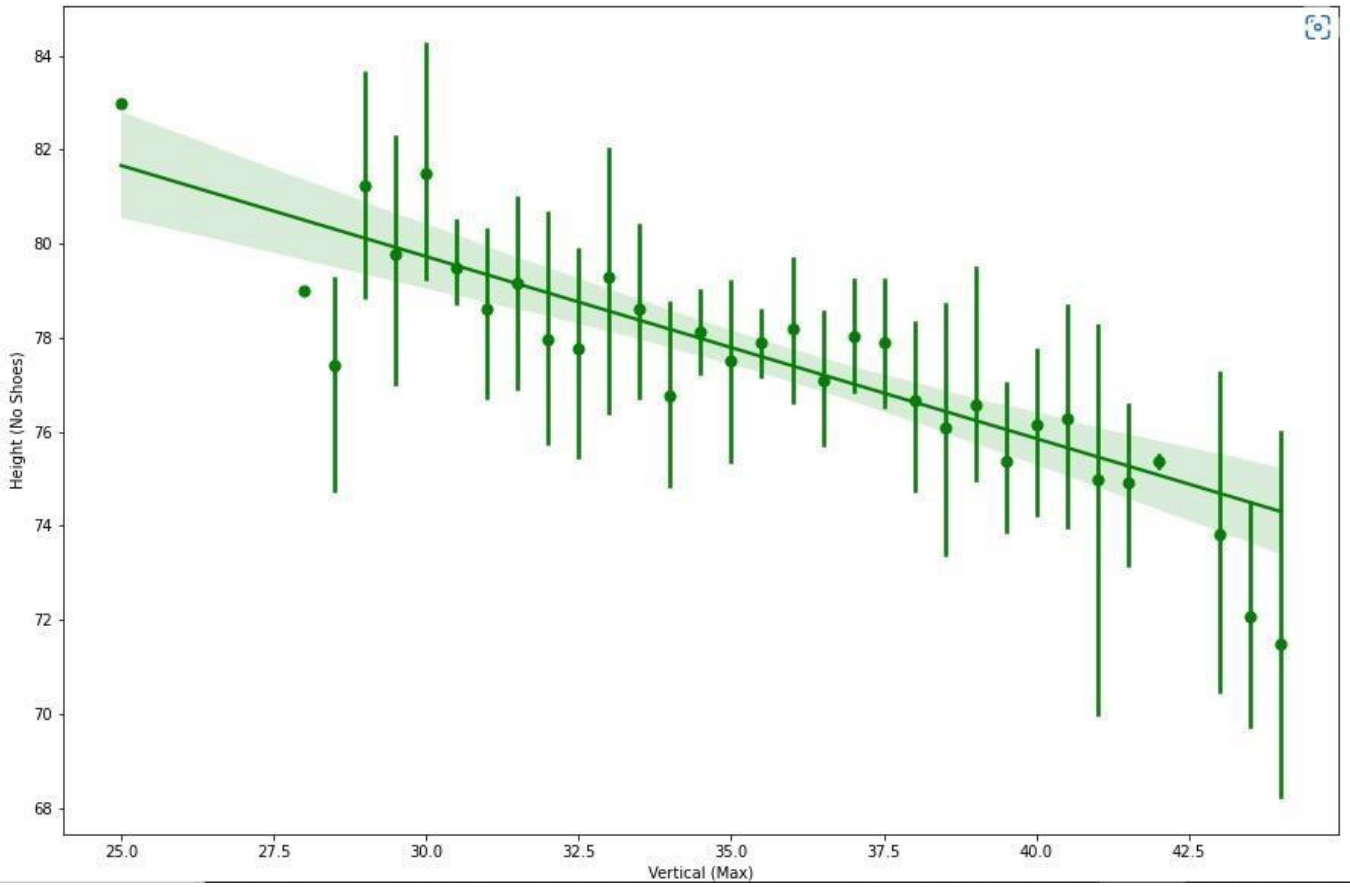
```
df=pd.concat([df1,df2,df3,df4,df5],ignore_index=True,axis=0)
```

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

Step 5: Deployment

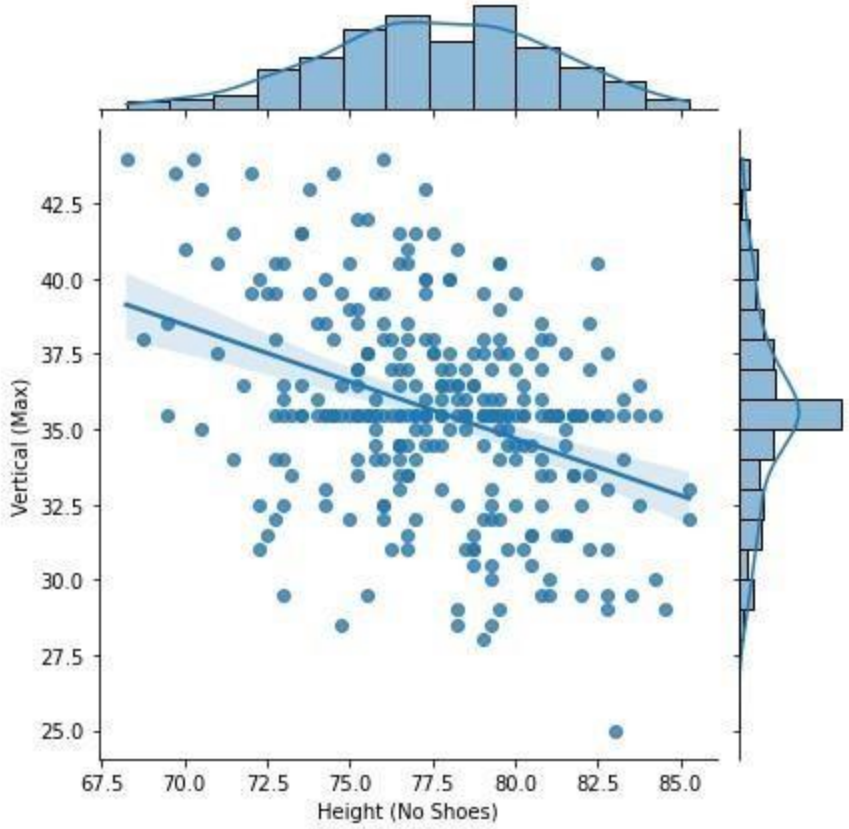
Once we have completed all the coding parts, then it's time to deploy our model and check the result.

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

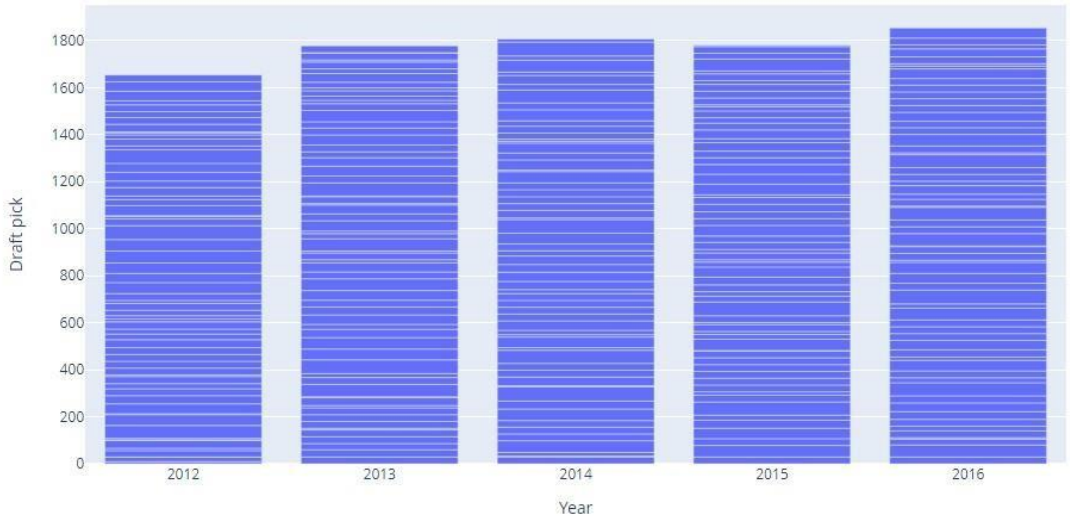


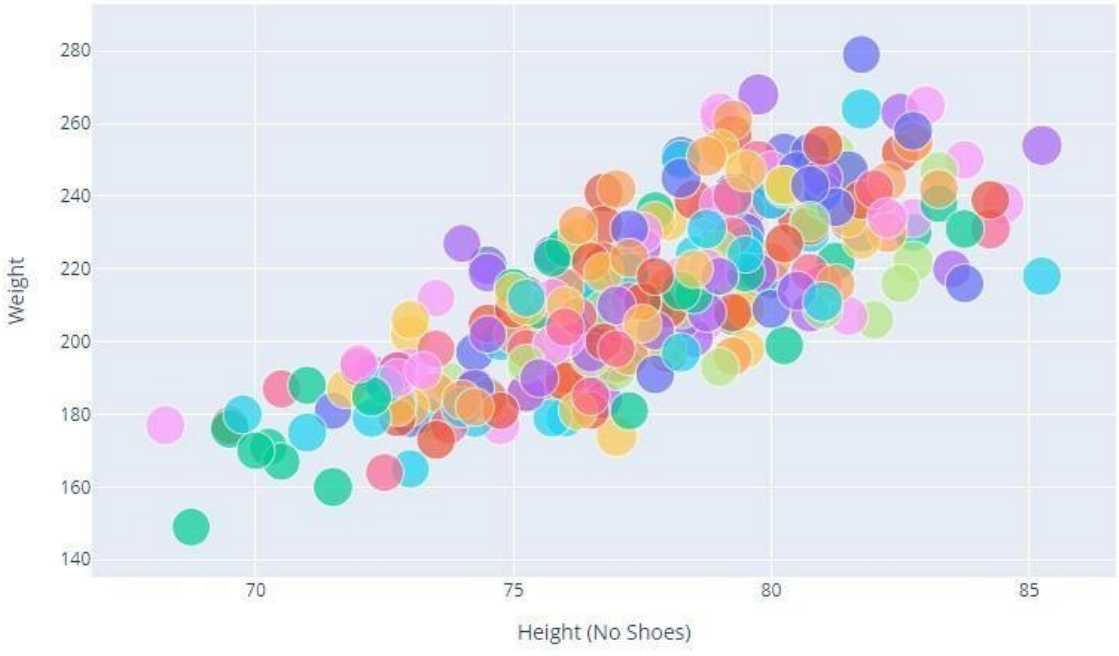
```
sns.jointplot(x="Height (No Shoes)", y="Vertical (Max)", data=new_df, kind="reg")
```

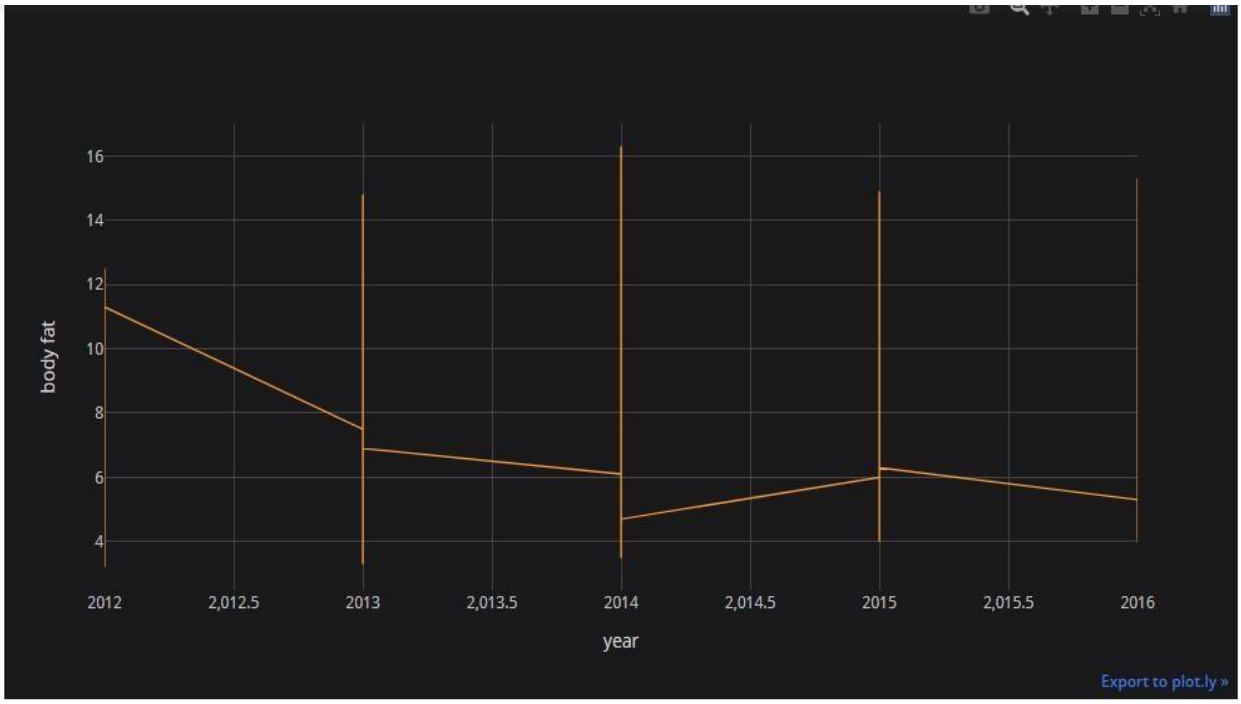
```
<seaborn.axisgrid.JointGrid at 0x1ea1aaeec88>
```

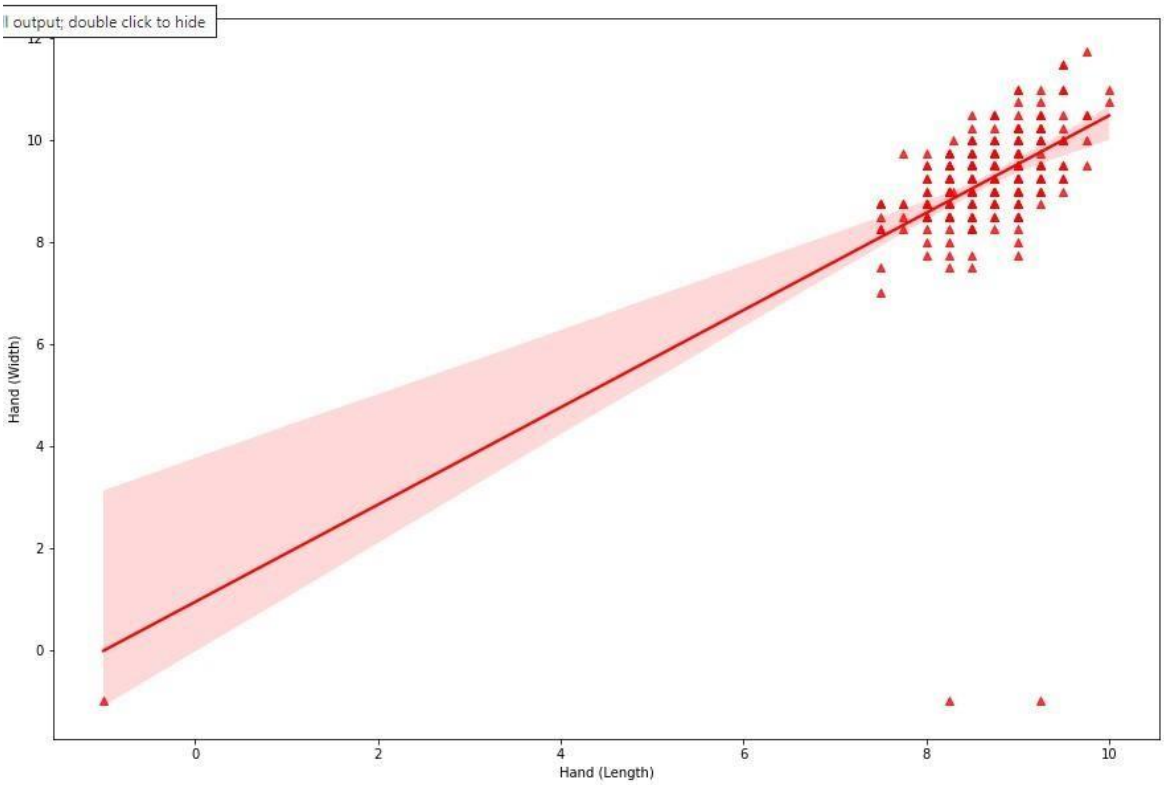


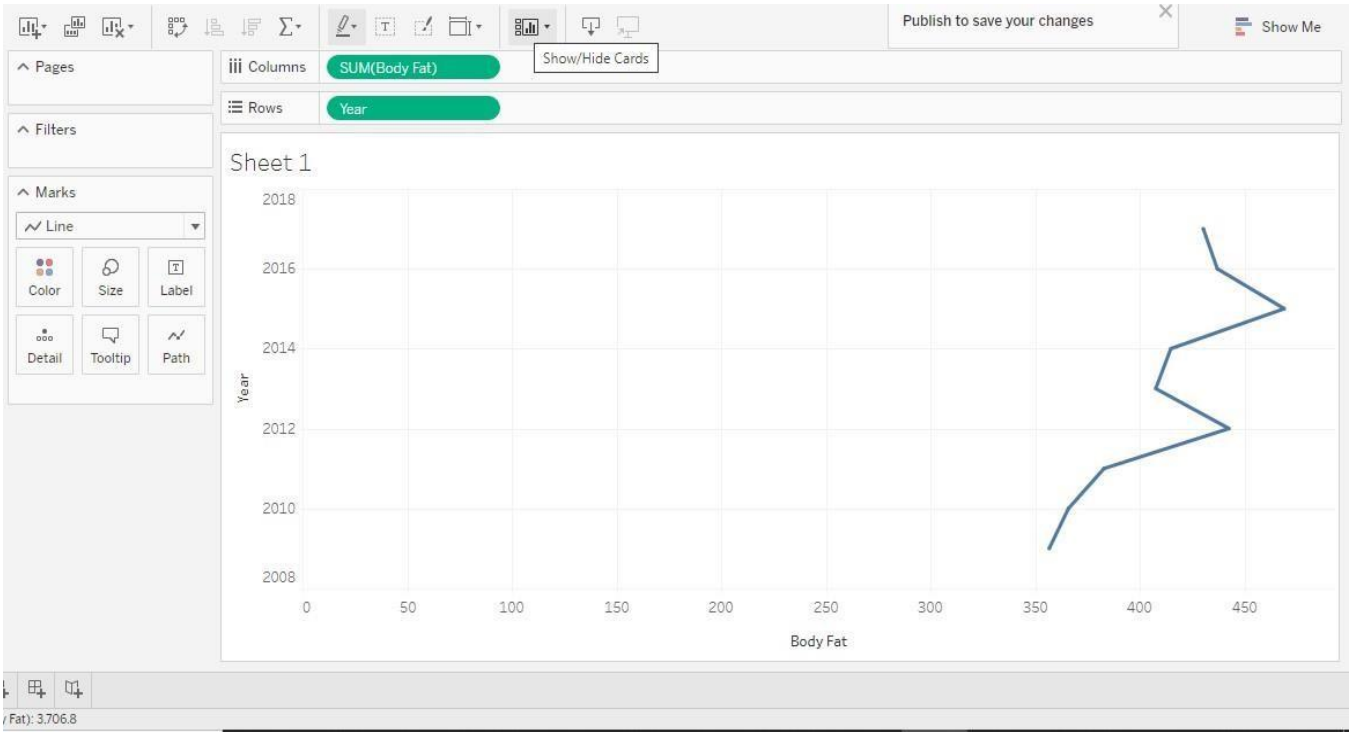

```
## Height having negative slope with veertical (max)
## two points data diverge fron the mean estimator
## Only one person having vertical max 25.0 is a outlier
```

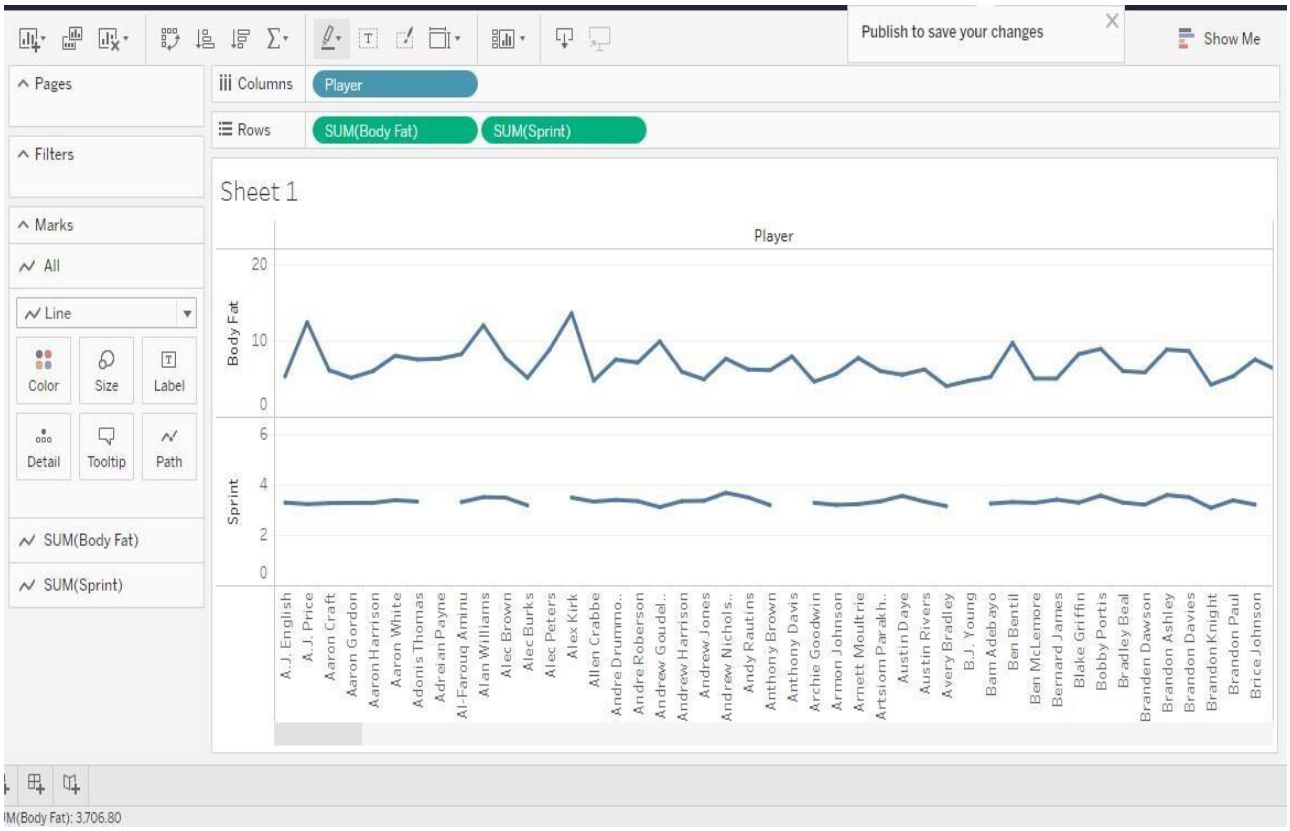

Draft pick
1800
1600
1400
1200
1000
800
600
400
200
0
2012
2013
2014
2015
2016
Year


Weight
280
260
240
220
200
180
160
140
70
75
80
85
Height (No Shoes)


16
14
12
10
8
6
4
body fat
2012
2,012.5
2013
2,013.5
2014
2,014.5
2015
2,015.5
2016
year
Export to plot.ly »


output; double click to hide
12
10
8
6
4
2
0
Hand (Width)
0
2
4
6
8
10
Hand (Length)


Publish to save your changes
Show Me
Show/Hide Cards
Pages
Columns
SUM(Body Fat)
Rows
Year
Filters
Marks
Line
Color
Size
Label
Detail
Tooltip
Path
Sheet 1
2018
2016
2014
2012
2010
2008
Year
0
50
100
150
200
250
300
350
400
450
Body Fat
Fat): 3,706.8


Publish to save your changes
Show Me
Pages
Filters
Marks
All
Line
Color
Size
Label
Detail
Tooltip
Path
SUM(Body Fat)
SUM(Sprint)
Columns
Player
Rows
SUM(Body Fat)
SUM(Sprint)
Sheet 1
Player
Body Fat
Sprint
A.J. English
A.J. Price
Aaron Craft
Aaron Gordon
Aaron Harrison
Aaron White
Adonis Thomas
Adreian Payne
Al-Farouq Aminu
Alan Williams
Alec Brown
Alec Burks
Alec Peters
Alex Kirk
Allen Crabbe
Andre Drummo..
Andre Roberson
Andrew Goudel..
Andrew Harrison
Andrew Jones
Andrew Nichols..
Andy Rautins
Anthony Brown
Anthony Davis
Archie Goodwin
Armon Johnson
Arnett Moultrie
Artsiom Parakh..
Austin Daye
Austin Rivers
Avery Bradley
B.J. Young
Bam Adebayo
Ben Bentil
Ben McLemore
Bernard James
Blake Griffin
Bobby Portis
Bradley Beal
Branden Dawson
Brandon Ashley
Brandon Davies
Brandon Knight
Brandon Paul
Brice Johnson
M(Body Fat): 3,706.80