



PS4 Video Games Sales

Avalugg Team

Sefa Koyuncu - 171180043

Muhammed Murat Gökteş - 171180029

Information About Dataset

Our dataset is about PS4 Video Games Sales.

Our dataset has 9 properties. Our dataset has 9 columns and 1034 rows.

- Game - object
- Year - float64
- Genre - object
- Publisher - object
- North America - float64
- Europe - float64
- Japan - float64
- Rest of World - float64
- Global - float64

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1034 entries, 0 to 1033
Data columns (total 9 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Game                  1034 non-null  object
1   Year                  825 non-null   float64
2   Genre                 1034 non-null  object
3   Publisher             825 non-null   object
4   North America         1034 non-null  float64
5   Europe                1034 non-null  float64
6   Japan                 1034 non-null  float64
7   Rest of World         1034 non-null  float64
8   Global                1034 non-null  float64
dtypes: float64(6), object(3)
memory usage: 72.8+ KB
```

Information About Dataset

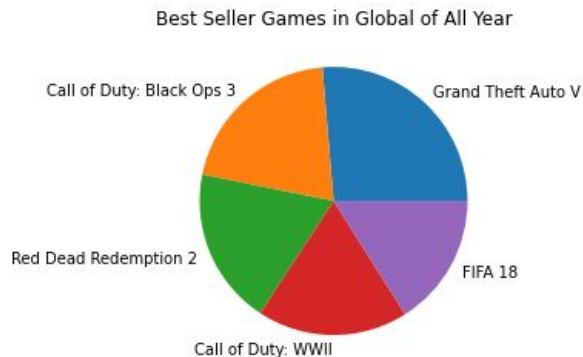
First 5 columns and some mathematical operations

	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
0	Grand Theft Auto V	2014.0	Action	Rockstar Games	6.06	9.71	0.60	3.02	19.39
1	Call of Duty: Black Ops 3	2015.0	Shooter	Activision	6.18	6.05	0.41	2.44	15.09
2	Red Dead Redemption 2	2018.0	Action-Adventure	Rockstar Games	5.26	6.21	0.21	2.26	13.94
3	Call of Duty: WWII	2017.0	Shooter	Activision	4.67	6.21	0.40	2.12	13.40
4	FIFA 18	2017.0	Sports	EA Sports	1.27	8.64	0.15	1.73	11.80
...

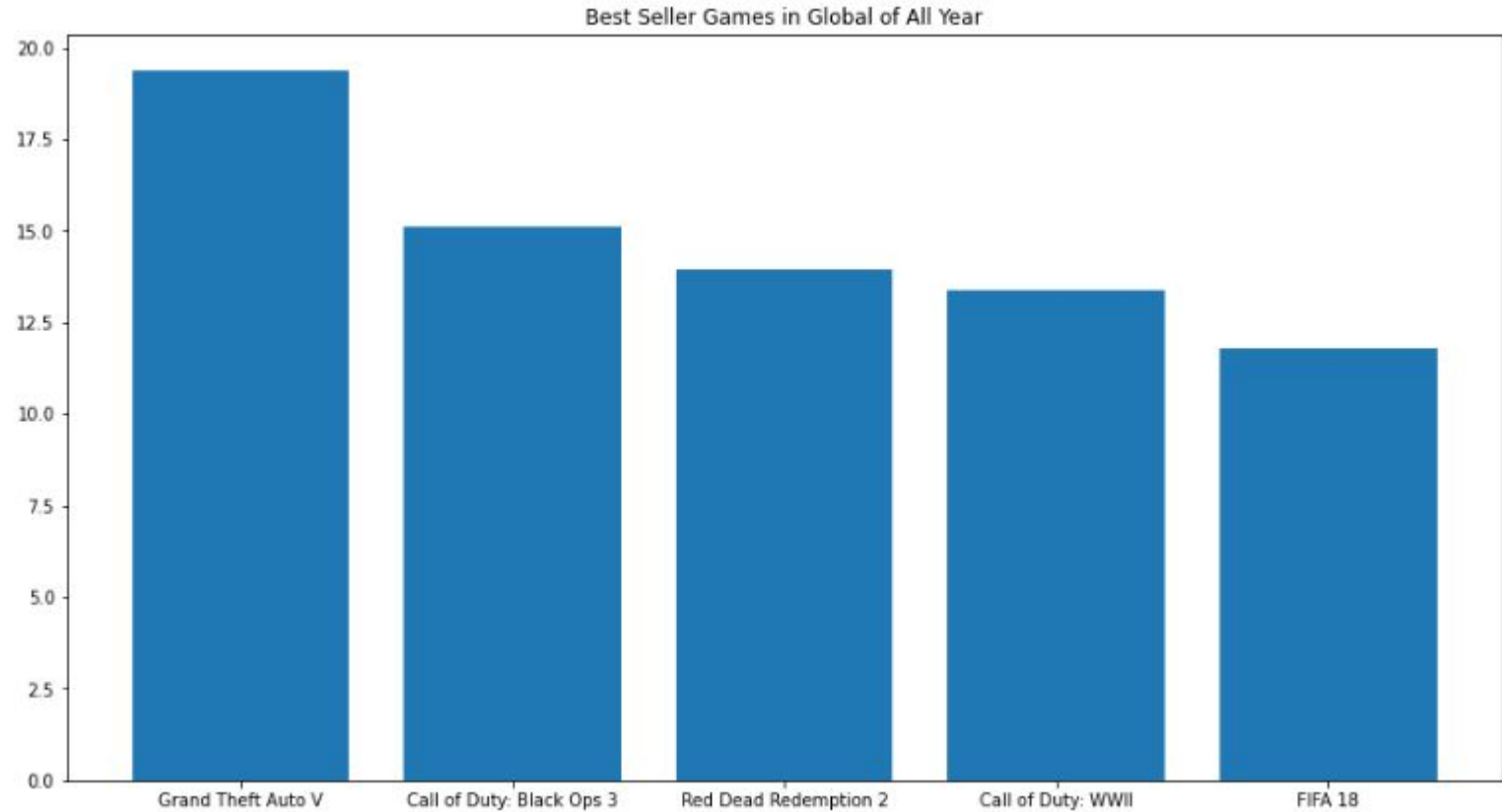
	count	mean	std	min	25%	50%	75%	max
Year	825.0	2015.966061	1.298360	2013.0	2015.0	2016.00	2017.0000	2020.00
North America	1034.0	0.204613	0.563471	0.0	0.0	0.02	0.1200	6.18
Europe	1034.0	0.248714	0.785491	0.0	0.0	0.00	0.1300	9.71
Japan	1034.0	0.033636	0.108344	0.0	0.0	0.00	0.0300	2.17
Rest of World	1034.0	0.089014	0.249410	0.0	0.0	0.01	0.0500	3.02
Global	1034.0	0.576054	1.583534	0.0	0.0	0.06	0.3575	19.39

Sorting Processing - Best Seller Games in Global

	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
0	Grand Theft Auto V	2014.0	Action	Rockstar Games	6.06	9.71	0.60	3.02	19.39
1	Call of Duty: Black Ops 3	2015.0	Shooter	Activision	6.18	6.05	0.41	2.44	15.09
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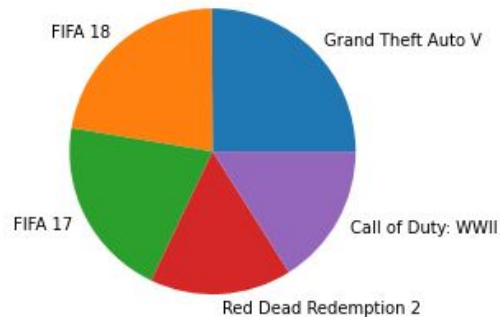
Sorting Processing - Best Seller Games in Global



Sorting Processing - Best Seller Games in Europe

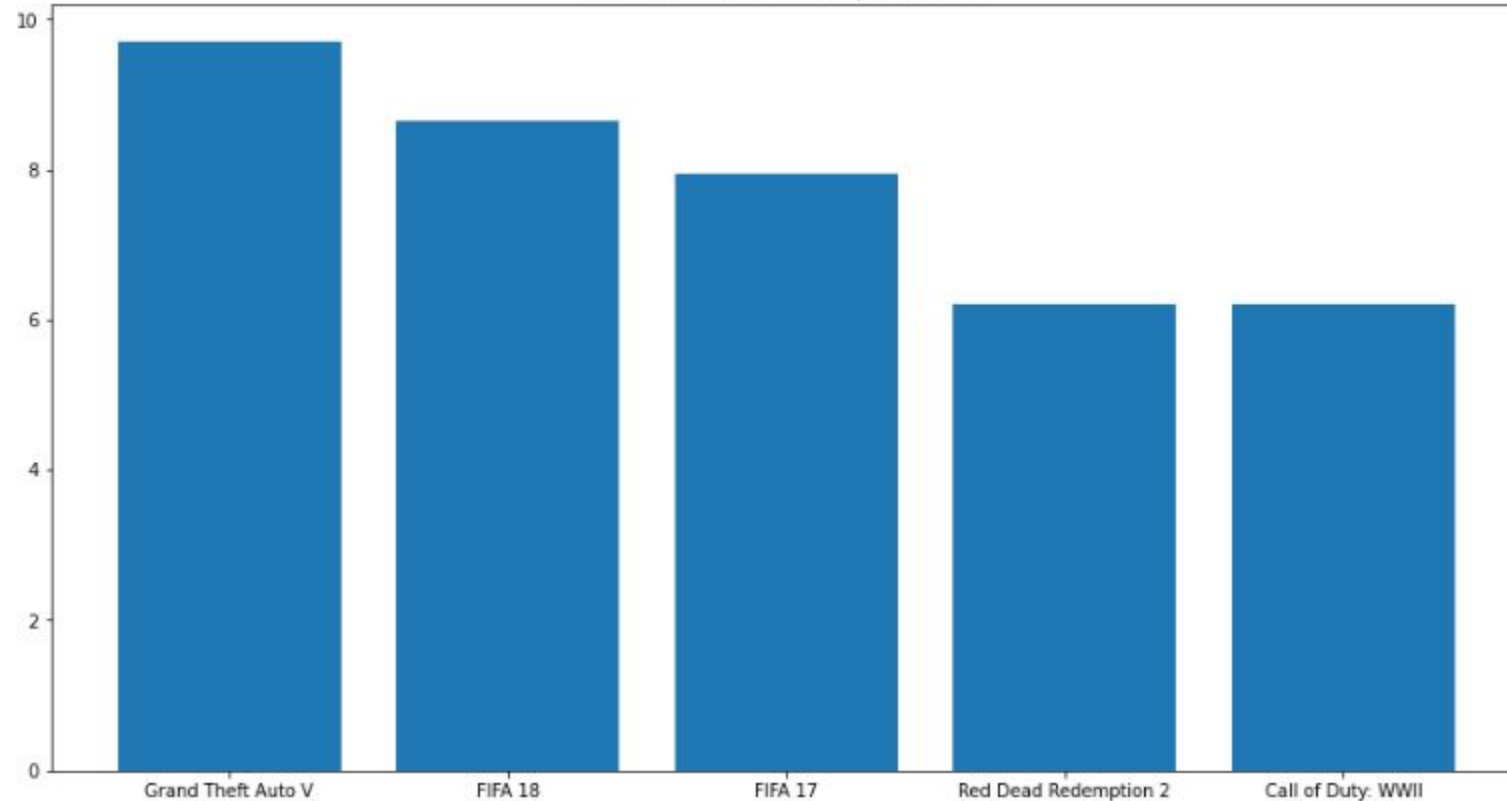
	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
0	Grand Theft Auto V	2014.0	Action	Rockstar Games	6.06	9.71	0.60	3.02	19.39
4	FIFA 18	2017.0	Sports	EA Sports	1.27	8.64	0.15	1.73	11.80
5	FIFA 17	2016.0	Sports	Electronic Arts	1.26	7.95	0.12	1.61	10.94
2	Red Dead Redemption 2	2018.0	Action-Adventure	Rockstar Games	5.26	6.21	0.21	2.26	13.94
3	Call of Duty: WWII	2017.0	Shooter	Activision	4.67	6.21	0.40	2.12	13.40

Best Seller Games in Europe of All Year



Sorting Processing - Best Seller Games in Europe

Best Seller Games in Europe of All Year



Note from datas:

* Grand Theft Auto V was published in 2014 and the most bought game in Global.

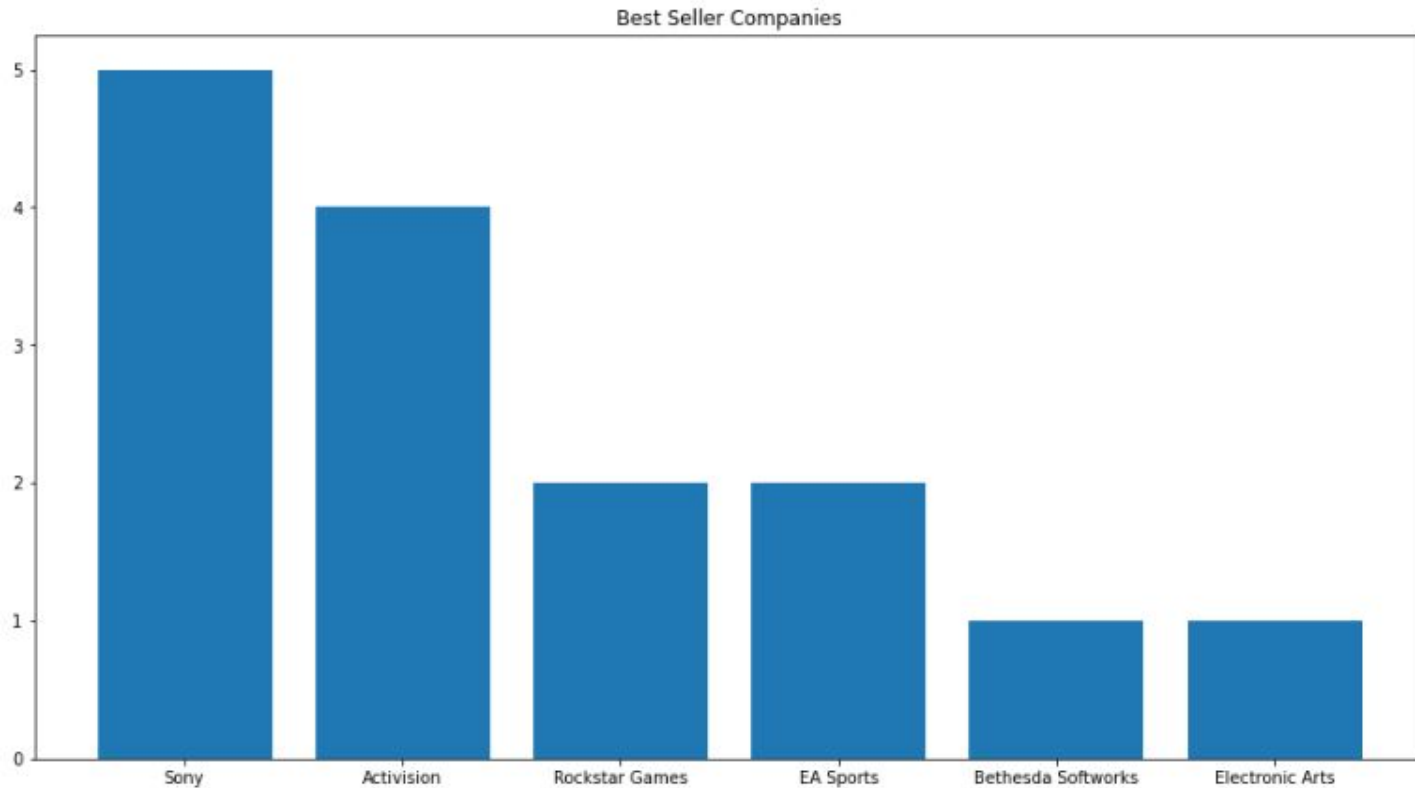
* We can say that, Game is very good and the game is very well marketed.

* GTA V is a serie game and it could be effected to sell.

Sorting Year

		Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global	2014
0		Grand Theft Auto V	2014.0	Action	Rockstar Games	6.06	9.71	0.60	3.02	19.39	
12		Call of Duty: Advanced Warfare	2014.0	Shooter	Activision	2.84	3.34	0.14	1.22	7.53	
14		The Last of Us	2014.0	Action-Adventure	Sony Computer Entertainment	2.70	2.86	0.11	1.10	6.77	
		Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global	2015
1		Call of Duty: Black Ops 3	2015.0	Shooter	Activision	6.18	6.05	0.41	2.44	15.09	
9		Fallout 4	2015.0	Role-Playing	Bethesda Softworks	2.91	3.97	0.27	1.34	8.48	
10		FIFA 16	2015.0	Sports	EA Sports	1.15	5.77	0.07	1.23	8.22	
		Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global	2016
5		FIFA 17	2016.0	Sports	Electronic Arts	1.26	7.95	0.12	1.61	10.94	
6		Uncharted (PS4)	2016.0	Action	Sony Interactive Entertainment	4.49	3.93	0.21	1.70	10.33	
8		Call of Duty: Infinite Warfare	2016.0	Shooter	Activision	3.11	3.83	0.19	1.36	8.48	
		Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global	2017
3		Call of Duty: WWII	2017.0	Shooter	Activision	4.67	6.21	0.40	2.12	13.40	
4		FIFA 18	2017.0	Sports	EA Sports	1.27	8.64	0.15	1.73	11.80	
18		Horizon: Zero Dawn	2017.0	Action	Sony Interactive Entertainment	2.20	2.43	0.28	0.92	5.82	
		Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global	2018
2		Red Dead Redemption 2	2018.0	Action-Adventure	Rockstar Games	5.26	6.21	0.21	2.26	13.94	
7		Spider-Man (PS4)	2018.0	Action-Adventure	Sony Interactive Entertainment	3.64	3.39	0.32	1.41	8.76	
17		God of War (PS4)	2018.0	Action	Sony Interactive Entertainment	2.83	2.17	0.13	1.02	6.15	

Sorting Year



Note From Datas (2015, 2016, 2017, 2018):

How many times companies best seller games in 3

* Sony = 5

* Activision = 4

* Rockstar Games = 2

* EA Sports = 2

* Bethesda Softworks = 1

* Electronic Arts = 1

Sorting Genre

We have 17 genres.

We analysis first 3 genres.

Action

Role- Playing

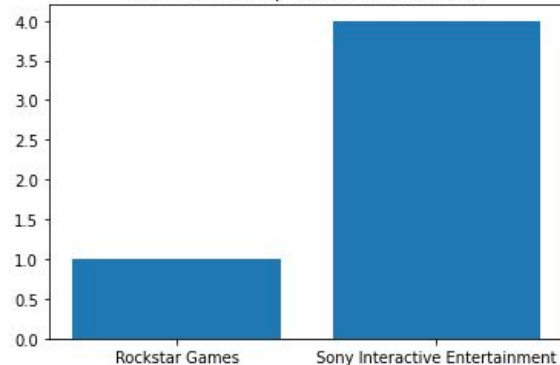
Shooter

Action	205
Role-Playing	107
Shooter	75
Adventure	71
Sports	69
Misc	55
Racing	48
Action-Adventure	38
Platform	33
Fighting	32
Strategy	25
Simulation	21
Music	18
Puzzle	10
MMO	8
Visual Novel	8
Party	2
Name: Genre, dtype: int64	

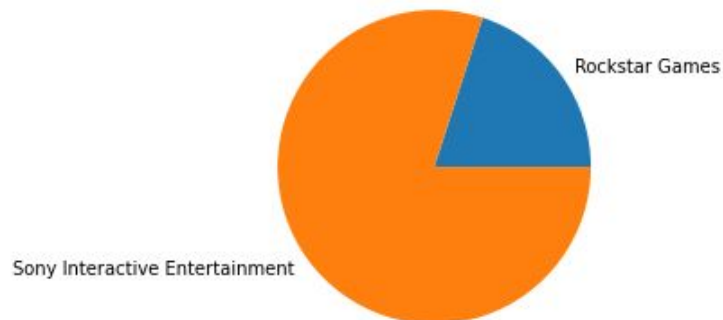
Sorting Genre - Action

	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
0	Grand Theft Auto V	2014.0	Action	Rockstar Games	6.06	9.71	0.60	3.02	19.39
6	Uncharted (PS4)	2016.0	Action	Sony Interactive Entertainment	4.49	3.93	0.21	1.70	10.33
17	God of War (PS4)	2018.0	Action	Sony Interactive Entertainment	2.83	2.17	0.13	1.02	6.15
18	Horizon: Zero Dawn	2017.0	Action	Sony Interactive Entertainment	2.20	2.43	0.28	0.92	5.82
20	Uncharted: The Nathan Drake Collection	2015.0	Action	Sony Computer Entertainment	2.55	2.11	0.10	0.94	5.70

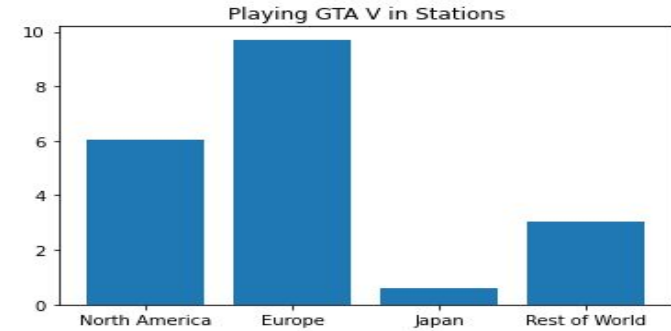
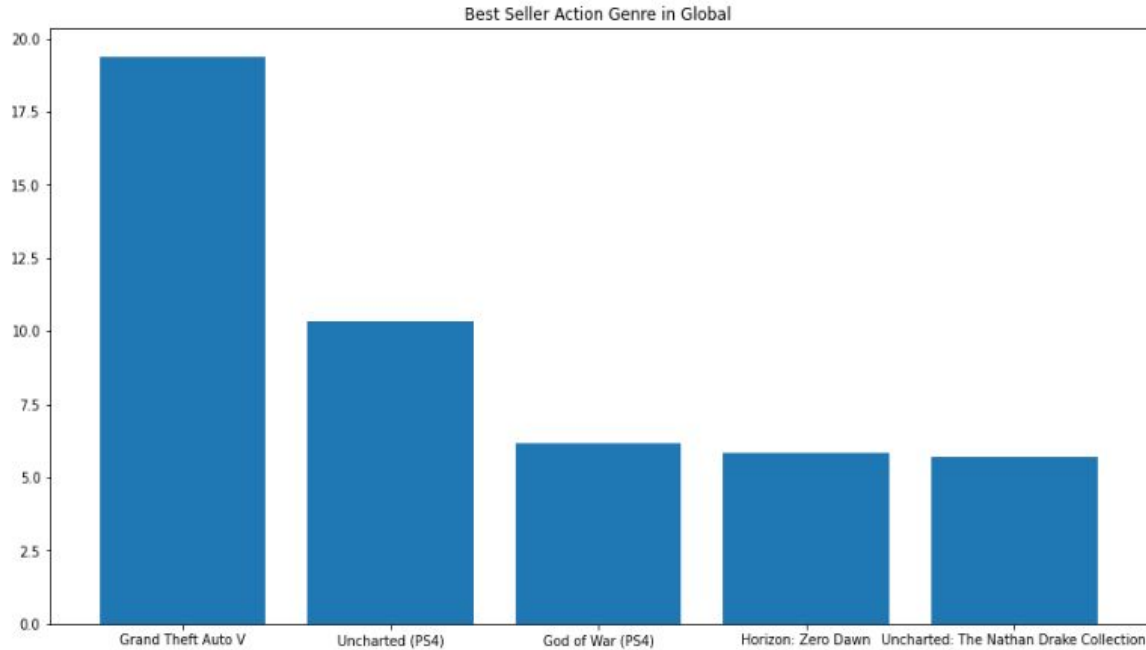
Best Seller Companies in Action Genre



Best Seller Companies in Action Genre



Sorting Genre - Action



Note from datas:

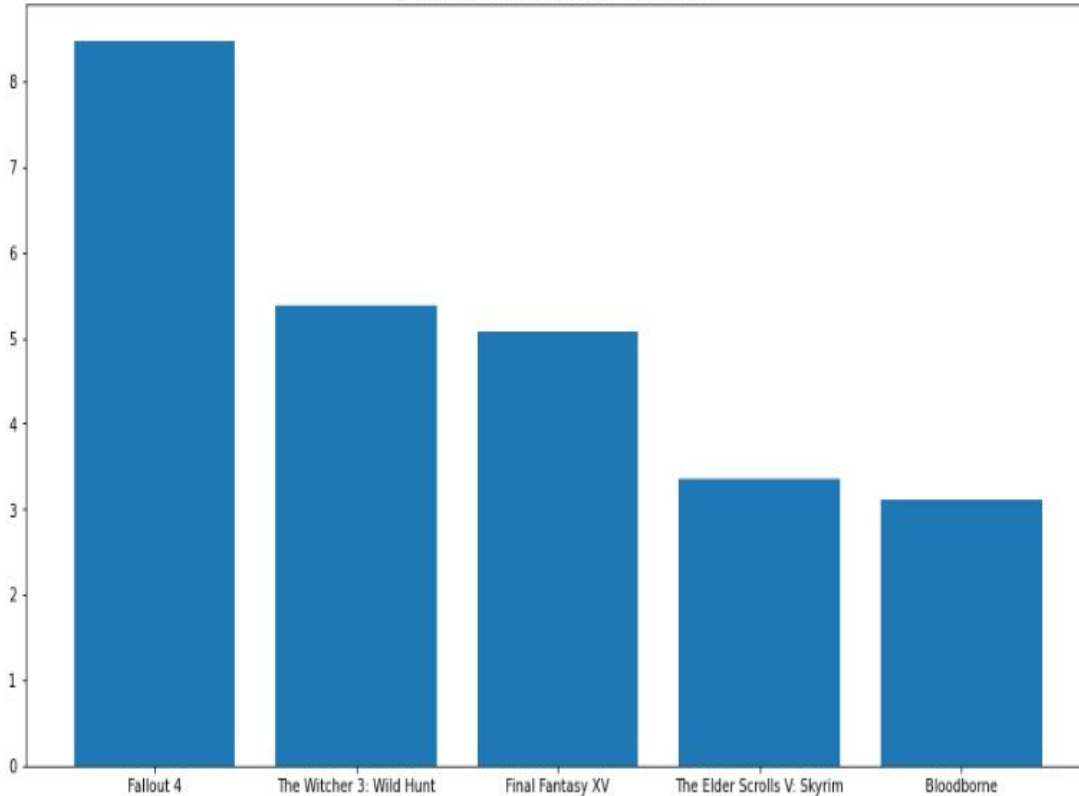
- * Sony Interactive Entertainment company is very popular and good in action genre.
- * But Sony Interactive Entertainment company couldn't be the first order.
- * Sony Interactive Entertainment has 4 games best selling in 5 games.
- * Rockstar Games has 1 game best selling in 5 games but they are first order.
- * GTA V was playing mostly in Europe.

Sorting Genre - Role-Playing

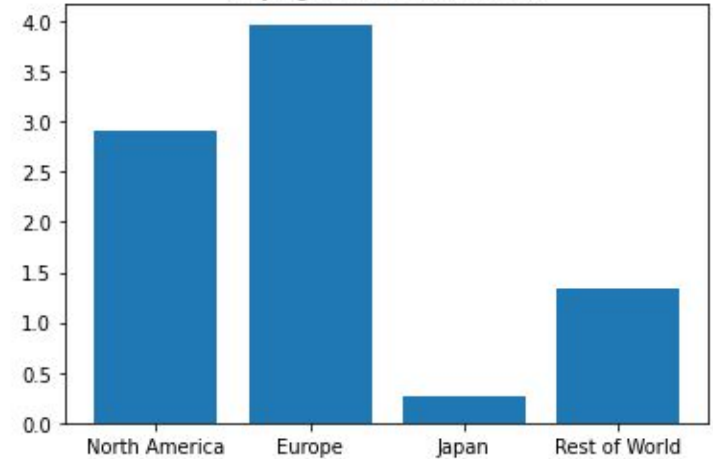
	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
9	Fallout 4	2015.0	Role-Playing	Bethesda Softworks	2.91	3.97	0.27	1.34	8.48
21	The Witcher 3: Wild Hunt	2015.0	Role-Playing	Namco Bandai Games	1.48	2.82	0.28	0.81	5.39
22	Final Fantasy XV	2016.0	Role-Playing	Square Enix	1.81	1.53	1.05	0.68	5.07
44	The Elder Scrolls V: Skyrim	2016.0	Role-Playing	Bethesda Softworks	1.24	1.50	0.08	0.54	3.36
53	Bloodborne	2015.0	Role-Playing	Sony Computer Entertainment	1.30	1.05	0.28	0.48	3.11

Sorting Genre - Role-Playing

Best Seller Role-Playing Genre in Global



Playing Fallout 4 in Stations



Note from datas:

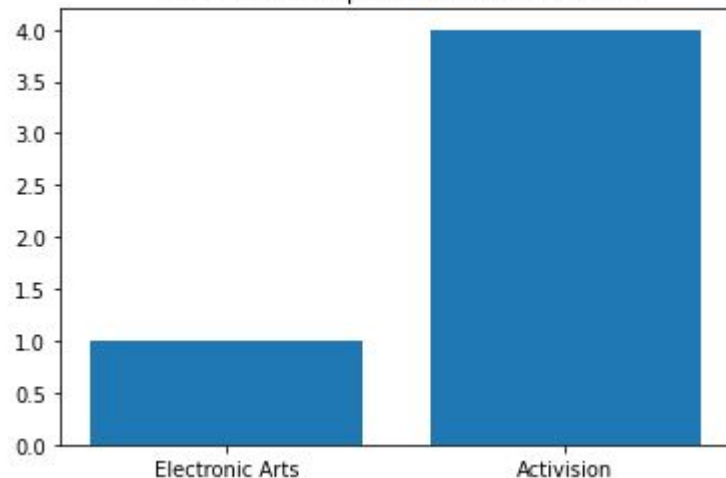
* There are different companies in Role Playing games.

* Fallout 4 was playing mostly in Europe.

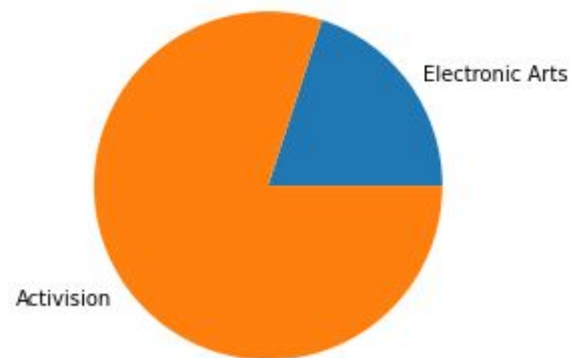
Sorting Genre - Shooter

	Game	Year	Genre	Publisher	North America	Europe	Japan	Rest of World	Global
1	Call of Duty: Black Ops 3	2015.0	Shooter	Activision	6.18	6.05	0.41	2.44	15.09
3	Call of Duty: WWII	2017.0	Shooter	Activision	4.67	6.21	0.40	2.12	13.40
8	Call of Duty: Infinite Warfare	2016.0	Shooter	Activision	3.11	3.83	0.19	1.36	8.48
11	Star Wars Battlefront 2015	2015.0	Shooter	Electronic Arts	3.31	3.19	0.23	1.30	8.03
12	Call of Duty: Advanced Warfare	2014.0	Shooter	Activision	2.84	3.34	0.14	1.22	7.53

Best Seller Companies in Shooter Genre

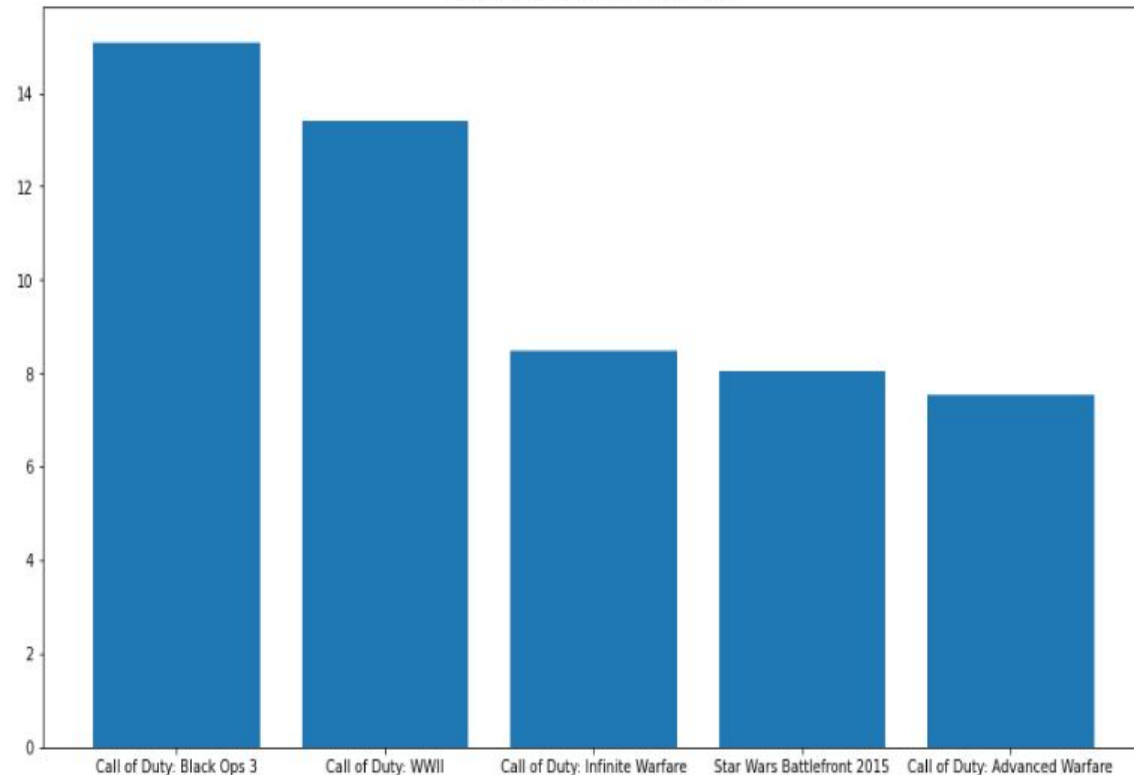


Best Seller Companies in Shooter Genre

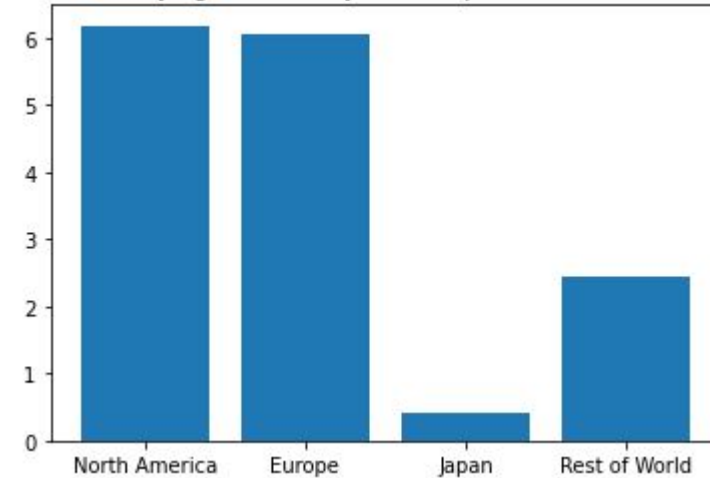


Sorting Genre - Shooter

Best Seller Shooter Genre in Global



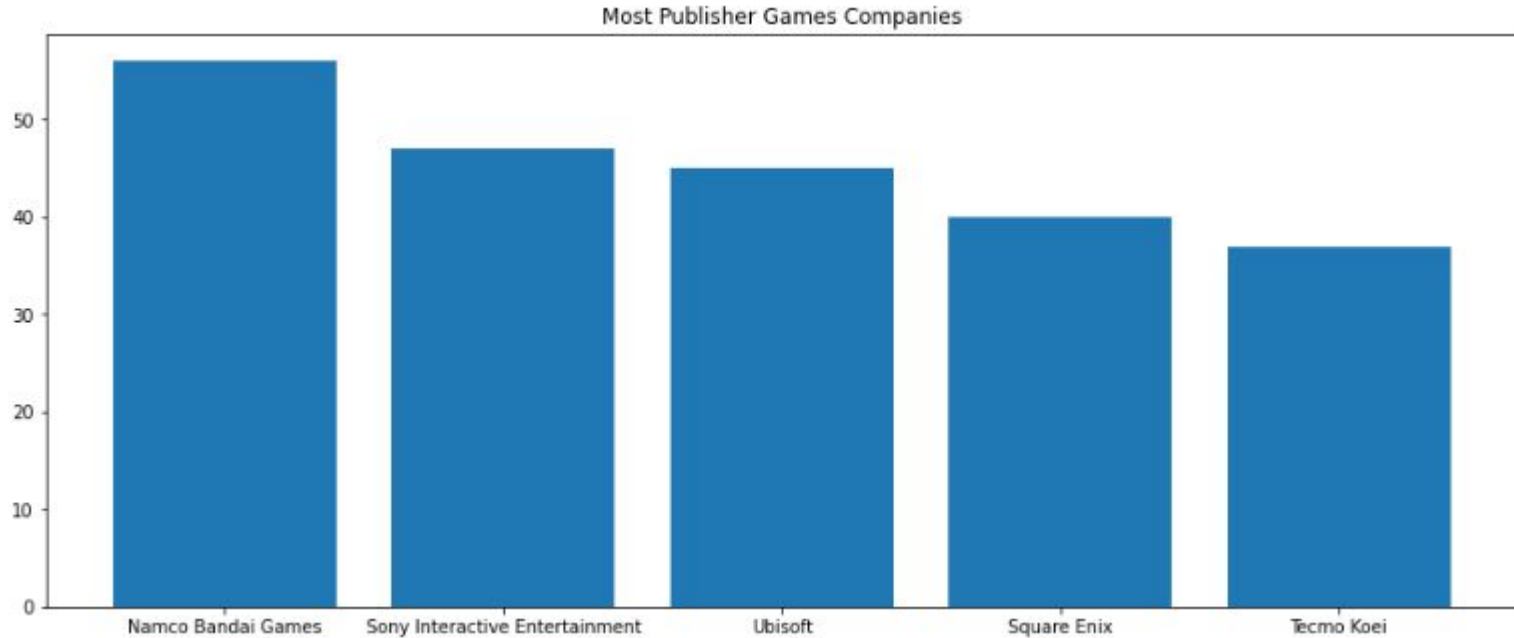
Playing Call of Duty: Black Ops 3 in Stations



Note from datas:

- * Activision company is very popular and good in shooter genre.
- * Activision company has 4 games best selling in 5 games.
- * Electronic Arts has 1 game best selling in 5 games.
- * Call of Duty: Black Ops 3 was playing mostly in North America.

Sorting Genre - Publisher

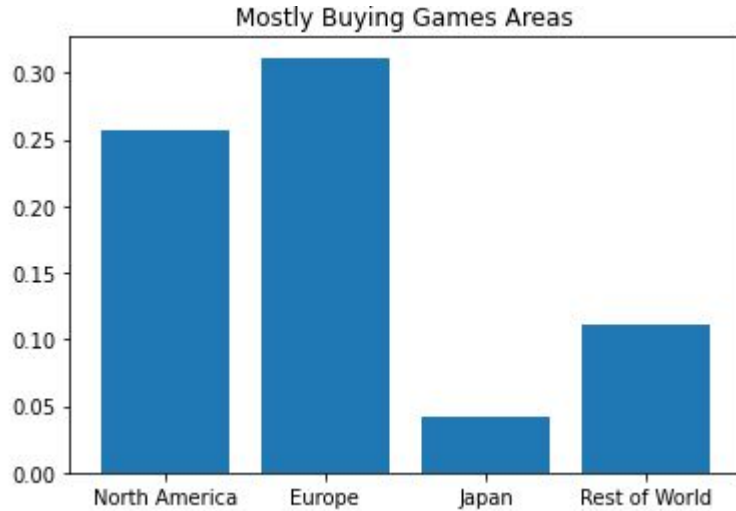


Note:

*We can say that, not too much important to publish most games.

* For example Activision is not the most publisher games company but it is very successful company, datas say that.

Sorting - Areas



Note from datas:

* North America buying games mean is : 0.256448

* Europe buying games mean is : 0.311600

* Japan buying games mean is : 0.042048

* Rest of World buying games is : 0.111552

****We can say mostly Europe people buys games.****

****Japanese people doesn't buy too many games.****

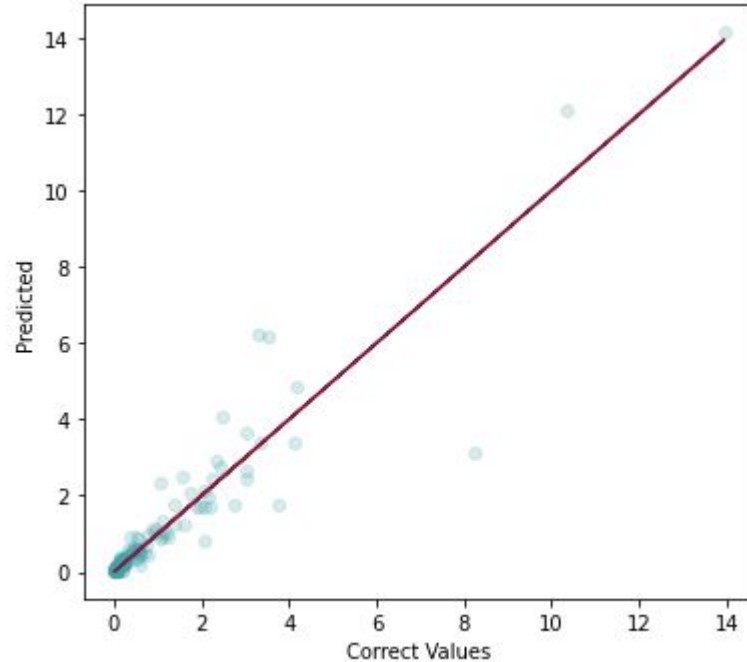
Machine Learning Algorithms - Time to Predict

Linear Regression

We predict Global column.

- North America

R2 Score is: 0.8628896648809483



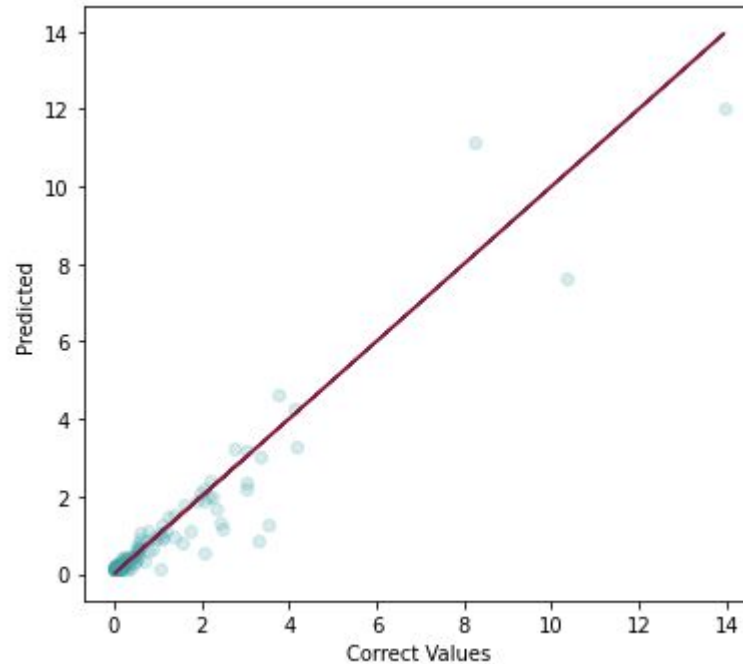
Machine Learning Algorithms - Time to Predict

Linear Regression

We predict Global column.

- Europe

R2 Score is: 0.9035521623822755



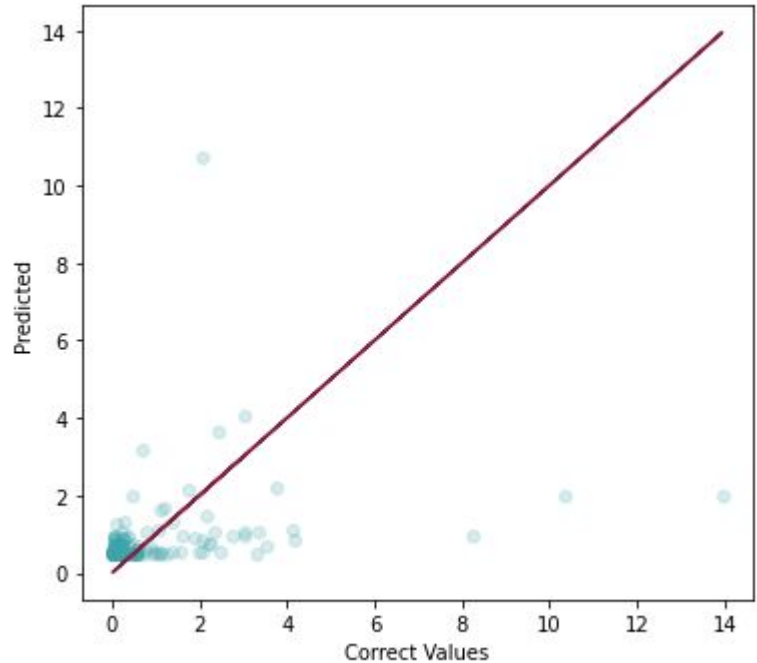
Machine Learning Algorithms - Time to Predict

Linear Regression

We predict Global column.

- Japan

R2 Score is: -0.0023713310999782244



Machine Learning Algorithms - Time to Predict

Random Forest

We predict Global column.

- North America

Training Accuracy :
0.966470054716161

Testing Accuracy :
0.9165156176105872

R2 Score : 0.9165156176105872

Random Forest

We predict Global column.

- Europa

Training Accuracy :
0.9716747214250158

Testing Accuracy :
0.8805567463934304

R2 Score: 0.8805567463934304

Random Forest

We predict Global column.

- Japan

Training Accuracy :
0.567300200464638

Testing Accuracy :
0.2330987404643582

R2 Score : 0.2330987404643582