

Seatwork 6.1

CPE311 Computational Thinking with Python
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Section: CPE22S3

Pandas for Data Analysis

- Load the diabetes.csv file. Convert the diabetes.csv into dataframe
- Perform the following tasks in the diabetes dataframe:
- Identify the column names
- Identify the data types of the data
- Display the total number of records
- Display the first 20 records
- Display the last 20 records
- Change the Outcome column to DiagnosisIn []:
- Create a new column Classification that display "Diabetes" if the value of outcome is 1 , otherwise "No Diabetes"
- Create a new dataframe "withDiabetes" that gathers data with diabetes
- Create a new dataframe "noDiabetes" thats gathers data with no diabetes
- Create a new dataframe "Pedia" that gathers data with age 0 to 19
- Create a new dataframe "Adult" that gathers data with age greater than 19
- Use numpy to get the average age and glucose value.
- Use numpy to get the median age and glucose value.
- Use numpy to get the middle values of glucose and age.
- Use numpy to get the standard deviation of the skinthickness.

In [69]:

```
import pandas as pd
import numpy as np

p_data = pd.read_csv("cleaned_all_phones.csv")
p_data
```

Out[69]:

	phone_name	brand	os	inches	resolution	battery	battery_type	ram(GB)	announcement_date	weight(g)	...	vi
0	Y6II Compact	Huawei	Android 5.1	5.00	720x1280	2200	Li-Po	2	2016-09-01	140.0	...	
1	K20 plus	LG	Android 7.0	5.30	720x1280	2700	Li-Ion	2	2016-12-01	140.0	...	
2	P8 Lite (2017)	Huawei	Android 7.0	5.20	1080x1920	3000	Li-Ion	4	2017-01-01	147.0	...	
3	Redmi Note 4	Xiaomi	Android 6.0	5.50	1080x1920	4100	Li-Po	4	2017-01-01	165.0	...	
4	P10	Huawei	Android 7.0	5.10	1080x1920	3200	Li-Ion	4	2017-02-01	145.0	...	
...	
1507	vivo Y77t	Vivo	Android 13	6.64	1080x2388	5000	Li-Po	8	2023-08-18	190.0	...	
1508	11x	Realme	Android 13	6.72	1080x2400	5000	Li-Po	8	2023-08-23	190.0	...	
1509	GT5	Realme	Android 13	6.74	1240x2772	5240	Li-Po	16	2023-08-28	205.0	...	

1510	GT5 240W	Realme	Android	6.74	1240x2772	4600	Li-Po	24	2023-08-28	205.0	...	vi
	phone_name	brand	os	inches	resolution	battery	battery_type	ram(GB)	announcement_date	weight(g)		
1511	vivo iQOO Z7 Pro	Vivo	Android 13	6.78	1080x2400	4600	Li-Po	8	2023-08-31	175.0	...	

1512 rows x 22 columns



Identify the column names

In [119]:

```
p_data.columns
```

Out[119]:

```
Index(['phone_name', 'brand', 'os', 'inches', 'resolution', 'mAh',
      'battery_type', 'ram(GB)', 'announcement_date', 'weight(g)',
      'storage(GB)', 'video_720p', 'video_1080p', 'video_4K', 'video_8K',
      'video_30fps', 'video_60fps', 'video_120fps', 'video_240fps',
      'video_480fps', 'video_960fps', 'price(USD)', 'price(PHP)'],
      dtype='object')
```

Identify the data types of the data

In [71]:

```
p_data.dtypes
```

Out[71]:

```
phone_name      object
brand           object
os              object
inches          float64
resolution      object
battery         int64
battery_type    object
ram(GB)         int64
announcement_date object
weight(g)       float64
storage(GB)     int64
video_720p      bool
video_1080p     bool
video_4K        bool
video_8K        bool
video_30fps     bool
video_60fps     bool
video_120fps    bool
video_240fps    bool
video_480fps    bool
video_960fps    bool
price(USD)      float64
dtype: object
```

Display the total number of records

In [72]:

```
print("total records of phone prices: ", len(p_data))
```

total records of phone prices: 1512

Display the first 20 records

In [73]:

```
p_data.head(20)
```

Out[73]:

	phone_name	brand	os	inches	resolution	battery	battery_type	ram(GB)	announcement_date	weight(g)	...	vic
0	Y6II Compact	Huawei	Android 5.1	5.00	720x1280	2200	Li-Po	2	2016-09-01	140.0	...	
1	K20 plus	LG	Android 7.0	5.30	720x1280	2700	Li-Ion	2	2016-12-01	140.0	...	
2	P8 Lite (2017)	Huawei	Android 7.0	5.20	1080x1920	3000	Li-Ion	4	2017-01-01	147.0	...	
3	Redmi Note 4	Xiaomi	Android 6.0	5.50	1080x1920	4100	Li-Po	4	2017-01-01	165.0	...	
4	P10	Huawei	Android 7.0	5.10	1080x1920	3200	Li-Ion	4	2017-02-01	145.0	...	
5	Xperia XA1	Sony	Android 7.0	5.00	720x1280	2300	Li-Ion	3	2017-02-01	143.0	...	
6	P10 Lite	Huawei	Android 7.0	5.20	1080x1920	3000	Li-Po	4	2017-02-01	146.0	...	
7	P10 Plus	Huawei	Android 7.0	5.50	1440x2560	3750	Li-Ion	6	2017-02-01	165.0	...	
8	Xperia XA1 Ultra	Sony	Android 7.0	6.00	1080x1920	2700	Li-Ion	4	2017-02-01	188.0	...	
9	X power2	LG	Android 7.0	5.50	720x1280	4500	Li-Ion	2	2017-02-01	164.0	...	
10	Redmi Note 4X	Xiaomi	Android 6.0	5.50	1080x1920	4100	Li-Po	4	2017-02-01	165.0	...	
11	Xperia XZs	Sony	Android 7.1	5.20	1080x1920	2900	Li-Ion	4	2017-02-27	161.0	...	
12	Xperia XZ Premium	Sony	Android 7.1	5.46	3840x2160	3230	Li-Ion	4	2017-02-27	195.0	...	
13	Xperia L1	Sony	Android 7.0	5.50	720x1280	2620	Li-Ion	2	2017-03-01	180.0	...	
14	A39	Oppo	Android 5.1	5.20	720x1280	2900	Li-Ion	3	2017-03-01	147.0	...	
15	F3 Plus	Oppo	Android 6	6.00	1080x1920	4000	Li-Ion	6	2017-03-01	185.0	...	
16	Galaxy Xcover 4	Samsung	Android 7.0	5.00	720x1280	2800	Li-Ion	2	2017-03-01	172.0	...	
17	Galaxy J7 V	Samsung	Android 7.0.1	5.50	720x1280	3300	Li-Ion	2	2017-03-01	167.0	...	
18	Galaxy S8+	Samsung	Android 7.0	6.20	1440x2960	3500	Li-Ion	6	2017-03-29	173.0	...	
19	K7 (2017)	LG	Android 6.0.1	5.00	480x854	2500	Li-Ion	2	2017-04-01	143.0	...	

20 rows × 22 columns



Display the last 20 records

In [74]:

```
p_data.tail(20)
```

Out[74]:

	phone_name	brand	os	inches	resolution	battery	battery_type	ram(GB)	announcement_date	weight(g)	...
1492	Legion Y700 (2023)	Lenovo	Android 13	8.80	1600x2560	6550	Li-Po	16	2023-07-22	350.0	...
1493	C51	Realme	Android 13	6.74	720x1600	5000	Li-Po	4	2023-07-24	186.0	...
1494	K11	Oppo	Android 13	6.70	1080x2400	5000	Li-Po	8	2023-07-25	184.0	...
1495	A58 4G	Oppo	Android 13	6.72	1080x2400	5000	Li-Po	6	2023-07-26	192.0	...
1496	Galaxy Z Flip5	Samsung	Android 13	6.70	1080x2640	3700	Li-Po	8	2023-07-26	187.0	...
1497	Galaxy Z Fold5	Samsung	Android 13	7.60	1812x2176	4400	Li-Po	12	2023-07-26	253.0	...
1498	X6a	Honor	Android 13	6.56	720x1612	5200	Li-Po	4	2023-07-28	188.0	...
1499	11 5G	Realme	Android 13	6.72	1080x2400	5000	Li-Po	8	2023-07-31	190.0	...
1500	11 4G	Realme	Android 12	6.40	1080x2400	5000	Li-Po	8	2023-07-31	178.0	...
1501	Redmi 12 5G	Xiaomi	Android 13	6.79	1080x2460	5000	Li-Po	8	2023-08-01	199.0	...
1502	Poco M6 Pro	Xiaomi	Android 13	6.79	1080x2460	5000	Li-Po	6	2023-08-05	199.0	...
1503	Galaxy F34	Samsung	Android 13	6.50	1080x2340	6000	Li-Po	8	2023-08-07	208.0	...
1504	Mix Fold 3	Xiaomi	Android 13	8.03	1916x2160	4800	Li-Po	16	2023-08-14	255.0	...
1505	Redmi K60 Ultra	Xiaomi	Android 13	6.67	1220x2712	5000	Li-Po	24	2023-08-15	204.0	...
1506	Ace 2 Pro	OnePlus	Android 13	6.74	1240x2772	5000	Li-Po	24	2023-08-16	210.0	...
1507	vivo Y77t	Vivo	Android 13	6.64	1080x2388	5000	Li-Po	8	2023-08-18	190.0	...
1508	11x	Realme	Android 13	6.72	1080x2400	5000	Li-Po	8	2023-08-23	190.0	...
1509	GT5	Realme	Android 13	6.74	1240x2772	5240	Li-Po	16	2023-08-28	205.0	...
1510	GT5 240W	Realme	Android 13	6.74	1240x2772	4600	Li-Po	24	2023-08-28	205.0	...
1511	vivo iQOO Z7 Pro	Vivo	Android 13	6.78	1080x2400	4600	Li-Po	8	2023-08-31	175.0	...

20 rows x 22 columns



Change the Battery column to mAh []:

In [75]:

```
p_data.rename(columns = {'battery': 'mAh'}, inplace = True)
p_data
```

Out[75]:

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	vide
0	Y6II Compact	Huawei	Android 5.1	5.00	720x1280	2200	Li-Po	2	2016-09-01	140.0	...	

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	vide
1	K20 plus	LG	Android 7.0	5.30	720x1280	2700	Li-Ion	2	2016-12-01	140.0	...	
2	P8 Lite (2017)	Huawei	Android 7.0	5.20	1080x1920	3000	Li-Ion	4	2017-01-01	147.0	...	
3	Redmi Note 4	Xiaomi	Android 6.0	5.50	1080x1920	4100	Li-Po	4	2017-01-01	165.0	...	
4	P10	Huawei	Android 7.0	5.10	1080x1920	3200	Li-Ion	4	2017-02-01	145.0	...	
...	
1507	vivo Y77t	Vivo	Android 13	6.64	1080x2388	5000	Li-Po	8	2023-08-18	190.0	...	
1508	11x	Realme	Android 13	6.72	1080x2400	5000	Li-Po	8	2023-08-23	190.0	...	
1509	GT5	Realme	Android 13	6.74	1240x2772	5240	Li-Po	16	2023-08-28	205.0	...	
1510	GT5 240W	Realme	Android 13	6.74	1240x2772	4600	Li-Po	24	2023-08-28	205.0	...	
1511	vivo iQOO Z7 Pro	Vivo	Android 13	6.78	1080x2400	4600	Li-Po	8	2023-08-31	175.0	...	

1512 rows x 22 columns



Create a new column Classification that display "price(PHP)" if the value of outcome is price(USD)

In [76]:

```
usd_to_php = 55
p_data['price(PHP)'] = p_data['price(USD)'] * usd_to_php
p_data
```

Out[76]:

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	vide
0	Y6II Compact	Huawei	Android 5.1	5.00	720x1280	2200	Li-Po	2	2016-09-01	140.0	...	
1	K20 plus	LG	Android 7.0	5.30	720x1280	2700	Li-Ion	2	2016-12-01	140.0	...	
2	P8 Lite (2017)	Huawei	Android 7.0	5.20	1080x1920	3000	Li-Ion	4	2017-01-01	147.0	...	
3	Redmi Note 4	Xiaomi	Android 6.0	5.50	1080x1920	4100	Li-Po	4	2017-01-01	165.0	...	
4	P10	Huawei	Android 7.0	5.10	1080x1920	3200	Li-Ion	4	2017-02-01	145.0	...	
...	
1507	vivo Y77t	Vivo	Android 13	6.64	1080x2388	5000	Li-Po	8	2023-08-18	190.0	...	
1508	11x	Realme	Android 13	6.72	1080x2400	5000	Li-Po	8	2023-08-23	190.0	...	
1509	GT5	Realme	Android 13	6.74	1240x2772	5240	Li-Po	16	2023-08-28	205.0	...	
1510	GT5 240W	Realme	Android 13	6.74	1240x2772	4600	Li-Po	24	2023-08-28	205.0	...	
1511	vivo iQOO Z7 Pro	Vivo	Android 13	6.78	1080x2400	4600	Li-Po	8	2023-08-31	175.0	...	

Create a new dataframe "HighRam" that gathers data with ram(GB) greater than 16

In [77]:

```
p_data = pd.DataFrame(p_data)
HighRam = p_data[p_data['ram(GB)'] >= 15].copy()

HighRam
```

Out[77]:

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	vic
468	Galaxy S20 Ultra	Samsung	Android 10	6.90	1440x3200	5000	Li-Ion	16	2020-02-11	220.0	...	
470	Galaxy S20 Ultra 5G	Samsung	Android 10	6.90	1440x3200	5000	Li-Ion	16	2020-02-11	222.0	...	
612	Legion Duel	Lenovo	Android 10	6.65	1080x2340	5000	Li-Po	16	2020-07-22	239.0	...	
752	Galaxy S21 Ultra 5G	Samsung	Android 11	6.80	1440x3200	5000	Li-Ion	16	2021-01-14	227.0	...	
778	Mi Mix Fold	Xiaomi	Android 10	8.01	1860x2480	5020	Li-Po	16	2021-03-01	317.0	...	
829	Legion 2 Pro	Lenovo	Android 11	6.92	1080x2460	5500	Li-Po	18	2021-04-08	259.0	...	
830	Legion Duel 2	Lenovo	Android 11	6.92	1080x2460	5500	Li-Po	16	2021-04-08	259.0	...	
1084	Legion Y90	Lenovo	Android 12	6.92	1080x2460	5600	Li-Po	18	2022-03-01	252.0	...	
1243	Ace Pro	OnePlus	Android 12	6.70	1080x2412	4800	Li-Po	16	2022-08-09	203.0	...	
1324	Magic Vs Ultimate	Honor	Android 12	7.90	1984x2272	5000	Li-Po	16	2022-11-23	265.0	...	
1329	Reno9 Pro	Oppo	Android 13	6.70	1080x2412	4500	Li-Po	16	2022-11-24	174.0	...	
1330	Reno9 Pro+	Oppo	Android 13	6.70	1080x2412	4700	Li-Po	16	2022-11-24	192.0	...	
1341	Find N2	Oppo	Android 13	7.10	1792x1920	4520	Li-Po	16	2022-12-15	233.0	...	
1346	80 GT	Honor	Android 12	6.67	1080x2400	4800	Li-Po	16	2022-12-26	187.0	...	
1371	Ace 2	OnePlus	Android 13	6.74	1240x2772	5000	Li-Po	16	2023-02-07	204.0	...	
1374	GT Neo 5 240W	Realme	Android 13	6.74	1240x2772	4600	Li-Po	16	2023-02-09	199.0	...	
1392	Magic5 Ultimate	Honor	Android 13	6.81	1312x2848	5450	Li-Po	16	2023-03-06	217.0	...	
1393	Ace 2V	OnePlus	Android 13	6.74	1240x2772	5000	Li-Po	16	2023-03-07	191.0	...	
1405	Find X6	Oppo	Android 13	6.74	1240x2772	4800	Li-Po	16	2023-03-21	207.0	...	
1406	Find X6 Pro	Oppo	Android 13	6.82	1440x3168	5000	Li-Po	16	2023-03-21	216.0	...	
1425	13 Ultra	Xiaomi	Android 13	6.73	1440x3200	5000	Li-Po	16	2023-04-18	227.0	...	

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	vic
1446	vivo iQOO Neo8 Pro	Vivo	Android 13	6.78	1260x2800	5000	Li-Po	16	2023-05-23	192.0	...	vic
1447	vivo iQOO Neo8	Vivo	Android 13	6.78	1260x2800	5000	Li-Po	16	2023-05-23	192.0	...	
1450	Reno10 Pro (China)	Oppo	Android 13	6.74	1240x2772	4600	Li-Po	16	2023-05-24	186.0	...	
1451	Reno10 Pro+	Oppo	Android 13	6.74	1240x2772	4700	Li-Po	16	2023-05-24	194.0	...	
1453	Civi 3	Xiaomi	Android 13	6.55	1080x2400	4500	Li-Po	16	2023-05-25	174.0	...	
1458	90 Pro	Honor	Android 13	6.78	1224x2700	5000	Li-Po	16	2023-05-29	192.0	...	
1476	vivo iQOO 11S	Vivo	Android 13	6.78	1440x3200	4700	Li-Po	16	2023-07-04	207.0	...	
1489	Magic V2	Honor	Android 13	7.92	2156x2344	5000	Li-Po	16	2023-07-12	231.0	...	
1492	Legion Y700 (2023)	Lenovo	Android 13	8.80	1600x2560	6550	Li-Po	16	2023-07-22	350.0	...	
1504	Mix Fold 3	Xiaomi	Android 13	8.03	1916x2160	4800	Li-Po	16	2023-08-14	255.0	...	
1505	Redmi K60 Ultra	Xiaomi	Android 13	6.67	1220x2712	5000	Li-Po	24	2023-08-15	204.0	...	
1506	Ace 2 Pro	OnePlus	Android 13	6.74	1240x2772	5000	Li-Po	24	2023-08-16	210.0	...	
1509	GT5	Realme	Android 13	6.74	1240x2772	5240	Li-Po	16	2023-08-28	205.0	...	
1510	GT5 240W	Realme	Android 13	6.74	1240x2772	4600	Li-Po	24	2023-08-28	205.0	...	

35 rows x 23 columns



Warning: Total number of columns (23) exceeds max_columns (20) limiting to first (20) columns.

Display the total records of High ram phones

In [78]:

```
print("total records of High ram(GB)phone: ", len(HighRam))
```

total records of High ram(GB)phone: 35

Display all the mid range phones available in the data set in php

In [122]:

```
p_data = pd.DataFrame(p_data)

midrange = 25000
f = p_data[p_data['price(PHP)'] <= midrange]
print("price(PHP)\tphone_name")
for i, row in f.iterrows():
    print("{}{:0f}\t{}\t{}".format(row['price(PHP)'], row['phone_name']))
```

price(PHP) phone_name
₹6600 Y6II Compact
₹5500 K20 plus
₹22100 Redmi 10 5G (2017)

₹23100 P8 Lite (2017)
₹8250 Redmi Note 4
₹23100 P10
₹7700 Xperia XA1
₹23100 P10 Lite
₹9350 P10 Plus
₹13750 Xperia XA1 Ultra
₹9350 X power2
₹7150 Redmi Note 4X
₹12100 Xperia XZs
₹17600 Xperia XZ Premium
₹6050 Xperia L1
₹13750 A39
₹13750 F3 Plus
₹19250 Galaxy Xcover 4
₹9350 Galaxy J7 V
₹19250 Galaxy S8+
₹9350 K7 (2017)
₹15400 Y5 (2017)
₹8800 Harmony
₹18150 Mi 6
₹13200 Y6 (2017)
₹4950 Y7
₹8800 nova 2 plus
₹7700 nova 2
₹12650 Y3 (2017)
₹13200 Z4
₹11000 Mi Max 2
₹6050 Redmi 4 (4X)
₹4950 Stylo 3Plus
₹13750 F3
₹9900 X venture
₹13750 A77 (Mediatek)
₹13750 R11
₹13750 R11 Plus
₹11000 Galaxy J7 Max
₹7150 Galaxy J7 (2017)
₹11000 Galaxy J7 Pro
₹4400 Galaxy J5 (2017)
₹7150 Y7 Prime
₹13750 A77 (2017)
₹6050 Q8 (2017)
₹11000 Q6
₹23650 Galaxy Folder2
₹11000 Galaxy Note FE
₹13750 P9 lite mini
₹16500 Xperia XZ1 Compact
₹8250 Xperia XA1 Plus
₹11000 K8 Note
₹11550 Galaxy Note8
₹11000 V30
₹14300 Xperia XZ1
₹9350 Mi A1 (Mi 5X)
₹22550 Mi Mix 2
₹15400 Mi Note 3
₹11000 K8
₹9900 K8 Plus
₹11550 iPhone 8
₹15400 iPhone X
₹14300 R11s
₹8250 F5
₹9240 Xperia R1 (Plus)
₹8250 Mate 10 Pro
₹9900 Mate 10
₹16500 Mate 10 Lite
₹10450 Mate 10 Porsche Design
₹7700 Redmi Y1 (Note 5A)
₹22000 F5 Youth
₹17050 R11s Plus
₹4950 Redmi Y1 Lite
₹9350 moto tab
₹5500 Redmi 5A
₹12650 nova 2e

₹12050 Nova 2S
₹8800 Redmi 5
₹11000 K320t
₹24750 P smart
₹12650 Galaxy A8 (2018)
₹6600 Galaxy A8+ (2018)
₹10450 9 Lite
₹14300 Xperia XA2 Ultra
₹11000 Xperia XA2
₹11000 Aristo 2
₹13750 Galaxy J2 Pro (2018)
₹7700 Xperia L2
₹23650 Xperia XZ2 Compact
₹5500 V30S ThinQ
₹7700 K10 (2018)
₹9900 Redmi 5 Plus (Redmi Note 5)
₹15400 A71 (2018)
₹3850 K8 (2018)
₹9900 Redmi Note 5 Pro
₹16500 Galaxy S9
₹6600 Galaxy S9+
₹19800 Xperia XZ2
₹14850 Mi Mix 2S
₹9900 Redmi Note 5 AI Dual Camera
₹9900 A1 (2018)
₹24750 R15
₹17600 R15 Pro
₹20350 Galaxy J7 Prime 2
₹8250 K5 play
₹8250 K5
₹11000 Y7 (2018)
₹12650 S5
₹9350 Y7 Prime (2018)
₹9900 Zone 4
₹12100 Y7 Pro (2018)
₹13200 Mate RS Porsche Design
₹8250 P20 lite
₹8250 P20 Pro
₹9350 P20
₹18150 Y6 (2018)
₹22550 Y6 Prime (2018)
₹23100 Galaxy J7 Duo
₹6600 7A
₹15400 A3
₹22000 Black Shark
₹7150 1
₹17050 10
₹11000 7C
₹7700 Galaxy J8
₹12650 Galaxy J6
₹12100 Galaxy J4
₹13200 Galaxy A6+ (2018)
₹9350 Galaxy A6 (2018)
₹6050 7S
₹8250 Y5 Prime (2018)
₹9900 Galaxy S Light Luxury
₹8250 V35 ThinQ
₹20350 Q7
₹11000 F7 Youth
₹22000 Mi 8 Explorer
₹23650 Mi 8
₹14300 Mi 8 SE
₹8800 Redmi S2 (Redmi Y2)
₹8250 K30
₹16500 G7 ThinQ
₹22550 6
₹7150 Find X Lamborghini
₹19250 Galaxy J7 (2018)
₹22000 Galaxy J3 (2018)
₹17050 Galaxy A8 Star (A9 Star)
₹6050 K5 Note (2018)
₹6600 Z5
₹7150 7E

₹7150 A5
₹16500 Q Stylo 4
₹19250 Q Stylus
₹7150 Redmi 6
₹6050 Redmi 6A
₹12100 9N (9i)
₹22000 Note 10
₹5500 P Smart+ 2019
₹7700 nova 3
₹13750 Play
₹13750 K11 Plus
₹8800 X power 3
₹13200 Xperia XA2 Plus
₹17050 Mi Max 3
₹20900 Mi A2 Lite (Redmi 6 Pro)
₹8250 Galaxy On6
₹8250 A5 (AX5)
₹4950 nova 3i
₹14850 Mi A2 (Mi 6X)
₹14850 R17
₹16500 G7 One
₹7700 Q8 (2018)
₹11000 Galaxy J2 Core
₹6600 2
₹19250 G7 Fit
₹19250 Mate 20 lite
₹18150 RX17 Pro
₹11000 Candy
₹8250 Galaxy Note9
₹19800 Pocophone F1
₹19800 Mi 8 Lite
₹11000 Redmi Note 6 Pro
₹13750 A7x
₹5500 Galaxy J4+
₹12100 8X
₹13750 8X Max
₹5500 C1
₹12100 Galaxy J6+
₹8250 2 Pro
₹20900 iPhone XS
₹17050 iPhone XR
₹11000 Galaxy A7 (2018)
₹24750 Black Shark Helo
₹8250 K9
₹11000 K5 Pro
₹7150 S5 Pro
₹9900 Mate 20 X
₹17050 Galaxy A6s
₹14300 Mate 20
₹23650 Galaxy A9 (2018)
₹12100 Y9 (2019)
₹7260 R15x
₹9350 8C
₹3850 V40 ThinQ
₹14300 Pixel 3 XL
₹24750 Pixel 3
₹12650 Mate 20 Pro
₹23650 6T
₹7150 U1
₹9900 Y Max
₹8250 Z5 Pro
₹12650 RX17 Neo
₹15950 A7
₹6600 Galaxy J4 Core
₹9900 10 Lite
₹22000 S5 Pro GT
₹7150 Y5 lite (2018)
₹9350 Mi Play
₹11000 Z5 Pro GT
₹16500 Z5s
₹11000 Y7 Pro (2019)
₹22000 Y7 Prime (2019)
₹5500 Redmi Go

₹3500 Redmi 9G
₹4400 Tribute Empire
₹5500 Play 8A
₹18150 Q9
₹4950 Galaxy M10
₹4950 C1 (2019)
₹9350 Redmi Note 7
₹20900 Galaxy M20
₹9900 Q60
₹7700 K50
₹22000 K40
₹11000 Y6 Pro (2019)
₹14300 Galaxy Fold
₹12650 Xperia L3
₹22000 Galaxy Fold 5G
₹16500 Galaxy S10 5G
₹11000 Mate X
₹22550 Mi Mix 3 5G
₹11000 Galaxy S10
₹14300 Galaxy S10e
₹19800 Galaxy S10+
₹19250 G8S ThinQ
₹12650 G8 ThinQ
₹6050 Galaxy A50
₹15400 Xperia 10
₹5500 Galaxy A30
₹13200 Galaxy M30
₹14300 Redmi Note 7 Pro
₹16500 Galaxy A10
₹22000 Black Shark 2
₹5940 3
₹7150 Enjoy 9s
₹6600 Enjoy 9e
₹11000 nova 4e
₹11000 Y6 (2019)
₹5500 Y7 (2019)
₹8250 Redmi 7
₹14850 A5s (AX5s)
₹22000 Galaxy A20
₹11000 Galaxy A40
₹7150 P30
₹14850 P30 Pro
₹14850 Galaxy A70
₹6600 P30 lite
₹6600 Redmi Y3
₹18150 A1k
₹11550 A7n
₹6600 8S
₹13750 A9
₹12100 K6 Enjoy
₹14300 Galaxy A60
₹15950 Galaxy A2 Core
₹17600 Reno 5G
₹11000 8A Pro
₹11550 20i
₹10450 20 lite
₹19250 Reno
₹14850 Reno 10x zoom
₹8800 Galaxy A20e
₹15950 Galaxy A80
₹11000 A7
₹3960 C2
₹14850 3 Pro
₹11000 Z6 Pro
₹15400 Y5 (2019)
₹22000 20
₹8800 X
₹17545 P Smart Z
₹23100 Mate 20 X (5G)
₹14300 Redmi K20
₹10450 Z6 Youth
₹5500 K3
₹7700 Redmi Note 7S

Redmi Note 7S
P11000 A9x
P15950 Pixel 3a
P15950 Pixel 3a XL
P22000 7
P7150 Redmi 7A
P22000 Redmi K20 Pro
P22000 Galaxy M40
P12100 nova 5 Pro
P20900 Galaxy Xcover 4s
P15400 nova 5
P15400 nova 5i
P6050 W30
P7150 W30 Pro
P11000 W10
P23650 Z6 Pro 5G
P6600 Galaxy A10e
P21450 nova 5i Pro
P14300 Mi CC9
P9350 Mi CC9e
P5280 3i
P9900 9X (China)
P8800 Z6
P12650 Mi A3
P12650 9X Pro
P9900 Galaxy Note10 5G
P11000 K40S
P10450 K50S
P8800 K20 (2019)
P5500 K30 (2019)
P4400 Galaxy Note10
P14300 Galaxy A10s
P23650 5 Pro
P10450 5
P17896 Mi 9T Pro
P14300 nova 5T
P14850 Reno2
P12100 Redmi Note 8 Pro
P12100 Redmi Note 8
P15950 Galaxy A90 5G
P14300 Galaxy A70s
P7150 Q
P24750 Redmi K20 Pro Premium
P13750 20S
P18150 Reno A
P10450 Mate 30 5G
P22000 A6 Note
P18700 Mate 30
P7150 Play 3
P4950 Play 3e
P19800 Enjoy 10 Plus
P13750 K10 Note
P17600 G8X ThinQ
P21878 iPhone 11 Pro Max
P23644 iPhone 11 Pro
P14300 A9 (2020)
P15950 XT
P17600 Mi 9 Lite
P15950 Mate 30 Pro
P11550 A5 (2020)
P5500 K10 Plus
P6050 Galaxy A20s
P6600 Redmi 8A
P14218 7T
P7700 Q70
P18700 K5
P12100 20 lite (China)
P18150 Reno Ace
P13750 Galaxy Xcover FieldPro
P11550 Redmi 8
P13750 Pixel 4 XL
P16500 Pixel 4
P21200 V2 Pro

₹24200 A2 F10
₹13200 9X
₹22000 Mi CC9 Pro
₹5500 C2 2020
₹23650 V30
₹13750 Redmi Note 8T
₹20900 Mi Note 10
₹8250 Y9s
₹14850 5s
₹11000 nova 6 SE
₹12100 nova 6
₹8250 A8
₹15400 Reno3 5G
₹13200 Reno3 Pro 5G
₹15400 P smart Pro 2019
₹14300 Redmi K30 5G
₹11550 Redmi K30
₹20900 Galaxy A51
₹13200 Galaxy A01
₹9350 A91
₹2200 C2s
₹20900 Galaxy Xcover Pro
₹11000 Galaxy Note10 Lite
₹18508 Galaxy S10 Lite
₹9350 5i
₹7700 P30 lite New Edition
₹11000 F15
₹8800 nova 7i
₹15950 Y6s (2019)
₹9893 Poco X2
₹4950 C3
₹13200 Y7p
₹20900 Reno3 Youth
₹6050 Redmi 8A Dual
₹15400 Galaxy S20+
₹21449 Galaxy S20
₹8250 A31
₹18645 Mi 10 5G
₹12100 K51S
₹11000 K61
₹8250 C3 (3 cameras)
₹16500 W10 Alpha
₹11000 Xperia L4
₹19800 Mate Xs
₹24169 X50 Pro 5G
₹7150 Q51
₹13200 V60 ThinQ 5G
₹11000 Reno3 Pro
₹21450 Black Shark 3
₹13749 P40 lite E
₹9899 6 Pro
₹10450 6
₹22000 Find X2 Pro
₹24200 Find X2
₹9900 Redmi Note 9 Pro Max
₹15400 Redmi Note 9 Pro (India)
₹23650 Reno3
₹22000 6i
₹8800 Galaxy A41
₹17050 Galaxy M21
₹11272 Redmi Note 9S
₹21450 Redmi K30 Pro
₹10450 Galaxy A31
₹8250 P40
₹9900 M10 Plus
₹11498 Mi 10 Lite 5G
₹6050 8A Prime
₹17050 30S
₹6600 Play 9A
₹15950 Galaxy M11
₹4950 Redmi 8A Pro
₹12533 A12e
₹5000 Galaxy A71 5G

₹9900 Galaxy A71 5G
₹10450 Galaxy A21
₹11274 Galaxy A51 5G
₹8800 Play 4T
₹11000 Play 4T Pro
₹8250 8A 2020
₹8624 Ace2
₹20328 8 Pro
₹13200 Find X2 Neo
₹10422 iPhone SE (2020)
₹9900 20e
₹12100 9X Lite
₹12650 A92s
₹6600 A52
₹14300 X50m 5G
₹6600 nova 7 5G
₹21450 nova 7 Pro 5G
₹13100 Galaxy J2 Core (2020)
₹14850 Mi 10 Youth 5G
₹8800 9C
₹8250 9A
₹4950 9S
₹13994 Mi Note 10 Lite
₹8601 Redmi Note 9
₹12100 Redmi Note 9 Pro
₹11000 Y5p
₹6050 Y6p
₹8800 Y8s
₹5500 Narzo 10A
₹8250 Narzo 10
₹14300 Redmi K30 5G Racing
₹13621 Poco F2 Pro
₹7700 P30 Pro New Edition
₹16499 Galaxy A Quantum
₹13631 Y8p
₹15400 V6
₹13750 X10 5G
₹24200 Galaxy S20 5G UW
₹19800 Stylo 6
₹11000 Q61
₹14300 Enjoy Z 5G
₹13750 Redmi K30i 5G
₹19250 X50 Pro Player
₹7150 Redmi 10X 4G
₹11000 Redmi 10X 5G
₹15950 Redmi 10X Pro 5G
₹16500 X3 SuperZoom
₹11000 6S
₹6050 8S 2020
₹7150 Galaxy M01
₹19800 Play4 Pro
₹13750 Play4
₹5500 Reno4 5G
₹13200 Reno4 Pro 5G
₹13200 P Smart S
₹5534 Redmi 9
₹12100 Enjoy 20 Pro
₹24200 A11k
₹10450 Narzo
₹5500 C3i
₹15950 X3
₹4277 Redmi 9C
₹6984 C11
₹4069 Redmi 9A
₹13200 X10 Max 5G
₹12100 30 Youth
₹12100 Galaxy A71 5G UW
₹9350 Poco M2 Pro
₹14850 A12s
₹3300 Galaxy M01s
₹17545 Nord
₹6050 Galaxy A01 Core
₹5500 Legion Pro

₹3300 Legion F10
₹16500 Galaxy Z Flip 5G
₹8250 6i (India)
₹15950 A72 5G
₹8250 Galaxy M01 Core
₹5279 C15
₹19525 Reno4
₹6050 Galaxy M31s
₹13750 Reno4 Pro
₹9900 V5 5G
₹18150 Pixel 4a
₹6995 Redmi 9 Prime
₹14355 Galaxy Note20 Ultra
₹13750 Redmi K30 Ultra
₹6050 C12
₹14850 Velvet 5G UW
₹8250 Q92 5G
₹6050 Redmi 9 (India)
₹5500 Redmi 9C NFC
₹18150 X7
₹6600 V3
₹18150 F17 Pro
₹12650 F17
₹11550 Enjoy 20 Plus 5G
₹9350 7 (Asia)
₹18700 7 Pro
₹13750 Enjoy 20 5G
₹14300 Poco X3 NFC
₹15400 Y9a
₹6929 Poco M2
₹4165 Redmi 9AT
₹6600 A32
₹11000 30i
₹19800 K22
₹7700 Wing 5G
₹6269 Redmi 9i
₹7150 Q31
₹9900 7i
₹7700 K42
₹21450 Reno4 SE
₹7150 Narzo 20
₹8800 C17
₹5500 Narzo 20A
₹9350 Narzo 20 Pro
₹10553 Poco X3
₹15950 K62
₹12100 K52
₹16499 Galaxy S20 FE
₹21450 Galaxy S20 FE 5G
₹13200 Q52
₹11000 P smart 2021
₹9291 Reno4 Lite
₹10450 A33 (2020)
₹18700 K92 5G
₹8250 Reno4 Z 5G
₹13090 Pixel 5
₹20312 Mi 10T Pro 5G
₹20900 Pixel 4a 5G
₹23649 Mi 10T 5G
₹17764 Mi 10T Lite 5G
₹11000 A93
₹14850 A73
₹4400 Poco C3
₹13750 7 (Global)
₹18150 Galaxy F41
₹20350 Reno4 F
₹17600 A53s
₹7150 Q2i
₹8800 Q2
₹17050 Q2 Pro
₹14795 8T
₹11000 Galaxy M31 Prime
₹7150 A15

₹7150 A10
₹4950 A8 2020
₹8800 nova 7 SE 5G Youth
₹12650 Y7a
₹15950 Mate 30E Pro 5G
₹6777 Nord N100
₹12470 Nord N10 5G
₹18150 Redmi K30S
₹6050 C15 Qualcomm Edition
₹12650 10X Lite
₹14300 A73 5G
₹19195 K7x
₹10450 Galaxy M21s
₹7150 W31
₹7700 W31+
₹15231 7 5G
₹12650 Galaxy A02s
₹10999 Poco M3
₹4400 Galaxy A12
₹9350 Redmi Note 9 5G
₹20350 Redmi Note 9 Pro 5G
₹7150 Redmi Note 9 4G
₹7150 K12 Pro
₹5500 K12 (China)
₹15400 Reno5 5G
₹6600 Redmi 9 Power
₹16445 A15s
₹9295 A53 5G
₹10450 7i (Global)
₹22550 nova 8Pro 5G
₹8800 nova 8 5G
₹18150 Enjoy 20 SE
₹13750 Reno5 Pro+ 5G
₹13200 Reno5 4G
₹13750 Mi 10i 5G
₹12100 Galaxy M02s
₹10450 V15 5G
₹9019 Redmi Note 9T
₹10449 Redmi 9T
₹5500 Galaxy A32 5G
₹22550 A93 5G
₹13225 Galaxy S21 5G
₹24414 Galaxy S21+ 5G
₹4950 C20
₹8084 Galaxy A02
₹9295 Galaxy M02
₹12650 X7 (India)
₹8800 V11 5G
₹7150 Galaxy F62
₹9900 W41 Pro
₹9350 W41+
₹8800 W41
₹14850 Galaxy M62
₹23925 Narzo 30A
₹11000 Narzo 30 Pro 5G
₹15400 Redmi K40
₹19800 Redmi K40 Pro
₹17050 Reno5 K
₹15094 Galaxy A32
₹9845 Redmi Note 10S
₹10945 Redmi Note 10 Pro
₹9702 Redmi Note 10 5G
₹13749 Redmi Note 10
₹12100 Redmi Note 10 Pro Max
₹9900 Redmi Note 10 Pro (India)
₹11879 Galaxy Xcover 5
₹19249 GT 5G
₹14300 A94
₹7757 C21
₹20350 F19 Pro+ 5G
₹11000 F19 Pro
₹23650 Mi 10S
₹12750 Find X2 Lite

Find X3 Lite
Find X3 Neo
Find X3
Find X3 Pro
Galaxy A52 5G
Galaxy A72
Galaxy A52
Reno5 F
Poco F3
Poco X3 Pro
V40 Lite
9R
9
Reno5 Lite
9 Pro
C25
vivo iQOO Neo5 Lite
8
A54
Mi 11 Lite 5G
GT Neo
V13 5G
F19
X7 Pro Ultra
Reno5 Z
Galaxy F02s
A74
Galaxy F12
A35
A94 5G
Galaxy M12
Play 5T Youth
8 5G
Poco M2 Reloaded
Q3i 5G
Q3 5G
Q3 Pro 5G
Mi 11X
vivo iQOO 7 (India)
Play 20
A53s 5G
vivo V21e
A95 5G
vivo V21
vivo V21 5G
Redmi K40 Gaming
Galaxy M42 5G
vivo Y52s t1
K9
C20A
vivo Y12s 2021
Play5 5G
Narzo 30
vivo Y52 5G
Poco M3 Pro 5G
Galaxy F52 5G
vivo X60s
GT Neo Flash
Redmi Note 8 2021
Q3 Pro Carnival
Redmi Note 10 Pro (China)
Narzo 30 5G
Reno6 Pro 5G
Reno6 5G
Reno6 Pro+ 5G
X7 Max 5G
Galaxy A22
Galaxy A22 5G
vivo Y70t
vivo iQOO U3x Standard
C25s
vivo Y53s
vivo V72

‡12030 vivo i7s
‡17050 50 SE
‡7150 C21Y
‡8249 Nord N200 5G
‡14849 Galaxy M32
‡12203 vivo Y12a
‡6600 K13 Note
‡13200 vivo V21e 5G
‡15950 vivo X60t Pro+
‡4949 C11 (2021)
‡13200 X20 SE
‡9350 Galaxy F22
‡13567 nova 8i
‡17099 vivo S10
‡10450 vivo Y72 5G (India)
‡17049 A16
‡9350 Redmi Note 10T 5G
‡7150 Galaxy M21 2021
‡20900 GT Explorer Master
‡16445 Nord 2 5G
‡13199 Poco F3 GT
‡8800 A93s 5G
‡9677 Reno6
‡17024 Poco X3 GT
‡13750 nova 8 SE Youth
‡11000 Play 5T Pro
‡23100 nova 8
‡13695 Galaxy A12 Nacho
‡8800 Galaxy A12 (India)
‡13750 X20
‡18095 A16s
‡18370 Galaxy A52s 5G
‡13200 vivo iQOO 8
‡19669 Pixel 5a 5G
‡20350 vivo iQOO 8 Pro
‡8195 Galaxy A03s
‡7454 Redmi 10
‡20350 Xperia 10 III Lite
‡6600 vivo Y33s
‡12100 Galaxy M32 5G
‡4950 K13
‡8250 K13 Pro
‡7700 Redmi 10 Prime
‡8250 nova Y60
‡8249 8i
‡6600 vivo X70 Pro
‡7975 Reno6 Pro 5G (Snapdragon)
‡14849 8s 5G
‡13386 Galaxy M22
‡17547 11 Lite 5G NE
‡18144 11T
‡21444 11T Pro
‡6775 C25Y
‡9233 vivo Y21s
‡15290 GT Neo2
‡10394 vivo iQOO Z5
‡4950 Narzo 50i
‡6929 Narzo 50A
‡21942 Galaxy M52 5G
‡6050 Redmi 9 Activ
‡19250 K9 Pro
‡19250 Civi
‡4949 Redmi 9A Sport
‡5213 Redmi 9i Sport
‡13200 Galaxy F42 5G
‡4409 Poco C31
‡21960 A55
‡7919 Redmi Note 10 Lite
‡19800 Black Shark 4S
‡18698 Pixel 6
‡14300 GT Neo2T
‡11000 Q3s
‡10400 Pixel 6 Pro

Pixel 6 Pro
P13750 vivo T1
P17600 vivo iQOO Z5x
P9900 vivo T1x
P19800 K9s
P6050 vivo Y71t
P15675 50 Lite
P12650 A56 5G
P13200 Play5 Youth
P14299 Redmi Note 11 Pro+ 5G
P7700 Redmi Note 11 (China)
P12100 Redmi Note 11 Pro (China)
P10450 X30i
P17600 X30 Max
P12100 A16K
P13200 vivo V23e
P16500 vivo Y15s
P11024 Poco M4 Pro 5G
P12650 vivo Y76s
P15950 Q3t
P5433 Galaxy A03 Core
P13200 vivo Y15a
P6600 vivo Y50t
P10605 A95
P12100 vivo Y74s
P7700 vivo V23e 5G
P17600 vivo Y76 5G
P9050 Redmi Note 11 4G
P17050 Reno7 Pro 5G
P12650 Reno7 5G (China)
P8525 Galaxy A03
P10559 Redmi Note 11T 5G
P21450 60 Pro
P8965 Galaxy A13 5G
P10450 vivo Y55s (2021)
P20900 Find N
P8250 Play 30 Plus
P11550 X30
P18150 vivo Y32
P11495 vivo iQOO Neo5 SE
P19250 vivo iQOO Neo5 S
P11550 vivo S12
P7700 vivo S12 Pro
P16445 K9x
P16500 vivo iQOO U5
P21999 12
P23644 12X
P20900 vivo Y21t
P9900 vivo Y21t (India)
P10091 vivo V23 Pro
P14300 vivo iQOO 9 Pro
P8250 vivo V23 5G
P12650 vivo iQOO 9 (China)
P16500 11i HyperCharge 5G
P14453 11i
P7974 9i
P10450 A36
P10450 vivo Y33t
P24197 10 Pro
P7700 A96 (China)
P21450 vivo Y21e
P12100 Reno6 Lite
P23328 vivo Y55 5G
P23650 vivo Y21a
P8084 Redmi Note 11
P10170 Redmi Note 11S
P12245 Redmi Note 11 Pro
P12827 Redmi Note 11 Pro 5G
P21638 vivo Y75 5G
P15400 Reno7 5G
P16500 60 SE
P13750 vivoT1 5G
P21112 C25

₹8442 C3J
₹11000 K14 Plus
₹7089 Redmi 10 2022
₹13050 9 Pro
₹20900 A76
₹17545 Nord CE 2 5G
₹14850 vivo iQOO 9 SE
₹9900 vivo iQOO 9
₹9624 Find X5
₹16445 Find X5 Pro
₹18479 Find X5 Lite
₹14693 Poco M4 Pro
₹17373 Poco X4 Pro 5G
₹19800 Legion Y700
₹9350 Redmi Note 11E
₹13200 Redmi Note 11E Pro
₹15950 V25
₹12045 Galaxy M23
₹12269 Galaxy M33
₹11550 Galaxy A23
₹8845 Galaxy A13
₹12533 Galaxy F23
₹12244 nova 9 SE
₹13750 Redmi Note 11 Pro+ 5G (India)
₹22000 vivo Y01
₹13200 9 5G Speed
₹9900 9 5G (India)
₹8917 X8
₹19250 A96
₹13404 Galaxy A33 5G
₹21972 Galaxy A73 5G
₹17017 Galaxy A53 5G
₹22550 Redmi K50 Pro
₹14300 Redmi K40S
₹6415 Redmi 10 (India)
₹5940 Redmi 10C
₹6597 Narzo 50A Prime
₹6600 K10
₹20625 Magic4 Lite
₹6049 C31
₹9900 vivo iQOO U5x
₹4707 Redmi 10A
₹10724 Redmi Note 11S 5G
₹8748 Redmi 10 5G
₹12874 Reno7
₹13200 X9 5G
₹10450 X7
₹12650 X9
₹9900 Play6T
₹8250 vivo Y21G
₹11000 Play6T Pro
₹13748 9
₹19250 Galaxy M53
₹10450 vivo X Fold
₹7700 vivo X Note
₹9900 F21 Pro
₹18645 F21 Pro 5G
₹9350 vivo iQOO Neo6 (China)
₹13200 V23
₹15400 Reno7 Lite
₹18150 A57
₹19250 A55s
₹9900 Q5i
₹8249 Redmi 10 Power
₹12925 nova Y70 Plus
₹20350 nova 9 SE 5G
₹18150 Q5 Pro
₹11000 Q5
₹18150 Civi 1S
₹19800 Ace
₹11000 K10 5G (China)
₹8800 K10 Pro
₹16500 vivo v00

₹16500 vivo X80 Pro
₹8250 vivo X80 Pro
₹22000 vivo T1 (Snapdragon 778G)
₹21994 Poco F4 GT
₹16500 vivo iQOO Z6 44W
₹9074 Nord N20 5G
₹18700 10R 150W
₹21779 10R
₹12595 Nord CE 2 Lite 5G
₹7709 Poco M4 5G (India)
₹9900 vivo T1 (Snapdragon 680)
₹13750 vivo T1 Pro
₹16500 vivo iQOO Neo6 SE
₹8800 Redmi 10 Prime 2022
₹8250 Play 30
₹15675 Pixel 6a
₹18149 Xperia 10 IV
₹10999 9 5G
₹15400 Ace Racing
₹16445 Narzo 50 5G
₹12869 Narzo 50 Pro
₹16500 vivo S15 Pro
₹10450 vivo S15
₹16995 Nord 2T
₹15950 vivo Y75
₹19250 Reno8 Pro+
₹19800 Reno8 Pro (China)
₹15950 Reno8 (China)
₹20900 vivo Y72t
₹8250 Redmi Note 11SE
₹13750 Redmi Note 11T Pro
₹16500 Redmi Note 11T Pro+
₹23100 A57 4G
₹7964 Galaxy M13
₹12738 vivo iQOO Neo 6
₹11549 K10 5G
₹10340 Galaxy A13 (SM-A137)
₹9349 Reno8 Lite
₹4949 Poco C40
₹8800 V20
₹4811 C30
₹6600 Narzo 50i Prime
₹6599 Galaxy F13
₹21944 Poco F4
₹20923 Poco X4 GT
₹12045 nova Y90
₹23402 Galaxy Xcover6 Pro
₹11000 vivo Y77
₹12100 vivo Y77 (China)
₹16925 12 Lite
₹14850 A97
₹13200 X40i
₹7259 Galaxy M13 (India)
₹11388 Galaxy M13 5G
₹17050 Reno8 Pro
₹18645 Reno8
₹10450 vivo iQOO 10 Pro
₹19800 vivo iQOO 10
₹16500 vivo T1x (India)
₹17600 Redmi K50i
₹24475 X8 5G
₹8250 vivo Y02s
₹21725 A77 4G
₹18149 10T
₹6545 Nord N20 SE
₹11550 Galaxy A23 5G
₹23650 Redmi K50 Ultra
₹12650 vivo Y77e
₹9845 Poco M4 5G
₹13750 vivo V25 Pro
₹11000 Reno8 4G
₹5500 vivoV25
₹8800 9i 5G

₹24200 Legion Y70
₹15345 vivo Y22s
₹8573 Redmi Note 11 SE (India)
₹5610 Galaxy A04
₹13820 vivo iQOO Z6x
₹14355 vivo iQOO Z6 (China)
₹14850 V23i
₹13750 vivo V25e
₹18150 A57e
₹6499 Galaxy A04s
₹19250 A57s
₹16500 vivo Y16
₹7920 Poco M5
₹5709 Poco M5 (India)
₹8794 Poco M5s
₹9900 vivo Y22
₹5944 C33
₹8800 Redmi 11 Prime
₹9239 Redmi 11 Prime 5G
₹4339 Redmi A1
₹13750 vivo Y75s
₹5500 C30s
₹8800 vivo iQOO Z6 Lite
₹11550 X40
₹9900 K10x
₹14850 vivo Y52t
₹7081 X6
₹7259 vivo X80 Lite
₹4997 Redmi A1+
₹9900 vivo X Fold+
₹11550 A17
₹19250 Civi 2
₹11000 vivo Y73t
₹8800 Redmi Note 11R
₹24199 12T
₹17153 nova 10 SE
₹8237 A77s
₹8250 Play6C
₹16500 X40 GT
₹12100 A17k
₹9350 Play 40 Plus
₹5170 Galaxy A04e
₹12650 Nord N300
₹20900 Redmi Note 12 Discovery
₹11233 Redmi Note 12 Pro
₹18899 Redmi Note 12 Pro+
₹10450 Redmi Note 12 (China)
₹10945 Redmi Note 12
₹10412 nova Y61
₹7150 A58
₹7689 10
₹9900 10 5G
₹12650 A1 Pro
₹11302 10 Pro+
₹11000 vivo V21s
₹10285 10 Pro
₹20900 vivo X90
₹19800 vivo X90 Pro
₹20350 80 SE
₹23099 80 Pro
₹20350 80
₹14300 Reno9
₹4950 vivo iQOO 11
₹16500 vivo iQOO 11 Pro
₹5609 Galaxy M04
₹9900 Find N2
₹8250 10s
₹8800 vivo S16
₹15400 vivo S16 Pro
₹24750 80 GT
₹12650 Redmi Note 12 Pro Speed
₹16500 Redmi Note 12 Pro

Redmi Note
P19250 Redmi K60
P18700 vivo iQOO Neo7 Racing
P5211 Redmi 12C
P4400 Poco C50
P9845 Galaxy A14 5G
P5339 Galaxy F04
P14300 X9a
P16995 X7a
P24750 80 Pro Flat
P8250 A78
P22000 vivo Y55s (2023)
P4950 X5
P12650 Reno8 T 5G
P18700 Reno8 T
P11330 Poco X5
P14245 Poco X5 Pro
P21450 Ace 2
P10395 X8a
P24200 GT Neo 5 240W
P18700 GT Neo 5
P8250 V30
P16995 Magic5 Lite
P13750 vivo Y100
P20900 vivo iQOO Neo 7
P18479 vivo Y56
P5181 Poco C55
P21697 13 Lite
P7165 Galaxy A14
P15839 vivo V27e
P12092 vivo V27
P14850 vivo V27 Pro
P11418 Redmi Note 12 Pro 4G
P10260 Redmi Note 12S
P17050 Ace 2V
P11439 C55
P9893 Galaxy M14
P20900 vivo iQOO Z7i
P7259 C33 2023
P15454 Galaxy A34
P19745 Galaxy A54
P9900 vivo iQOO Z7
P24200 vivo iQOO Z7x
P11593 70 Lite
P7150 vivo iQOO Z7 (China)
P11000 10T
P16499 Find X6
P10450 Galaxy M54
P8800 Redmi Note 12 4G
P3925 Redmi A2
P8250 Galaxy F14
P5279 Redmi A2+
P14850 Redmi Note 12 Turbo
P8250 Play7T
P11000 Play7T Pro
P11000 vivo Y11 (2023)
P12100 vivo Y02A
P14850 GT Neo5 SE
P9900 A1
P12595 Nord CE 3 Lite
P4546 Poco C51
P6600 vivo T2 (India)
P6050 vivo T2x (India)
P7259 Narzo N55
P9680 Galaxy A24 4G
P12539 vivo X Fold2
P9223 vivo X Flip
P15345 nova 11i
P14850 A98
P10450 nova Y71
P22054 Poco F5
P21670 Pixel 7a
P12200 11

```

P13200 11
P18144 11 Pro
P20790 Xperia 10 V
P15950 F23
P5500 Narzo N53
P11550 vivo iQOO Z7s
P12100 vivo iQOO Neo8 Pro
P9900 vivo iQOO Neo8
P15400 nova Y91
P18150 vivo S17e
P18150 Reno10 Pro (China)
P14850 Reno10 (China)
P18150 Civi 3
P19800 vivo Y36
P11000 vivo Y36 5G
P21603 90
P24200 90 Pro
P18700 Redmi Note 12T Pro
P23650 vivo Y78
P15400 vivo Y35+
P9894 C53
P22000 vivo S17
P18150 vivo S17 Pro
P13200 vivo S17t
P22550 vivo V29 Lite
P20915 Galaxy F54
P16499 Nord N30
P7370 Redmi 12
P10945 90 Lite
P12100 vivo Y36 (India)
P12100 Redmi Note 12R Pro
P10559 vivo X90s
P8250 Redmi Note 12R
P12539 Galaxy M34 5G
P23099 vivo iQOO 11S
P9900 Play 40
P9900 X50i
P23595 Nord 3
P17819 Nord CE3
P9900 X50
P11879 Narzo 60
P15839 Narzo 60 Pro
P11000 Reno10
P13750 A78 4G
P6050 C53 (India)
P7700 vivo Y27
P16500 Legion Y700 (2023)
P8250 C51
P8250 A58 4G
P8250 X6a
P16280 11 5G
P15400 11 4G
P6600 Redmi 12 5G
P7451 Poco M6 Pro
P11550 Galaxy F34
P18150 Redmi K60 Ultra
P20900 Ace 2 Pro
P9350 vivo Y77t
P10058 11x
P20900 GT5
P15839 vivo iQOO Z7 Pro

```

Display all the high end phone

In [113]:

```

dfm = pd.DataFrame(p_data)

midrange = 25000
highend = dfm[dfm['price(PHP)'] >= midrange]

```



```
f = highend
print("price(PHP)\tphone_name")
for i, row in f.iterrows():
    print("P{:.0f}\t\t{}".format(row['price(PHP)'], row['phone_name']))
```

```
price(PHP) phone_name
P27500 Galaxy S8 Active
P26400 A71
P30250 Galaxy C7 (2017)
P27500 Galaxy J2 (2017)
P33550 Pixel 2
P28600 Pixel 2 XL
P27500 A83
P27500 X4+
P33000 Y9 (2018)
P31900 F7
P25300 Xperia XZ2 Premium
P71500 Y3 (2018)
P25300 A3s
P28050 F9 (F9 Pro)
P28050 Xperia XZ3
P28050 Mi 8 Pro
P31350 iPhone XS Max
P40150 Mi Mix 3
P25300 Mate 20 RS Porsche Design
P74250 K1
P30250 Magic 2
P44000 Enjoy 9
P30250 Galaxy A8s
P66000 nova 4
P38500 6T McLaren
P31900 P smart 2019
P29150 Mi 9 Explorer
P32450 Mi 9
P25300 Mi 9 SE
P26400 V50 ThinQ 5G
P27500 Xperia 1
P30800 Xperia 10 Plus
P33000 F11
P33000 Magic 2 3D
P25300 F11 Pro
P25850 Reno Z
P25850 20 Pro
P32450 7 Pro
P44000 7 Pro 5G
P36850 P20 lite (2019)
P30250 Stylo 5
P25300 Mi 9T
P30250 Black Shark 2 Pro
P41800 Y9 Prime (2019)
P60500 Galaxy Note10+ 5G
P32450 Galaxy Note10+
P38500 Galaxy A30s
P32450 Galaxy A50s
P48400 Reno2 F
P56100 Reno2 Z
P96250 Galaxy M10s
P33000 Mi 9 Pro 5G
P35750 Mate 30 RS Porsche Design
P27500 Mi 9 Pro
P27500 Xperia 5
P27170 iPhone 11
P77000 Galaxy M30s
P30250 Mate 30 Pro 5G
P26400 X2
P27500 A11
P30800 V50S ThinQ 5G
P70950 Enjoy 10
P93500 nova 5z
P56650 7T Pro
P44000 7T Pro 5G McLaren
P79200 Enjoy 10s
```

₹27500 V30 Pro
₹26400 Mi Note 10 Pro
₹118250 nova 6 5G
₹56100 Galaxy A71
₹37400 X50 5G (China)
₹42350 Galaxy S20 5G
₹48400 Galaxy S20+ 5G
₹29700 Galaxy S20 Ultra
₹29700 Galaxy S20 Ultra 5G
₹30250 Galaxy Z Flip
₹51150 Mi 10 Pro 5G
₹60500 K41S
₹38500 Xperia 1 II
₹38500 Xperia 10 II
₹110000 Xperia Pro
₹37950 Galaxy M31
₹38500 V60 ThinQ 5G UW
₹107250 P40 lite
₹55000 Enjoy 10e
₹51700 Black Shark 3 Pro
₹35750 Galaxy A11
₹27500 Redmi K30 Pro Zoom
₹28600 P40 Pro
₹31344 P40 Pro+
₹40700 8 5G UW (Verizon)
₹35750 8 5G (T-Mobile)
₹48180 8
₹35750 30 Pro+
₹36850 30 Pro
₹64350 30
₹25795 A12
₹29700 Find X2 Lite
₹28600 A72
₹26400 P smart 2020
₹29425 A92
₹47850 Velvet 5G
₹27500 Galaxy A21s
₹45100 P40 lite 5G
₹27500 X50 5G
₹28050 Legion Duel
₹25850 Velvet
₹33000 Black Shark 3S
₹74195 K7 5G
₹46750 Galaxy Note20 5G
₹44000 Galaxy Note20
₹68750 Galaxy Note20 Ultra 5G
₹46750 Galaxy Z Fold2 5G
₹35750 Mi 10 Ultra
₹52800 Galaxy A51 5G UW
₹55000 A53
₹32450 K31
₹25850 Galaxy M51
₹25850 X7 Pro
₹25850 Galaxy A42 5G
₹35750 Xperia 5 II
₹46750 K71
₹31232 iPhone 12 Pro
₹33385 iPhone 12
₹71427 iPhone 12 Pro Max
₹47753 iPhone 12 mini
₹35200 8T+ 5G
₹43450 Mate 40 Pro+
₹34650 Mate 40 Pro
₹77000 Mate 40 RS Porsche Design
₹37400 Mate 40
₹77000 nova 8 SE
₹29095 Reno5 Pro 5G
₹43584 Mi 11
₹29671 Galaxy S21 Ultra 5G
₹25300 V40 5G
₹27500 A55 5G
₹36680 Galaxy M12 (India)

₹33000	Mate X2
₹25850	Redmi K40 Pro+
₹126500	P40 4G
₹71500	Mi Mix Fold
₹27500	Mate 40E
₹51150	Black Shark 4
₹27500	Black Shark 4 Pro
₹30250	8 Pro
₹82500	Mi 11 Ultra
₹26297	Mi 11 Lite
₹28875	Mi 11i
₹30869	Mi 11 Pro
₹33000	A74 5G
₹48400	Legion 2 Pro
₹44000	Legion Duel 2
₹28600	Galaxy Quantum 2
₹27225	Xperia 1 III
₹32449	Xperia 5 III
₹28450	A54 5G
₹41030	Xperia 10 III
₹26399	Mi 11X Pro
₹33000	nova 8 Pro 4G
₹25025	Nord CE 5G
₹25025	50
₹26400	50 Pro
₹25300	vivo Y53s 4G
₹35750	vivo S10 Pro
₹28600	Reno6 Z
₹27445	GT Master
₹36300	Mix 4
₹33715	Galaxy Z Flip3 5G
₹45925	Galaxy Z Fold3 5G
₹58850	Magic3 Pro+
₹36850	Magic3
₹44000	Magic3 Pro
₹27500	vivo Y21
₹36300	vivo X70 Pro+
₹27500	vivo X70
₹49369	iPhone 13 Pro Max
₹37620	iPhone 13 mini
₹35640	iPhone 13
₹86905	iPhone 13 Pro
₹30800	F19s
₹30800	vivo Y33
₹28600	vivo Y20t
₹35750	Black Shark 4S Pro
₹43395	9RT 5G
₹39600	vivo Y3s (2021)
₹57200	vivo S10e
₹54890	Xperia Pro-I
₹25795	A54s
₹27445	Reno7 SE 5G
₹27500	60
₹58850	A11s
₹34153	12 Pro
₹38445	GT2
₹26125	Galaxy S21 FE 5G
₹26400	GT2 Pro
₹77000	Magic V
₹45375	Galaxy S22 Ultra 5G
₹31074	Galaxy S22 5G
₹41244	Galaxy S22+ 5G
₹34209	9 Pro+
₹25300	Redmi K50 Gaming
₹27995	Narzo 50
₹49500	Magic4
₹52525	Magic4 Pro
₹31350	Legion Y90
₹34650	vivo Y33s 5G
₹25563	Reno7 Z 5G
₹27390	iPhone SE (2022)
₹28050	vivo iQOO Z6

₹63250 Magic4 Ultimate
₹26125 Redmi K50
₹38499 A16e
₹46197 GT Neo 3
₹28597 GT Neo 3 150W
₹33000 Black Shark 5
₹25850 Black Shark 5 RS
₹39600 Black Shark 5 Pro
₹28600 Galaxy S20 FE 2022
₹71500 vivo S15e
₹47850 vivo T1x 4G
₹46750 vivo iQOO Z6 Pro
₹109779 Mate Xs 2
₹48949 Xperia 1 IV
₹28600 70 Pro
₹26400 vivo T2x
₹33000 70 Pro+
₹29095 70
₹28600 A77
₹28298 GT Neo 3T
₹30799 vivo Y55
₹41195 12S Ultra
₹31350 12 Pro (Dimensity)
₹36850 12S Pro
₹31350 12S
₹27500 GT2 Explorer Master
₹31900 vivo Y30 5G
₹47850 vivo iQOO 9T
₹54945 Reno8 Z
₹27500 Ace Pro
₹64845 Galaxy Z Fold4
₹38020 Galaxy Z Flip4
₹71500 Mix Fold 2
₹33000 vivo Y35
₹38774 Xperia 5 IV
₹66733 iPhone 14 Pro Max
₹59831 iPhone 14 Pro
₹51315 iPhone 14 Plus
₹44880 iPhone 14
₹35640 12T Pro
₹25465 Pixel 7
₹36850 Pixel 7 Pro
₹79750 vivo iQOO Neo7 (China)
₹34650 vivo X90 Pro+
₹75899 Magic Vs
₹82500 Magic Vs Ultimate
₹33000 Reno9 Pro
₹25850 Reno9 Pro+
₹56045 vivo Y02
₹56650 vivo iQOO Neo7 SE
₹36299 vivo Y35 5G
₹51095 13
₹65553 13 Pro
₹40700 A58x
₹60500 Find N2 Flip
₹44000 vivo S16e
₹25300 Redmi K60 Pro
₹34045 11
₹59399 A56s
₹61970 Galaxy S23 Ultra
₹57145 Galaxy S23+
₹38858 Galaxy S23
₹26399 11R
₹49500 Magic5
₹56485 Magic5 Pro
₹34650 GT3
₹49500 Magic5 Ultimate
₹41745 Find X6 Pro
₹45100 A1x
₹49445 13 Ultra
₹44000 vivo Y78+
₹29144 Poco F5 Pro

₱96250 Pixel Fold
 ₱73150 vivo Y78 (China)
 ₱26746 11 Pro+
 ₱59345 Xperia 1 V
 ₱28600 Reno10 Pro+
 ₱49445 K11x
 ₱28050 vivo iQOO Neo 7 Pro
 ₱26345 Reno10 Pro
 ₱27500 vivo Y02t
 ₱62150 Magic V2
 ₱41745 K11
 ₱49445 Galaxy Z Flip5
 ₱82401 Galaxy Z Fold5
 ₱63250 Mix Fold 3
 ₱25850 GT5 240W

Display a specific brand

In [125]:

```

p_data = pd.DataFrame(p_data)
brand_a = p_data[p_data['brand'] == 'Apple']
brand_a

```

Out[125]:

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	video_4
62	iPhone 8	Apple	iOS 11	4.7	750x1334	1821	Li-Ion	2	2017-09-12	148.0	...	True
63	iPhone X	Apple	iOS 11.1.1	5.8	1125x2436	2716	Li-Ion	3	2017-09-12	174.0	...	True
201	iPhone XS Max	Apple	iOS 12	6.5	1242x2688	3174	Li-Ion	4	2018-09-12	208.0	...	True
202	iPhone XS	Apple	iOS 12	5.8	1125x2436	2658	Li-Ion	4	2018-09-12	177.0	...	True
203	iPhone XR	Apple	iOS 12	6.1	828x1792	2942	Li-Ion	3	2018-09-12	194.0	...	True
398	iPhone 11 Pro Max	Apple	iOS 13	6.5	1242x2688	3969	Li-Ion	4	2019-09-10	226.0	...	True
399	iPhone 11 Pro	Apple	iOS 13	5.8	1125x2436	3046	Li-Ion	4	2019-09-10	188.0	...	True
400	iPhone 11	Apple	iOS 13	6.1	828x1792	3110	Li-Ion	4	2019-09-10	194.0	...	True
536	iPhone SE (2020)	Apple	iOS 13	4.7	750x1334	1821	Li-Ion	3	2020-04-15	148.0	...	True
695	iPhone 12 Pro	Apple	iOS 14.1	6.1	1170x2532	2815	Li-Ion	6	2020-10-13	189.0	...	True
696	iPhone 12	Apple	iOS 14.1	6.1	1170x2532	2815	Li-Ion	4	2020-10-13	164.0	...	True
697	iPhone 12 Pro Max	Apple	iOS 14.1	6.7	1284x2778	3687	Li-Ion	6	2020-10-13	228.0	...	True
701	iPhone 12 mini	Apple	iOS 14.1	5.4	1080x2340	2227	Li-Ion	4	2020-10-13	135.0	...	True
947	iPhone 13 Pro Max	Apple	iOS 15	6.7	1284x2778	4352	Li-Ion	6	2021-09-14	240.0	...	True
948	iPhone 13 mini	Apple	iOS 15	5.4	1080x2340	2438	Li-Ion	4	2021-09-14	141.0	...	True
949	iPhone 13	Apple	iOS 15	6.1	1170x2532	3240	Li-Ion	4	2021-09-14	174.0	...	True
950	iPhone 13 Pro	Apple	iOS 15	6.1	1170x2532	3095	Li-Ion	6	2021-09-14	204.0	...	True

	phone_name	brand	os	inches	resolution	mAh	battery_type	ram(GB)	announcement_date	weight(g)	...	video_4
1095	iPhone SE (2022)	Apple	iOS 15.4	4.7	750x1334	2018	Li-Ion	4	2022-03-08	144.0	...	True
1276	iPhone 14 Pro Max	Apple	iOS 16	6.7	1290x2796	4323	Li-Ion	6	2022-09-07	240.0	...	True
1278	iPhone 14 Pro	Apple	iOS 16	6.1	1179x2556	3200	Li-Ion	6	2022-09-07	206.0	...	True
1279	iPhone 14 Plus	Apple	iOS 16	6.7	1284x2778	4323	Li-Ion	6	2022-09-07	203.0	...	True
1280	iPhone 14	Apple	iOS 16	6.1	1170x2532	3279	Li-Ion	6	2022-09-07	172.0	...	True

22 rows x 23 columns

Use numpy to get the average of inch and prices of phones

In [104]:

```
m_usd = np.mean(p_data['price(USD)'])
m_php = np.mean(p_data['price(PHP)'])
m_inch = np.mean(p_data['inches'])

print("Average prices of phone in USD: ${:.2f}".format(m_usd))
print("Average prices of phone in PHP: ₱{:.2f}".format(m_php))
print("Average inch of phone in the dataset: {:.2f}".format(m_inch))
```

Average prices of phone in USD: \$337.85
Average prices of phone in PHP: ₱18581.59
Average inch of phone in the dataset: 6.42

Use numpy to get the Median inches and prices of phone.

In [106]:

```
m_usd = np.median(p_data['price(USD)'])
m_php = np.median(p_data['price(PHP)'])
m_inch = np.median(p_data['inches'])

print("Median prices of phone in USD: ${:.2f}".format(m_usd))
print("Median prices of phone in PHP: ₱{:.2f}".format(m_php))
print("Median inch of phone in the dataset: {:.2f}".format(m_inch))
```

Median prices of phone in USD: \$260.00
Median prices of phone in PHP: ₱14300.00
Median inch of phone in the dataset: 6.50

Use numpy to get the middle values of inches of phone.

In [107]:

```
m_usd = np.median(p_data['price(USD)'])
m_php = np.median(p_data['price(PHP)'])
m_inch = np.median(p_data['inches'])

print("Median prices of phone in USD: ${:.2f}".format(m_usd))
print("Median prices of phone in PHP: ₱{:.2f}".format(m_php))
print("Median inch of phone in the dataset: {:.2f}".format(m_inch))
```

Median prices of phone in USD: \$260.00
Median prices of phone in PHP: ₱14300.00
Median inch of phone in the dataset: 6.50

Use numpy to get the standard deviation of the phone prices.

In [111]:

```
std_usd = np.std(p_data['price(USD)'])
std_php = np.std(p_data['price(PHP)'])

print("standard deviation prices of phone in USD: ${:.2f}".format(std_usd))
print("standard deviation prices of phone in PHP: ₱{:.2f}".format(std_php))
```

```
standard deviation prices of phone in USD: $266.65
standard deviation prices of phone in PHP: ₱14665.89
```