

## Topic: Exploratory Data Analysis (EDA)

### Objective:

Exploratory Data Analysis (EDA) is performed on a "Mobile Price Classification" based dataset. The primary goal of this exploratory data analysis is to examine the data and forecast findings based on goals like "Predictive Modelling for Important features", "Model Optimization", "Quality Assessment" and "Performance Standard".

### #Model Optimization:

By seeing the feature like Battery Power, Microprocessor Speed , Internal Memory, RAM, Number of Core Processors.

The screenshot displays a Jupyter Notebook environment with the following components:

- Code Cells:**
  - Cell [1]: `import pandas as pd`  
`import matplotlib.pyplot as plt`  
`%matplotlib inline`
  - Cell [2]: `data=pd.read_csv('train.csv')`
  - Cell [3]: `data`
- Data Preview:** A table showing the first few rows of the dataset. The columns include: `battery_power`, `blue`, `clock_speed`, `dual_sim`, `fc`, `four_g`, `int_memory`, `m_dep`, `mobile_wt`, `n_cores`, `px_height`, `px_width`, `ram`, `sc_h`, `sc_w`, `talk_time`, `three_g`, `touch_screen`, `wifi`, and `price`.
- Status Bar:** Indicates "2000 rows x 21 columns" and "completed at 7:54 PM".

MDA131 Principles of Data Analysis x Untitled5.ipynb - Colab

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+ Code + Text

[3] 1998 1512 0 0.9 0 4 1 46 0.1 145 5 ... 336 670 869 18 10 19 1 1 1  
1999 510 1 2.0 1 5 1 45 0.9 168 6 ... 483 754 3919 19 4 2 1 1 1  
2000 rows x 21 columns

[4] len(data)  
2000

[5] data.head()  
battery\_power blue clock\_speed dual\_sim fc four\_g int\_memory m\_dep mobile\_wt n\_cores ... px\_height px\_width ram sc\_h sc\_w talk\_time three\_g touch\_screen wifi price  
0 842 0 2.2 0 1 0 7 0.6 188 2 ... 20 756 2549 9 7 19 0 0 1  
1 1021 1 0.5 1 0 1 53 0.7 136 3 ... 905 1988 2631 17 3 7 1 1 0  
2 563 1 0.5 1 2 1 41 0.9 145 5 ... 1263 1716 2603 11 2 9 1 1 0  
3 615 1 2.5 0 0 0 10 0.8 131 6 ... 1216 1786 2769 16 8 11 1 0 0  
4 1821 1 1.2 0 13 1 44 0.6 141 2 ... 1208 1212 1411 8 2 15 1 1 0  
5 rows x 21 columns

[6] data.count()  
battery\_power 2000  
blue 2000  
clock\_speed 2000  
dual\_sim 2000  
fc 2000  
four\_g 2000  
int\_memory 2000  
m\_dep 2000  
mobile\_wt 2000  
n\_cores 2000  
pc 2000  
px\_height 2000  
px\_width 2000  
ram 2000  
sc\_h 2000  
sc\_w 2000  
talk\_time 2000  
three\_g 2000  
touch\_screen 2000  
wifi 2000  
price\_range 2000  
dtype: int64

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MDA131 Principles of Data Analysis x Untitled5.ipynb - Colab

colab.research.google.com/drive/1sZjPUm9t1WickoytWU0E8ztK7NiNVZz#scrollTo=nerthls\_zzY8j

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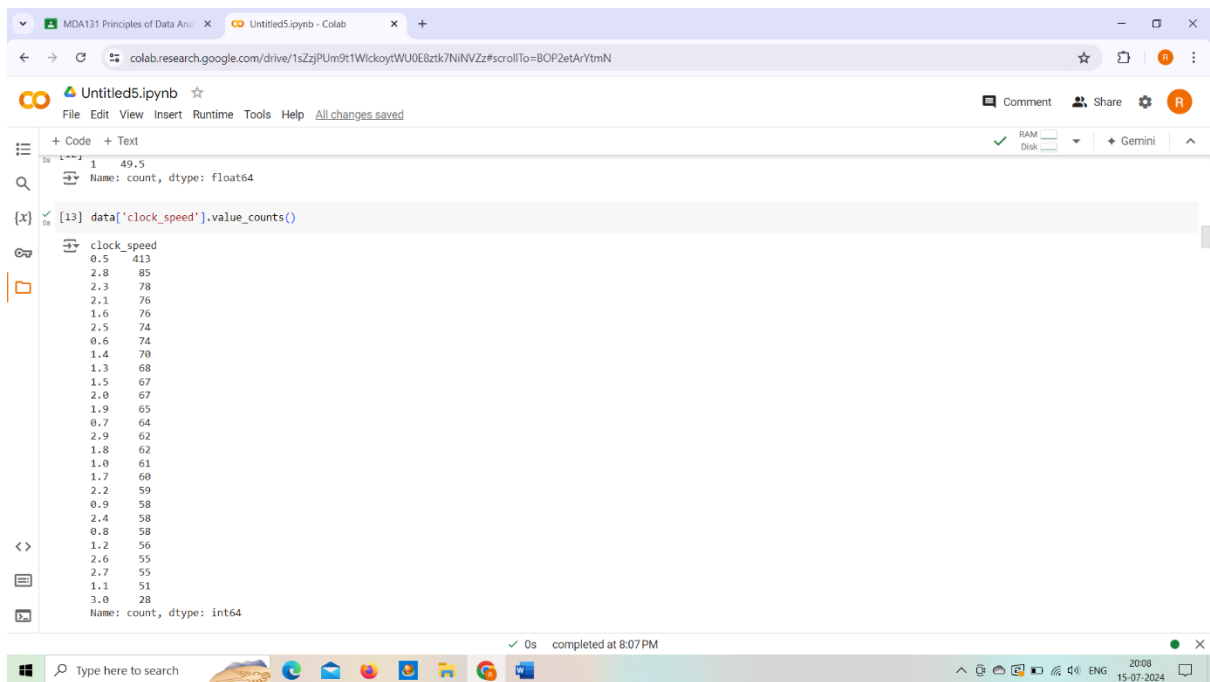
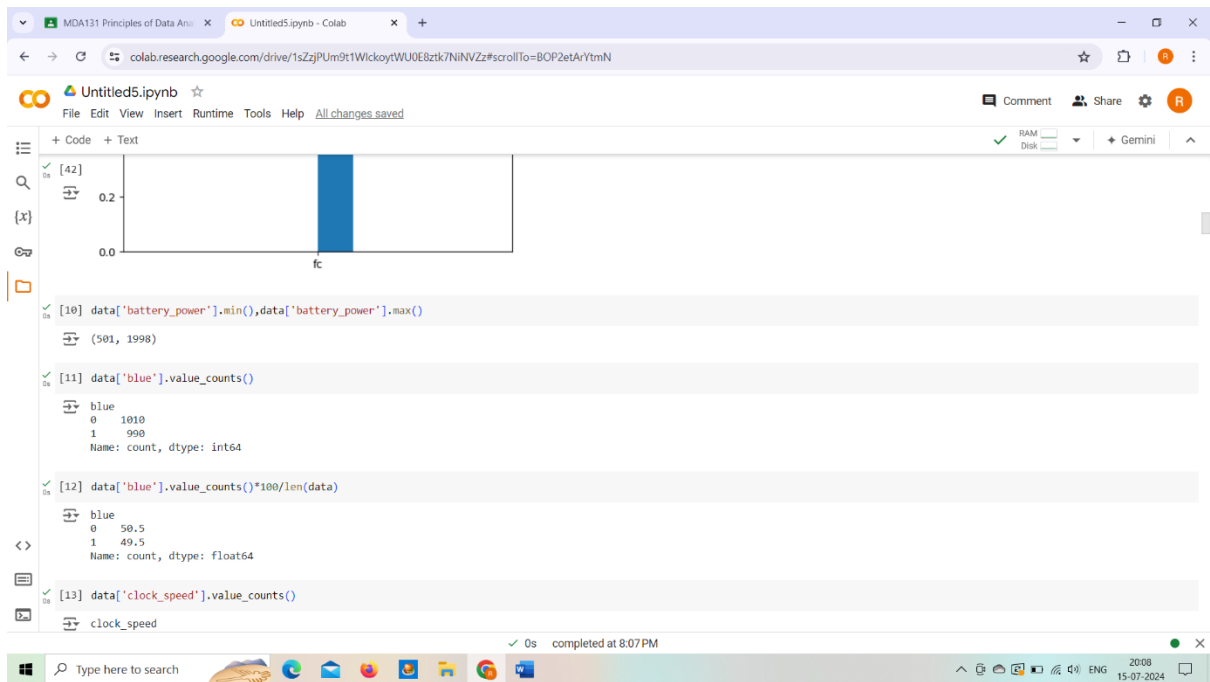
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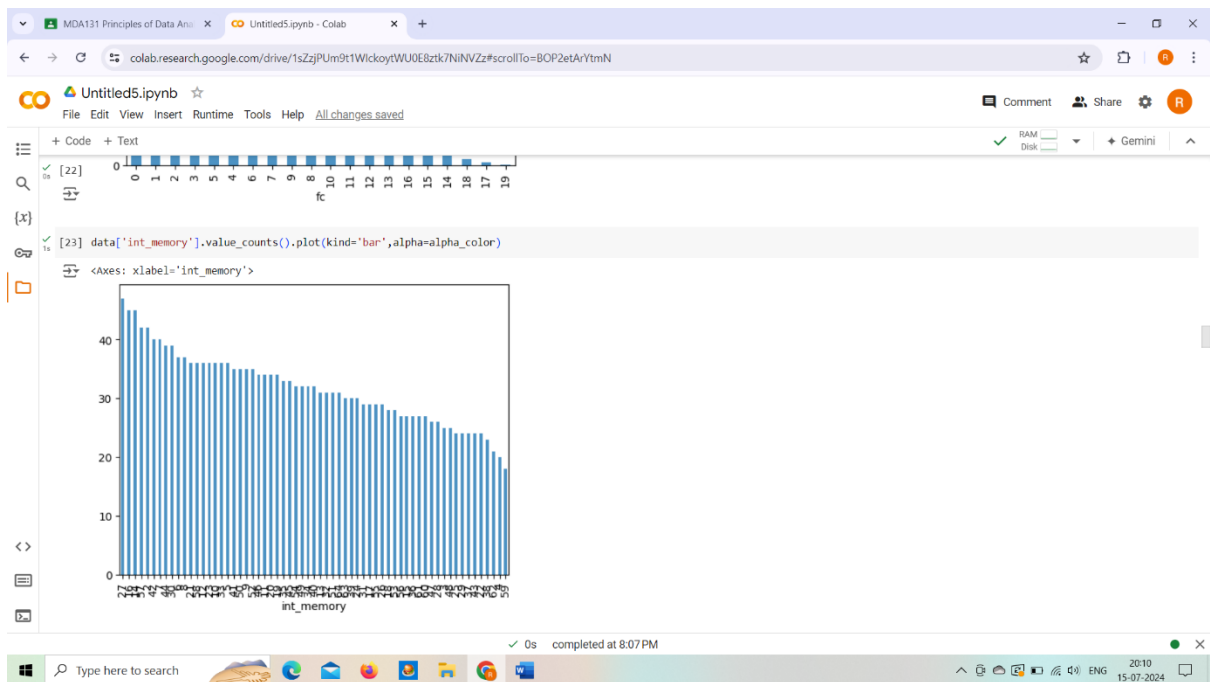
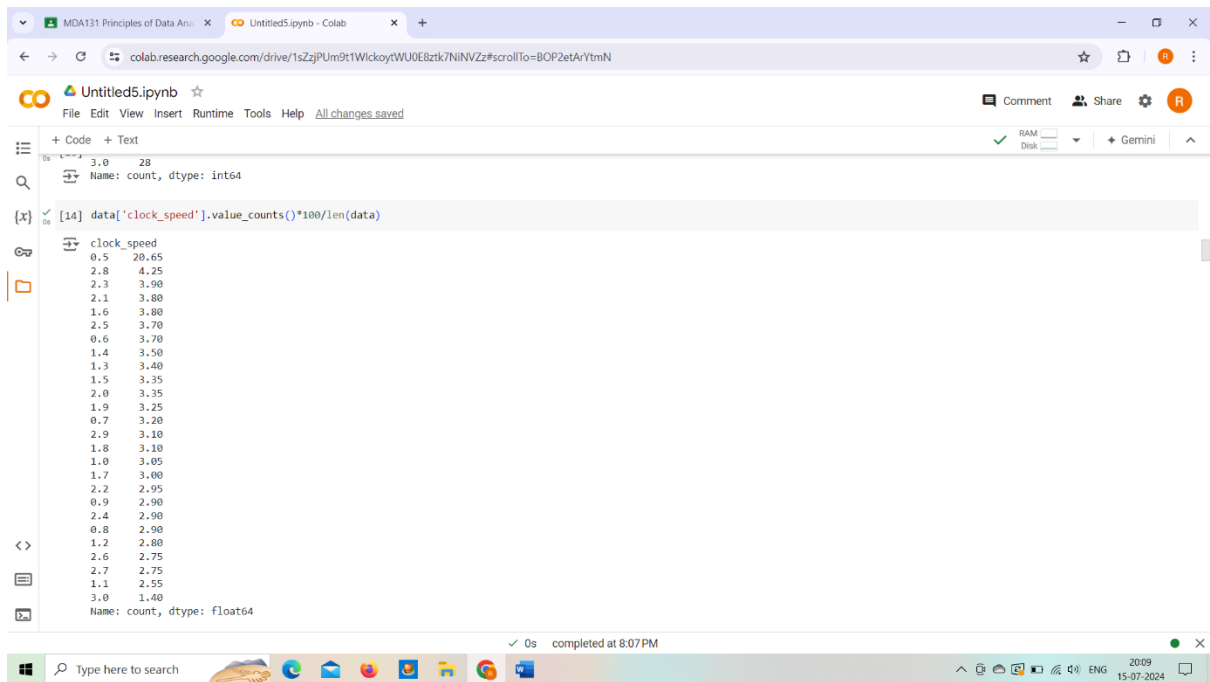
[5] 5 rows x 21 columns

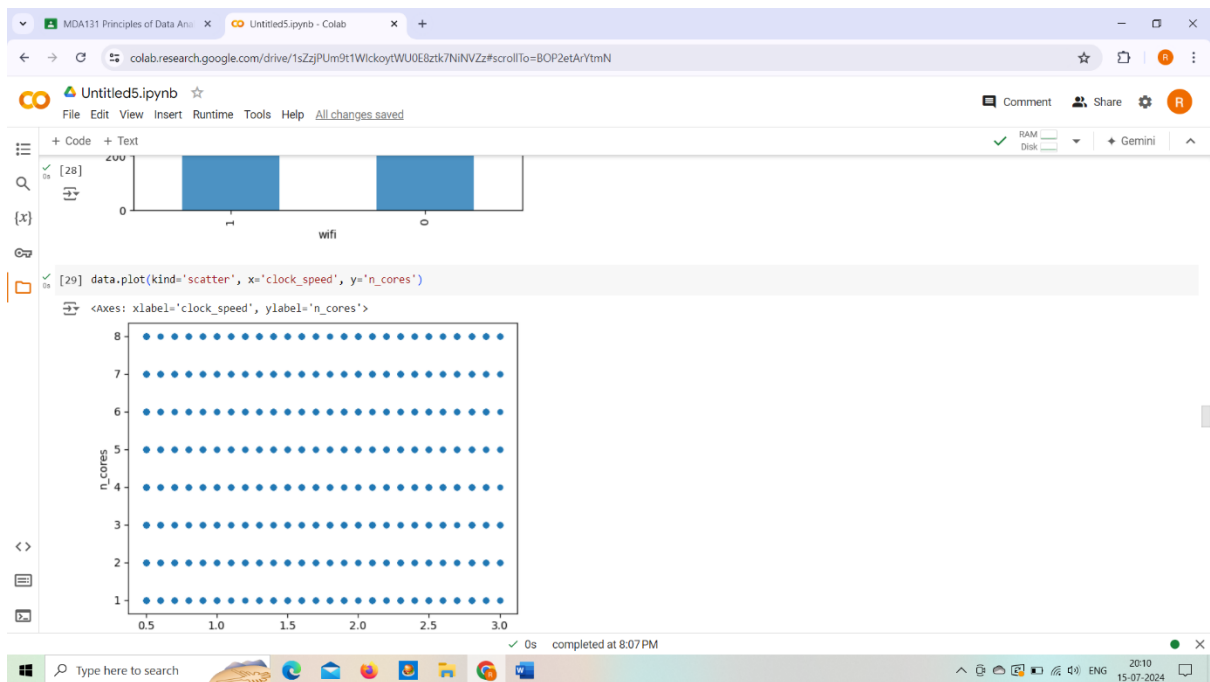
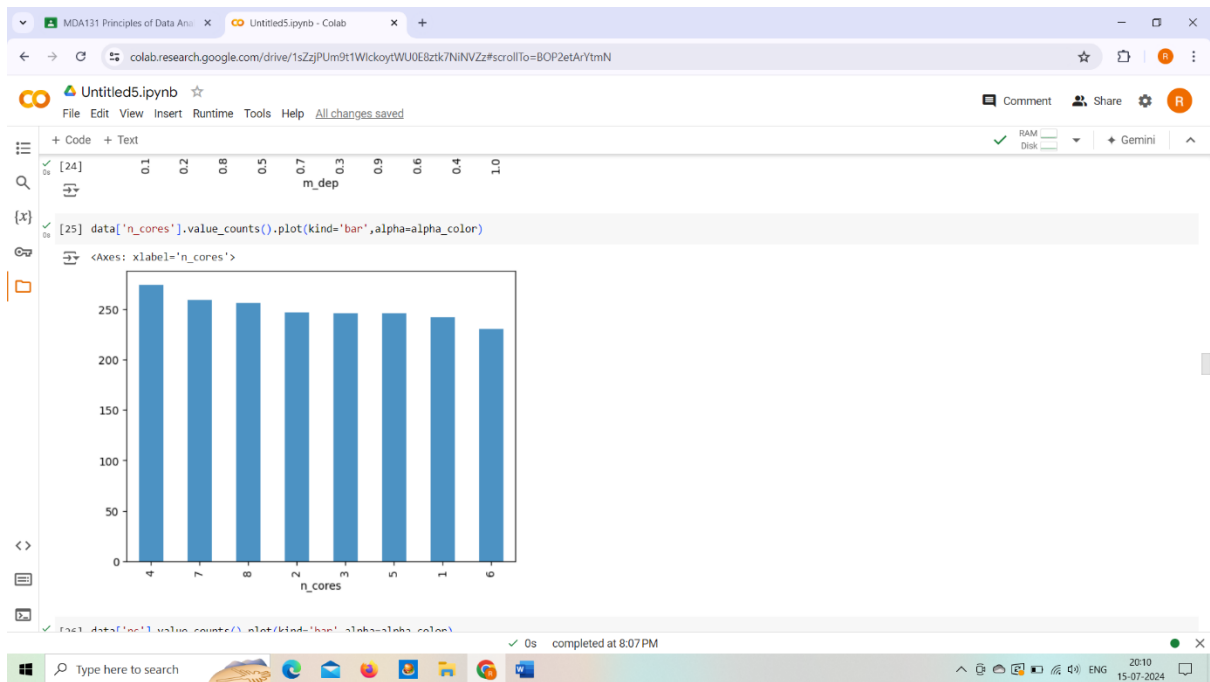
[6] data.count()  
battery\_power 2000  
blue 2000  
clock\_speed 2000  
dual\_sim 2000  
fc 2000  
four\_g 2000  
int\_memory 2000  
m\_dep 2000  
mobile\_wt 2000  
n\_cores 2000  
pc 2000  
px\_height 2000  
px\_width 2000  
ram 2000  
sc\_h 2000  
sc\_w 2000  
talk\_time 2000  
three\_g 2000  
touch\_screen 2000  
wifi 2000  
price\_range 2000  
dtype: int64

[7] data.describe()  
battery\_power blue clock\_speed dual\_sim fc four\_g int\_memory m\_dep mobile\_wt n\_cores ... px\_height px\_width ram sc

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[35] data.corr()

	battery_power	blue	clock_speed	dual_sim	fc	four_g	int_memory	m_dep	mobile_wt	n_cores	...	px_height	px_width	ram	sc_h	sc_w	ta
battery_power	1.000000	0.011252	0.011482	-0.041847	0.033334	0.015665	-0.004004	0.034085	0.001844	-0.029727	...	0.014901	-0.008402	-0.000653	-0.029959	-0.021421	0
blue	0.011252	1.000000	0.021419	0.035198	0.003593	0.013443	0.041177	0.004049	-0.008605	0.036161	...	-0.006872	-0.041533	0.026351	-0.002952	0.000613	0
clock_speed	0.011482	0.021419	1.000000	-0.001315	-0.000434	-0.043073	0.006545	-0.014364	0.012350	-0.005724	...	-0.014523	-0.009476	0.003443	-0.029078	-0.007378	-0
dual_sim	-0.041847	0.035198	-0.001315	1.000000	-0.029123	0.003187	-0.015679	-0.022142	-0.008979	-0.024658	...	-0.020875	0.014291	0.041072	-0.011949	-0.016666	-0
fc	0.033334	0.003593	-0.000434	-0.029123	1.000000	-0.016560	-0.029133	-0.001791	0.023618	-0.013356	...	-0.009990	-0.005176	0.015099	-0.011014	-0.012373	-0
four_g	0.015665	0.013443	-0.043073	0.003187	-0.016560	1.000000	0.008690	-0.001823	-0.016537	-0.029706	...	-0.019236	0.007448	0.007313	0.027166	0.037005	-0
int_memory	-0.004004	0.041177	0.006545	-0.015679	-0.029133	0.008690	1.000000	0.006886	-0.034214	-0.028310	...	0.010441	-0.008335	0.032813	0.037771	0.011731	-0
m_dep	0.034085	0.004049	-0.014364	-0.022142	-0.001791	-0.001823	0.006886	1.000000	0.021756	-0.003504	...	0.025263	0.023566	-0.009434	-0.025348	-0.018388	0
mobile_wt	0.001844	-0.008605	0.012350	-0.008979	0.023618	-0.016537	-0.034214	0.021756	1.000000	-0.018989	...	0.000939	0.000090	-0.002581	-0.033855	-0.020761	0
n_cores	-0.029727	0.036161	-0.005724	-0.024658	-0.013356	-0.029706	-0.028310	-0.003504	-0.018989	1.000000	...	-0.006872	0.024480	0.004868	-0.000315	0.025826	0
pc	0.031441	-0.009952	-0.005245	-0.017143	0.644595	-0.005598	-0.033273	0.026282	0.018844	-0.001193	...	-0.018465	0.004196	0.028984	0.004938	-0.023819	0
px_height	0.014901	-0.006872	-0.014523	-0.020875	-0.009990	-0.019236	0.010441	0.025263	0.000939	-0.006872	...	1.000000	0.510664	-0.020352	0.059615	0.043038	-0
px_width	-0.008402	-0.041533	-0.009476	0.014291	-0.005176	0.007448	-0.008335	0.023566	0.000090	0.024480	...	0.510664	1.000000	0.004105	0.021599	0.034699	0
ram	-0.000653	0.026351	0.003443	0.041072	0.015099	0.007313	0.032813	-0.009434	-0.002581	0.004868	...	-0.020352	0.004105	1.000000	0.015996	0.035576	0
sc_h	-0.029959	-0.002952	-0.029078	-0.011949	-0.011014	0.027166	0.037771	-0.025348	-0.033855	-0.000315	...	0.059615	0.021599	0.015996	1.000000	0.506144	-0
sc_w	-0.021421	0.000613	-0.007378	-0.016666	-0.012373	0.037005	0.011731	-0.018388	-0.020761	0.025826	...	0.043038	0.034699	0.035576	0.506144	1.000000	-0
talk_time	0.052510	0.013934	-0.011432	-0.039404	-0.006829	-0.046628	-0.002790	0.017003	0.006209	0.013148	...	-0.010645	0.006720	0.010820	-0.017335	-0.022821	1

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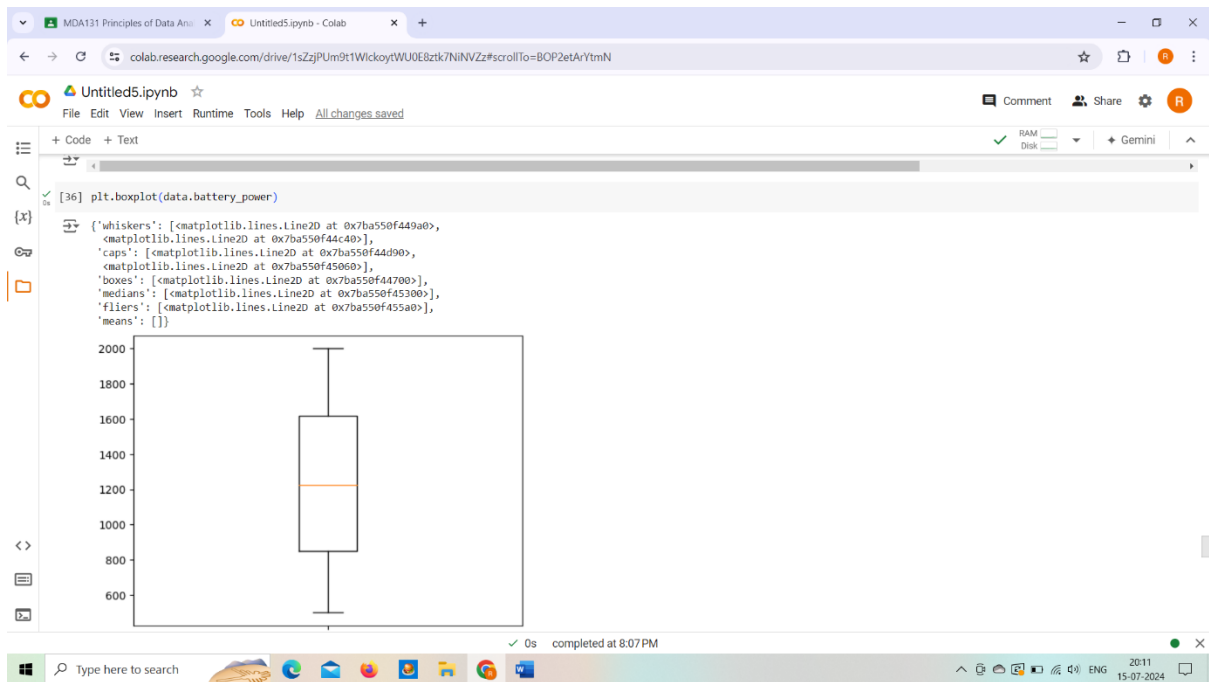
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[35]

fc	0.033334	0.003593	-0.000434	-0.029123	1.000000	-0.016560	-0.029133	-0.001791	0.023618	-0.013356	...	-0.009990	-0.005176	0.015099	-0.011014	-0.012373	-0
four_g	0.015665	0.013443	-0.043073	0.003187	-0.016560	1.000000	0.008690	-0.001823	-0.016537	-0.029706	...	-0.019236	0.007448	0.007313	0.027166	0.037005	-0
int_memory	-0.004004	0.041177	0.006545	-0.015679	-0.029133	0.008690	1.000000	0.006886	-0.034214	-0.028310	...	0.010441	-0.008335	0.032813	0.037771	0.011731	-0
m_dep	0.034085	0.004049	-0.014364	-0.022142	-0.001791	-0.001823	0.006886	1.000000	0.021756	-0.003504	...	0.025263	0.023566	-0.009434	-0.025348	-0.018388	0
mobile_wt	0.001844	-0.008605	0.012350	-0.008979	0.023618	-0.016537	-0.034214	0.021756	1.000000	-0.018989	...	0.000939	0.000090	-0.002581	-0.033855	-0.020761	0
n_cores	-0.029727	0.036161	-0.005724	-0.024658	-0.013356	-0.029706	-0.028310	-0.003504	-0.018989	1.000000	...	-0.006872	0.024480	0.004868	-0.000315	0.025826	0
pc	0.031441	-0.009952	-0.005245	-0.017143	0.644595	-0.005598	-0.033273	0.026282	0.018844	-0.001193	...	-0.018465	0.004196	0.028984	0.004938	-0.023819	0
px_height	0.014901	-0.006872	-0.014523	-0.020875	-0.009990	-0.019236	0.010441	0.025263	0.000939	-0.006872	...	1.000000	0.510664	-0.020352	0.059615	0.043038	-0
px_width	-0.008402	-0.041533	-0.009476	0.014291	-0.005176	0.007448	-0.008335	0.023566	0.000090	0.024480	...	0.510664	1.000000	0.004105	0.021599	0.034699	-0
ram	-0.000653	0.026351	0.003443	0.041072	0.015099	0.007313	0.032813	-0.009434	-0.002581	0.004868	...	-0.020352	0.004105	1.000000	0.015996	0.035576	0
sc_h	-0.029959	-0.002952	-0.029078	-0.011949	-0.011014	0.027166	0.037771	-0.025348	-0.033855	-0.000315	...	0.059615	0.021599	0.015996	1.000000	0.506144	-0
sc_w	-0.021421	0.000613	-0.007378	-0.016666	-0.012373	0.037005	0.011731	-0.018388	-0.020761	0.025826	...	0.043038	0.034699	0.035576	0.506144	1.000000	-0
talk_time	0.052510	0.013934	-0.011432	-0.039404	-0.006829	-0.046628	-0.002790	0.017003	0.006209	0.013148	...	-0.010645	0.006720	0.010820	-0.017335	-0.022821	1
three_g	0.011522	-0.030236	-0.046433	-0.014008	0.001793	0.584246	-0.009366	-0.012065	0.001551	-0.014733	...	-0.031174	0.000350	0.015795	0.012033	0.030941	-0
touch_screen	-0.010516	0.010061	0.019756	-0.017117	-0.014828	0.016758	-0.026999	-0.002638	-0.014368	0.023774	...	0.021891	-0.001628	-0.030455	-0.020023	0.012720	0
wifi	-0.008343	-0.021863	-0.024471	0.022740	0.020085	-0.017620	0.006993	-0.028353	-0.000409	-0.009964	...	0.051824	0.030319	0.022669	0.025929	0.035423	-0
price_range	0.200723	0.020573	-0.006606	0.017444	0.021998	0.014772	0.044435	0.000853	-0.030302	0.004399	...	0.148858	0.165818	0.917046	0.022986	0.038711	0

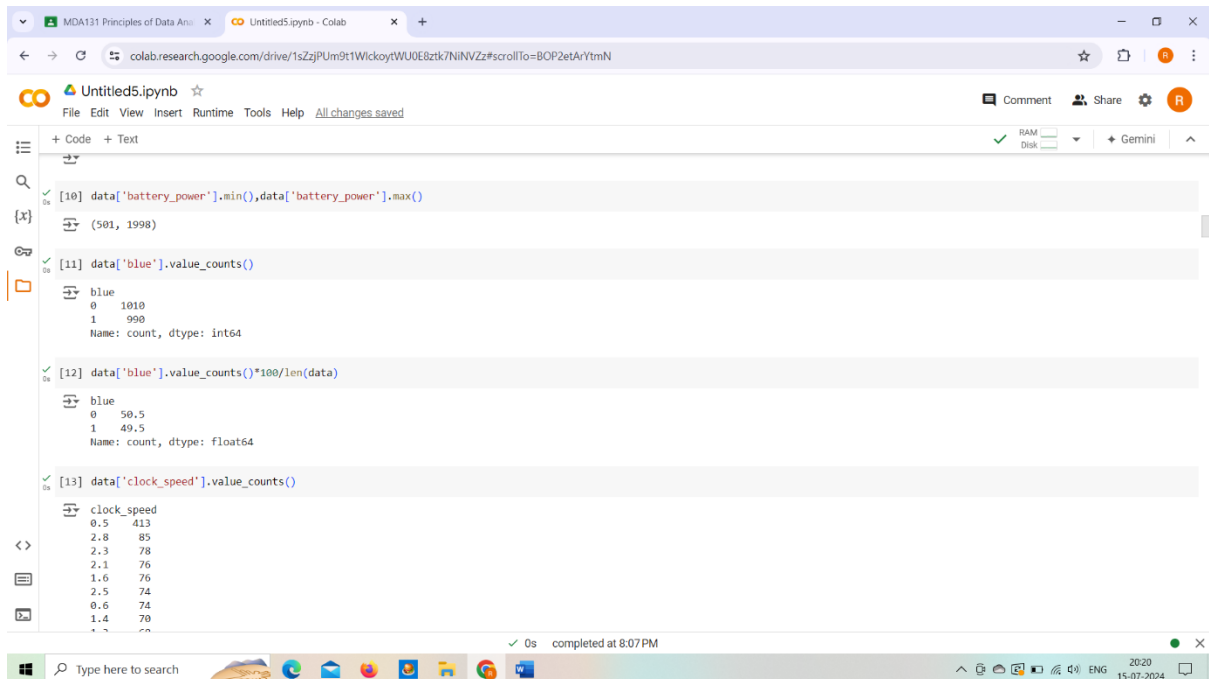
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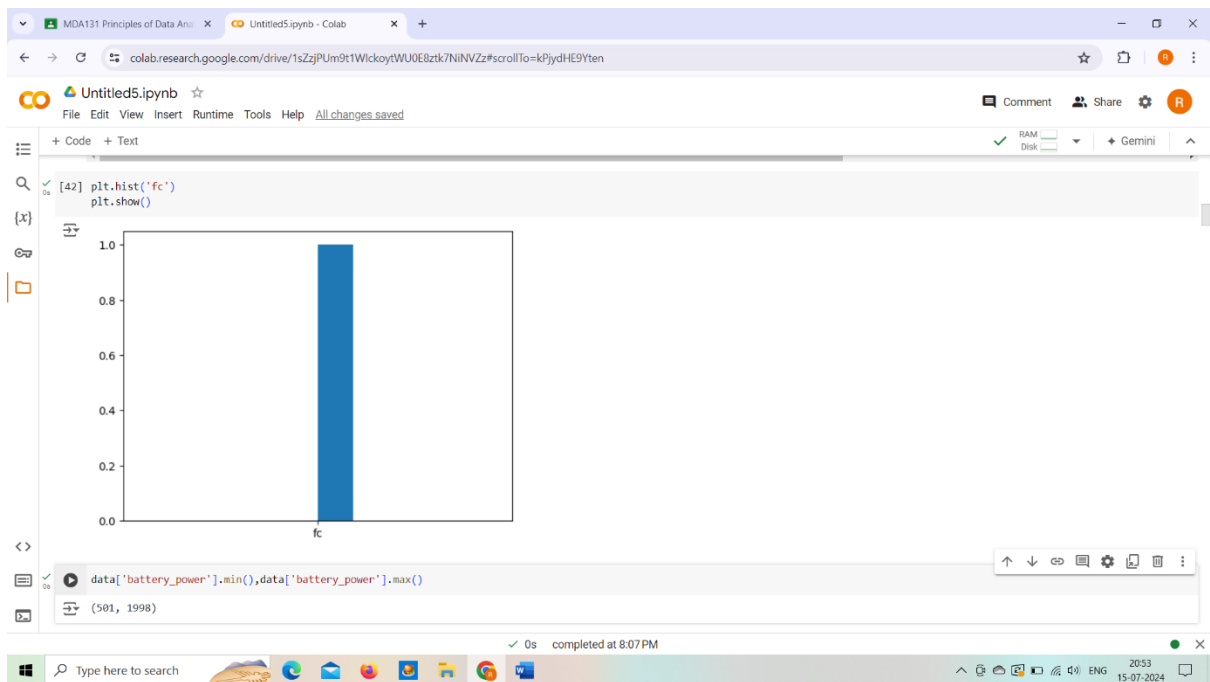
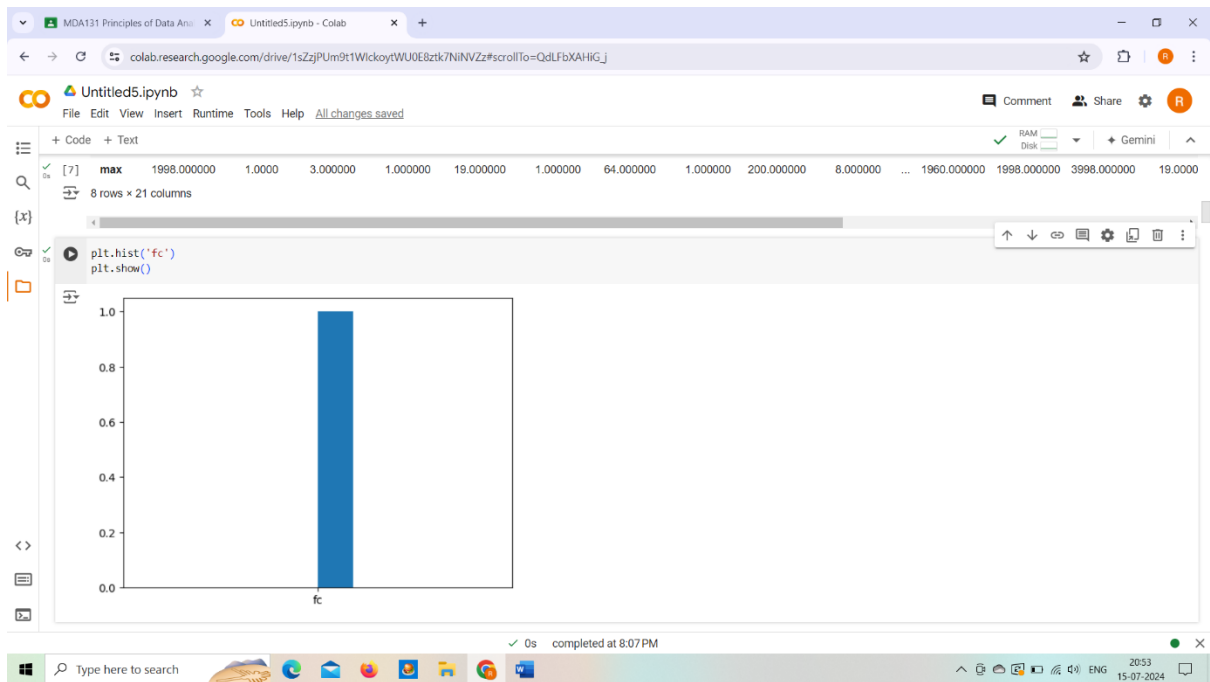
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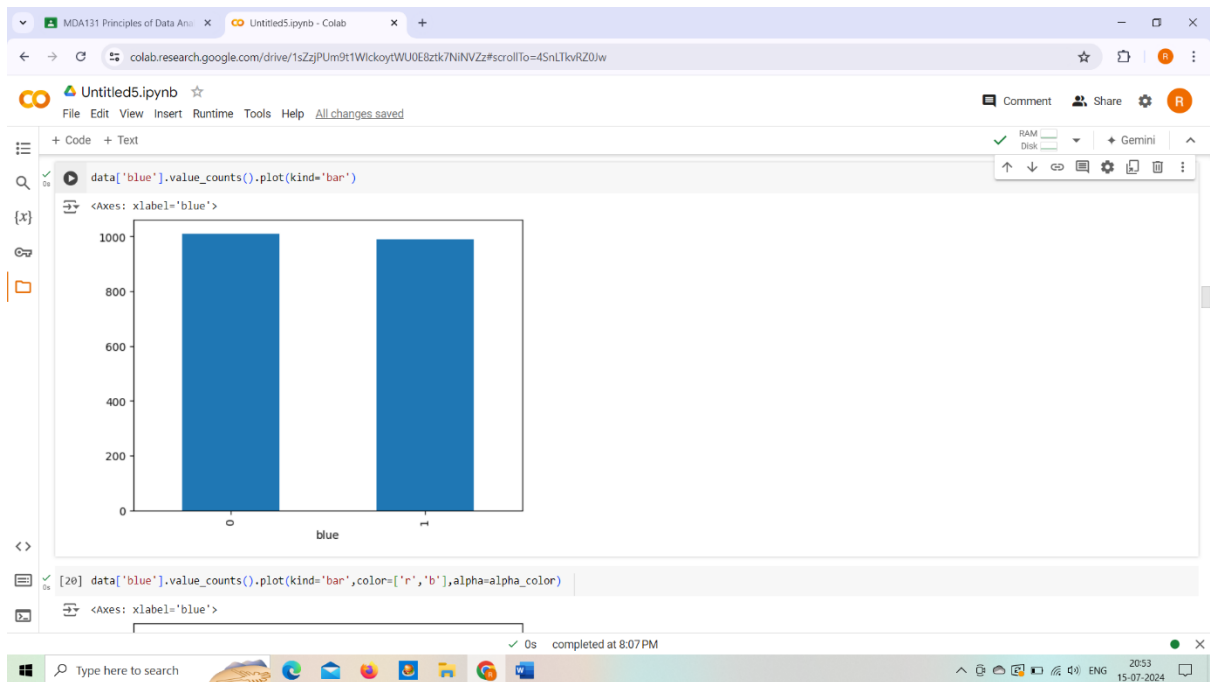
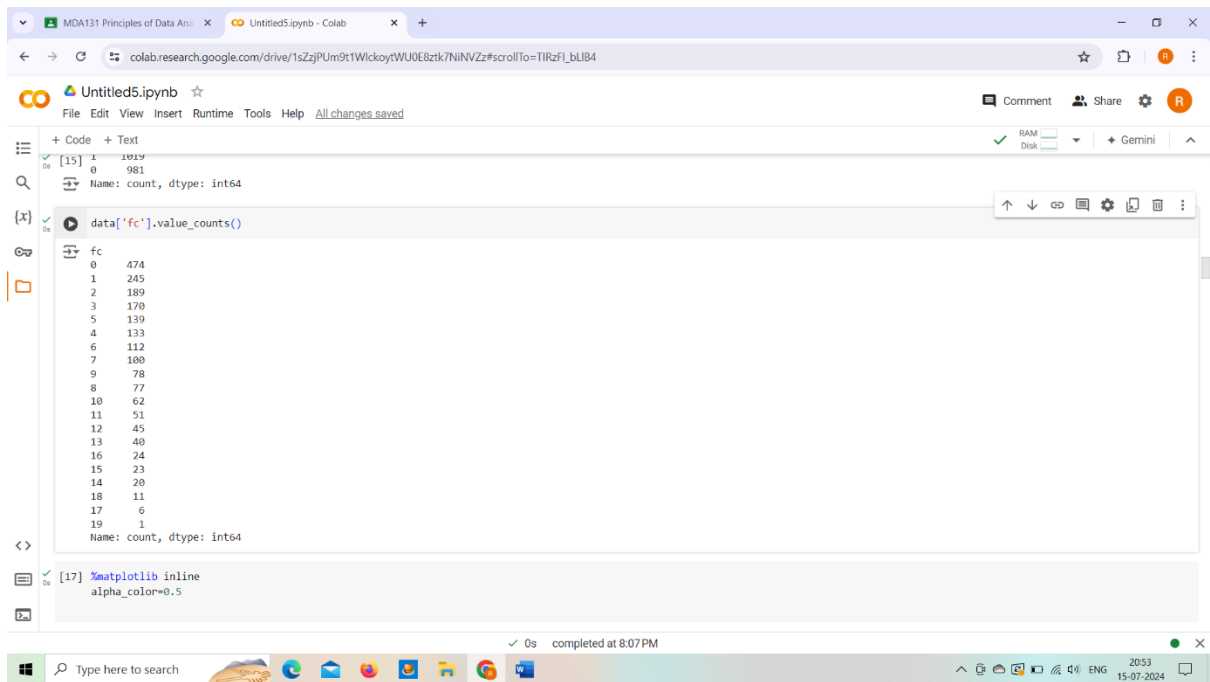
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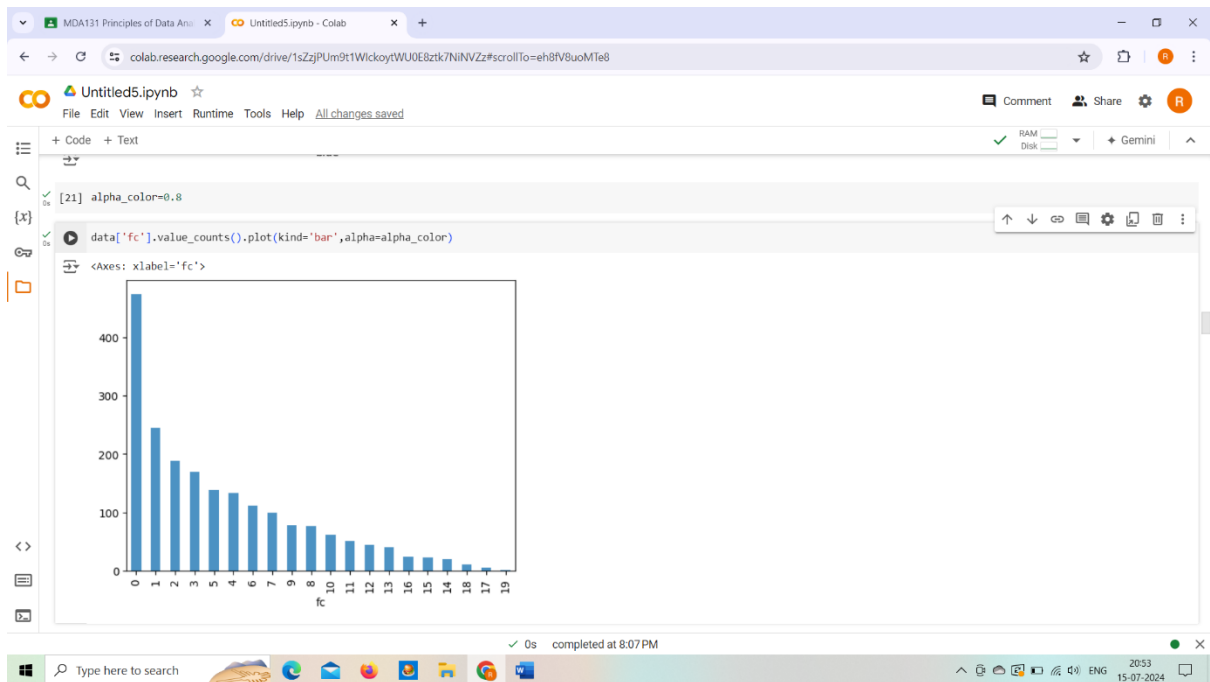
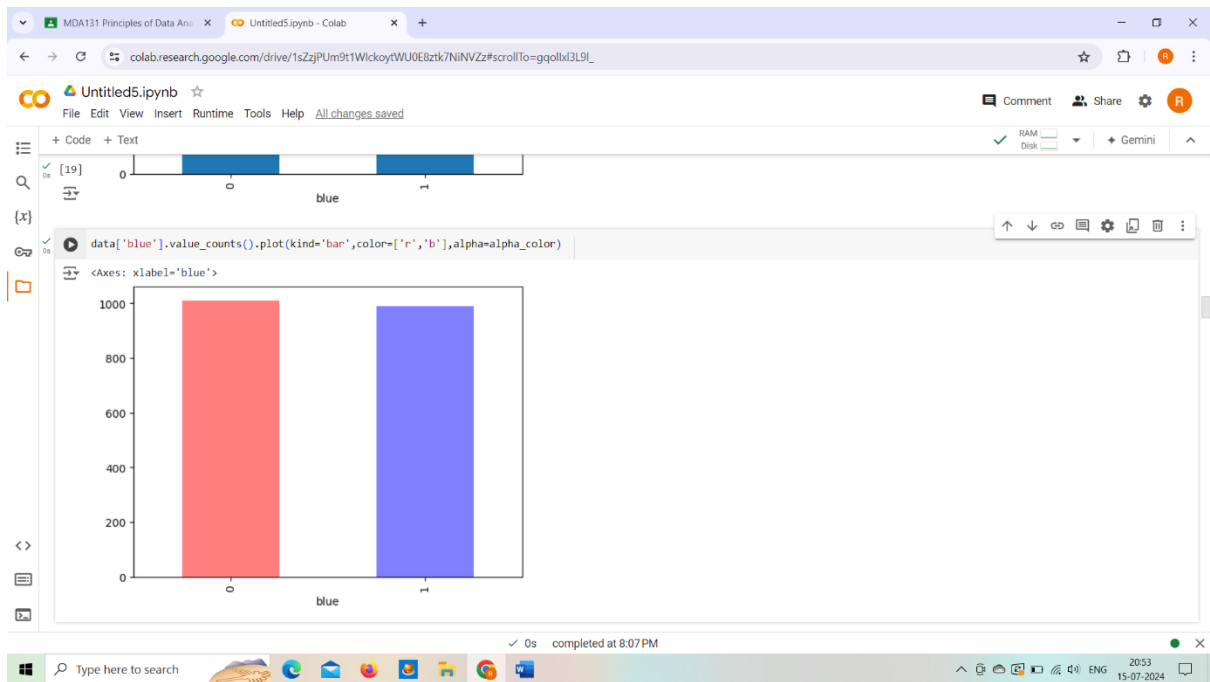
BY seeing the feature like Bluetooth, Primary Camera Pixels, Screen Height, Screen Width, Pixel Resolution Height, Pixel Resolution Width.

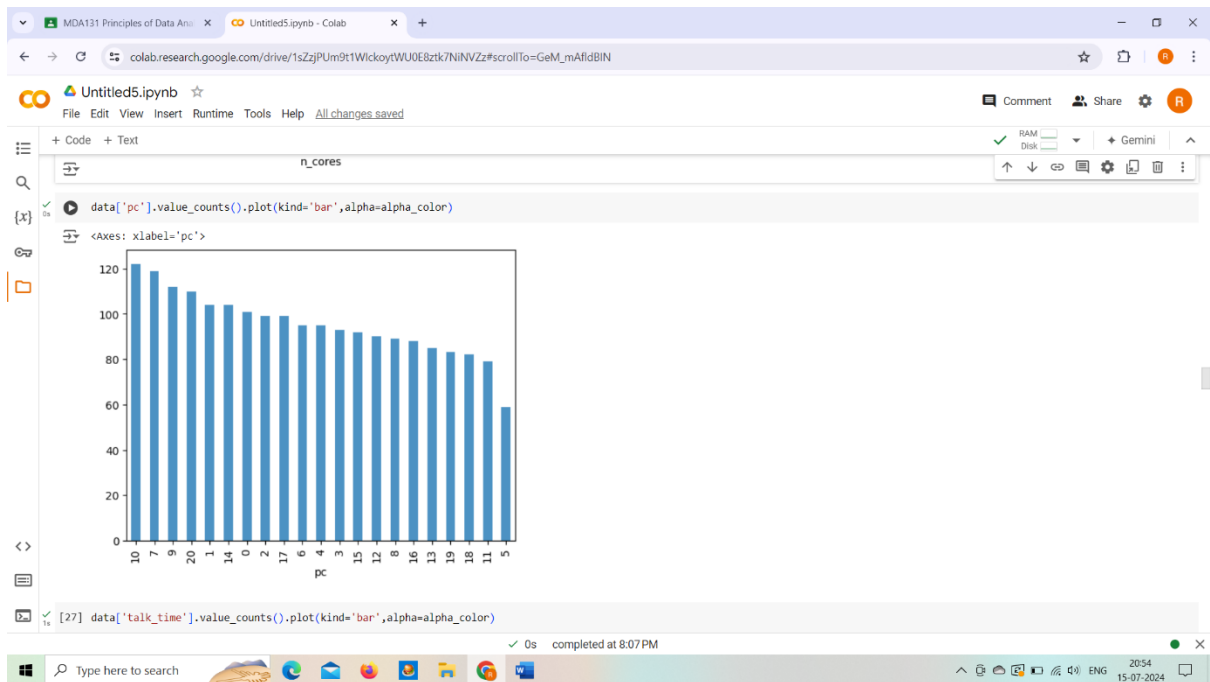
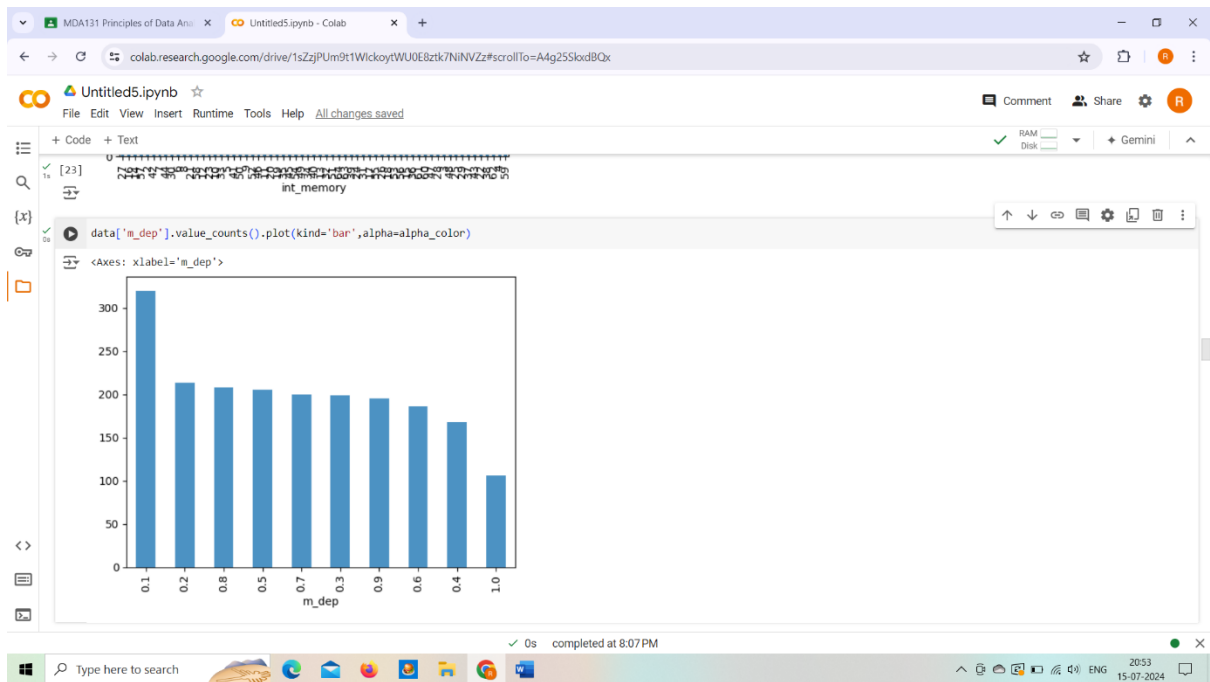


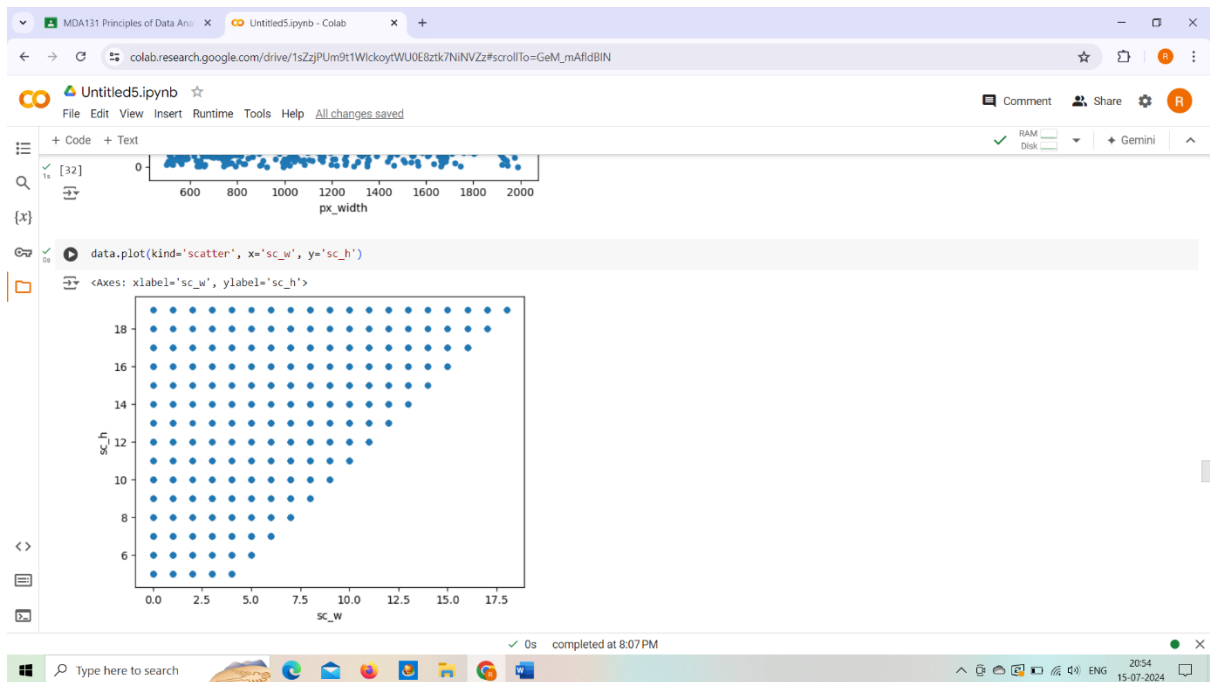
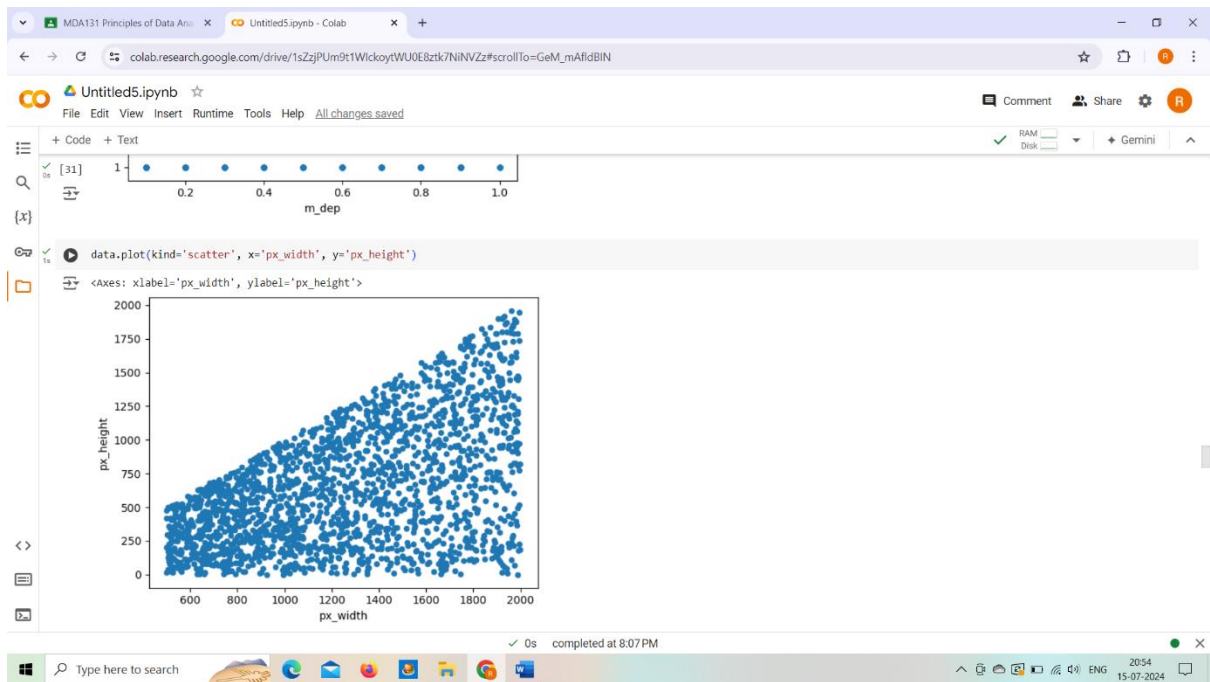






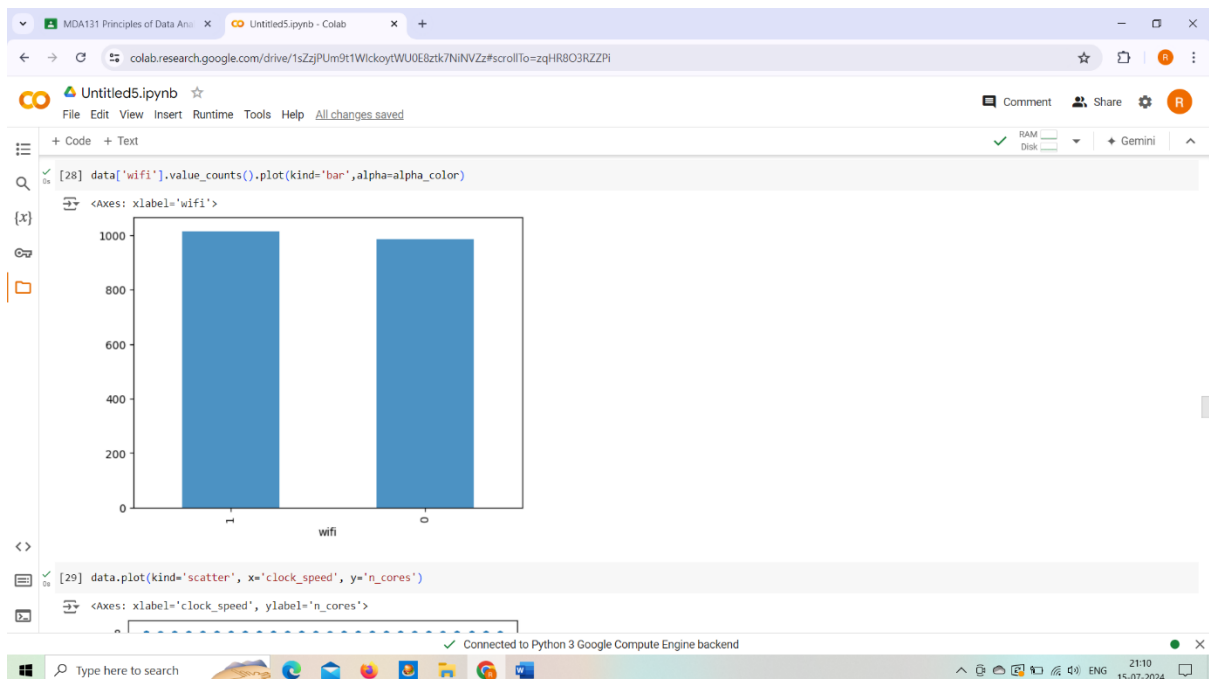
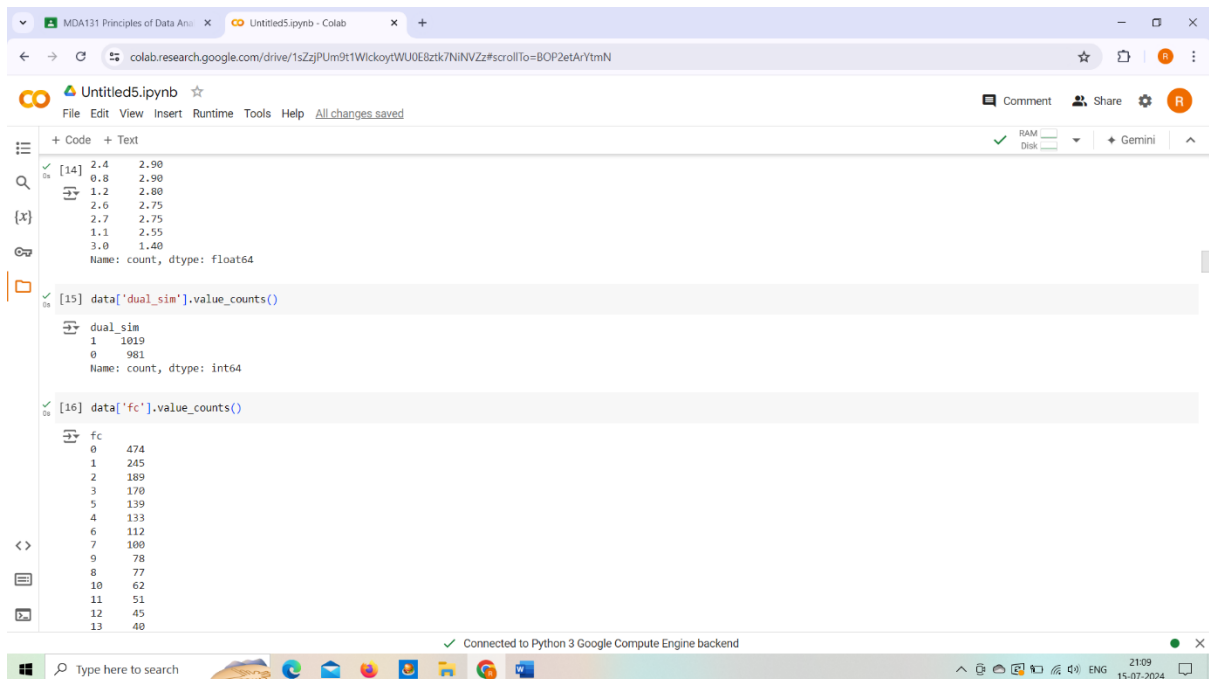


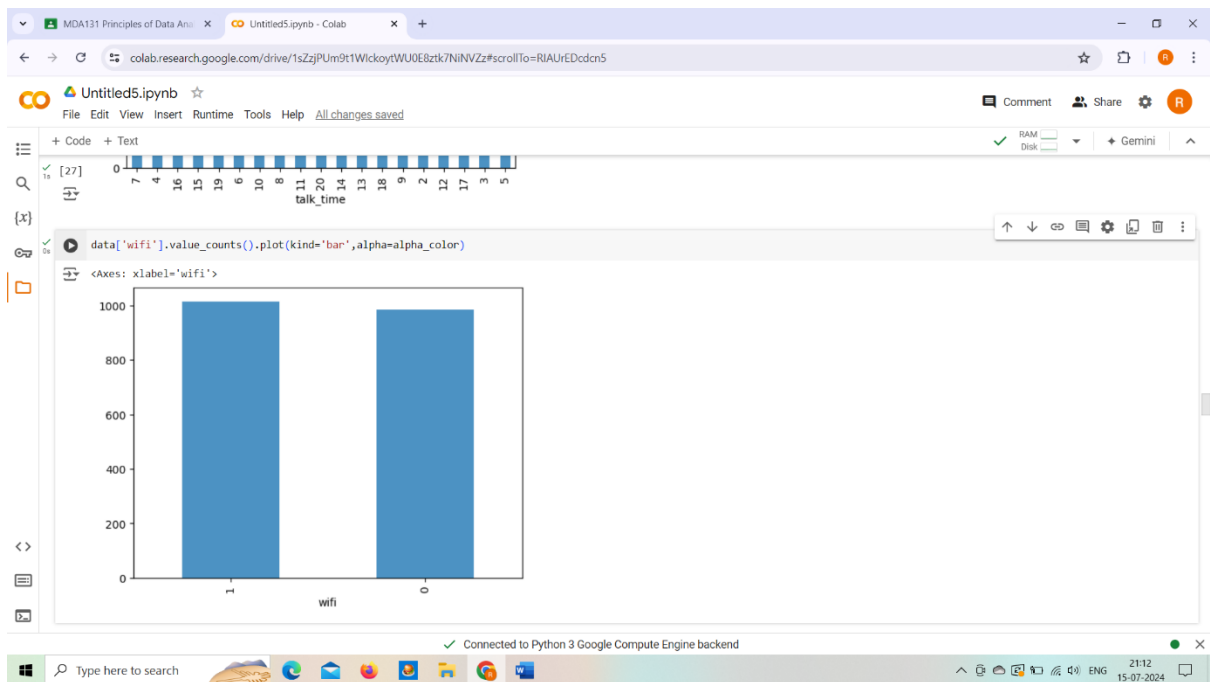
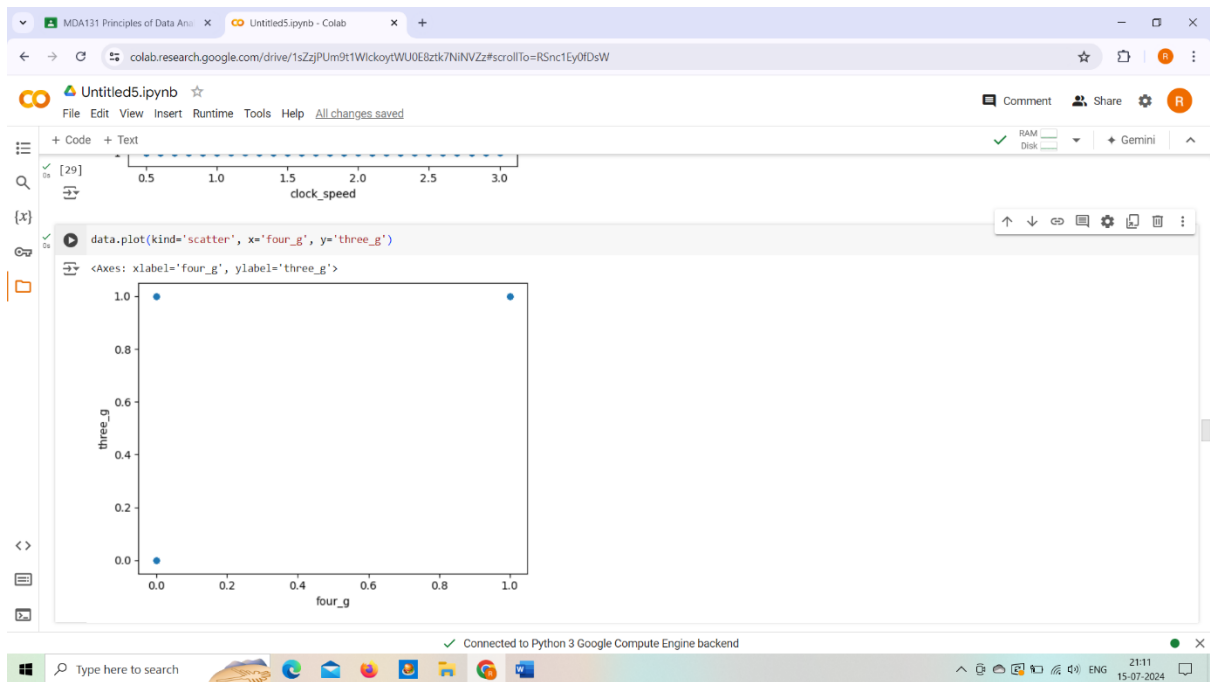




## #Performance Standard:

By seeing the features like Dual Sim, Mobile Warranty, 4-Gb, 3-Gb ,and Wi-Fi.





## Conclusion:

From the Exploratory Data Analysis (EDA) performed on a "Mobile Price Classification" based dataset. I came to an conclusion on the data set all about the " Battery Power, Microprocessor Speed, Internal Memory, RAM, and No. of Core Processor in the Model Optimization , "Bluetooth ,Primary Camera Pixel, Screen Height, Screen Width, Pixel Resolution Height, Pixel Resolution Width in the Quality Assessment " and "Dual Sim, Mobile Warranty, 4-GB, 3-GB and Wi-Fi in the Performance Standard".