In [1]:
```
import pandas as pd
```

In [2]:
```
from matplotlib import pyplot as plt
```

In [3]:
```
df = pd.read_csv("Flipkart_Mobile.csv")
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
<ipython-input-3-7220d288f9a6> in <module>
----> 1 df = pd.read_csv("Flipkart_Mobile.csv")

~\anaconda3\lib\site-packages\pandas\io\parsers.py in read_csv(filepath_or_buffer, s
ep, delimiter, header, names, index_col, usecols, squeeze, prefix, mangle_dupe_cols,
dtype, engine, converters, true_values, false_values, skipinitialspace, skiprows, sk
ipfooter, nrows, na_values, keep_default_na, na_filter, verbose, skip_blank_lines, p
arse_dates, infer_datetime_format, keep_date_col, date_parser, dayfirst, cache_date
s, iterator, chunksize, compression, thousands, decimal, lineterminator, quotechar,
 quoting, doublequote, escapechar, comment, encoding, dialect, error_bad_lines, warn
_bad_lines, delim_whitespace, low_memory, memory_map, float_precision, storage_optio
ns)
    608     kwds.update(kwds_defaults)
    609
--> 610     return _read(filepath_or_buffer, kwds)
    611
    612

~\anaconda3\lib\site-packages\pandas\io\parsers.py in _read(filepath_or_buffer, kwd
s)
    460
    461     # Create the parser.
--> 462     parser = TextFileReader(filepath_or_buffer, **kwds)
    463
    464     if chunksize or iterator:

~\anaconda3\lib\site-packages\pandas\io\parsers.py in __init__(self, f, engine, **kw
ds)
    817             self.options["has_index_names"] = kwds["has_index_names"]
    818
--> 819         self._engine = self._make_engine(self.engine)
    820
    821     def close(self):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in _make_engine(self, engine)
   1048             )
   1049         # error: Too many arguments for "ParserBase"
-> 1050         return mapping[engine](self.f, **self.options)  # type: ignore[call-
arg]
   1051
   1052     def _failover_to_python(self):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in __init__(self, src, **kwds)
   1865
   1866         # open handles
-> 1867         self._open_handles(src, kwds)
   1868         assert self.handles is not None
   1869         for key in ("storage_options", "encoding", "memory_map", "compressio
n"):

~\anaconda3\lib\site-packages\pandas\io\parsers.py in _open_handles(self, src, kwds)
   1360         Let the readers open IOHanldes after they are done with their potent
ial raises.
   1361         """
-> 1362         self.handles = get_handle(
```

```
   1363             src,
   1364             "r",

~\anaconda3\lib\site-packages\pandas\io\common.py in get_handle(path_or_buf, mode, e
ncoding, compression, memory_map, is_text, errors, storage_options)
    640                 errors = "replace"
    641             # Encoding
--> 642             handle = open(
    643                 handle,
    644                 ioargs.mode,

FileNotFoundError: [Errno 2] No such file or directory: 'Flipkart_Mobile.csv'
```

In [4]:
```
df = pd.read_csv('Flipkart Mobile.csv')
```

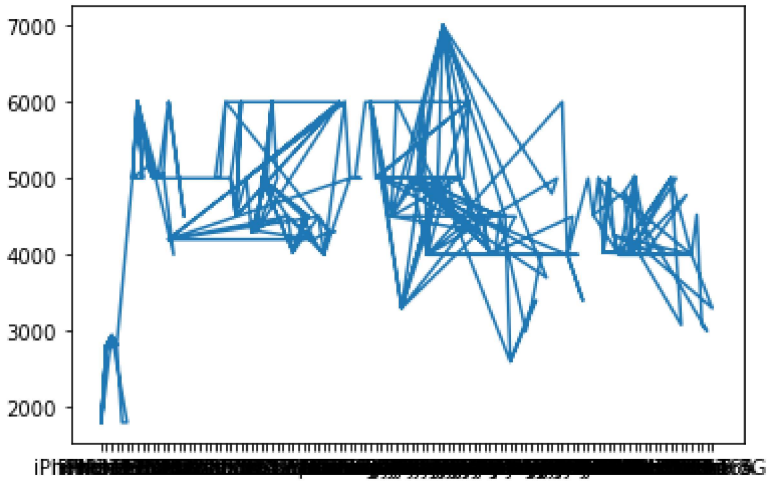
In [5]:
```
df.head()
```

Out[5]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera	n
0	Apple	iPhone SE	Black	64	2	Water	4.7	Very Small	1	
1	Apple	iPhone 12 Mini	Red	64	4	Ceramic	5.4	Small	2	
2	Apple	iPhone SE	Red	64	2	Water	4.7	Very Small	1	
3	Apple	iPhone XR	Others	64	3	iOS	6.1	Medium	1	
4	Apple	iPhone 12	Red	128	4	Ceramic	6.1	Medium	2	

In [6]:
```
plt.plot(df.model, df.battery_capacity)
```

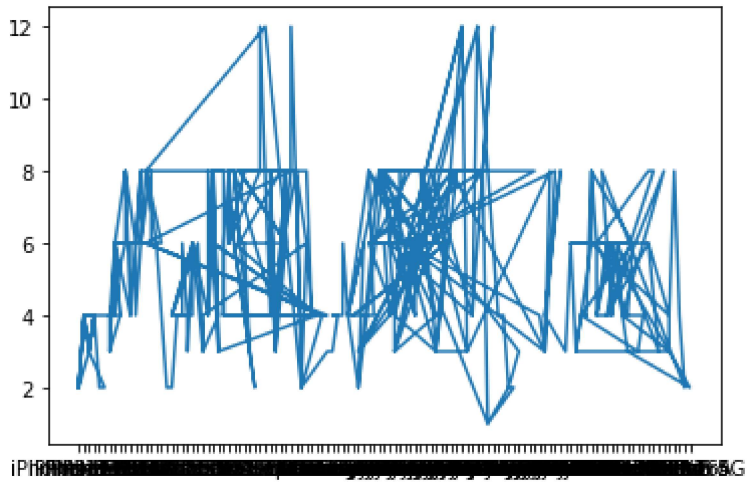
Out[6]:
```
[<matplotlib.lines.Line2D at 0x18b39831c40>]
```



In [8]:
```
plt.show()
```

In [9]:
```
plt.plot(df.model, df.RAM)
```

Out[9]:
```
[<matplotlib.lines.Line2D at 0x18b39a43790>]
```



In [10]:
```
df.model
```

Out[10]:
```
0           iPhone SE
1      iPhone 12 Mini
2           iPhone SE
3           iPhone XR
4           iPhone 12
             ...
425       Redmi 6 Pro
426       Redmi 6 Pro
427        Mi 11 Lite
428     Redmi 8A Dual
429       Redmi 6 Pro
Name: model, Length: 430, dtype: object
```

In [11]:
```
df.brand
```

Out[11]:
```
0       Apple
1       Apple
2       Apple
3       Apple
4       Apple
        ...
425    Xiaomi
426    Xiaomi
427    Xiaomi
428    Xiaomi
429    Xiaomi
Name: brand, Length: 430, dtype: object
```

In [12]:
```
df.base_colour
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-12-63cd68998cf6> in <module>
----> 1 df.base_colour

~\anaconda3\lib\site-packages\pandas\core\generic.py in __getattr__(self, name)
   5463             if self._info_axis._can_hold_identifiers_and_holds_name(name):
   5464                 return self[name]
-> 5465             return object.__getattribute__(self, name)
   5466
   5467     def __setattr__(self, name: str, value) -> None:

AttributeError: 'DataFrame' object has no attribute 'base_colour'
```

In [13]:
```
df.base_color
```

Out[13]:
```
0       Black
1         Red
2         Red
3      Others
4         Red
       ...
425     Black
426       Red
427    Others
428      Blue
429      Blue
Name: base_color, Length: 430, dtype: object
```

In [14]:
```
df.base_color.iloc[3]
```

Out[14]:
```
'Others'
```

In [15]:
```
df.base_color.iloc[4]
```

Out[15]:
```
'Red'
```

In [16]:
```
df.brand == 'Apple'
```

Out[16]:
```
0       True
1       True
2       True
3       True
4       True
       ...
425    False
426    False
427    False
428    False
429    False
Name: brand, Length: 430, dtype: bool
```

In [17]:
```
realme = df[df.brand == 'realme']
```

In [18]:
```
realme
```

Out[18]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera	nu

In [19]:
```
realme = data[df.brand == 'Apple']
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-19-ab203fb3fdbf> in <module>
----> 1 realme = data[df.brand == 'Apple']

NameError: name 'data' is not defined
```

In [20]:
```
realme = df[df.brand == 'realme']
```

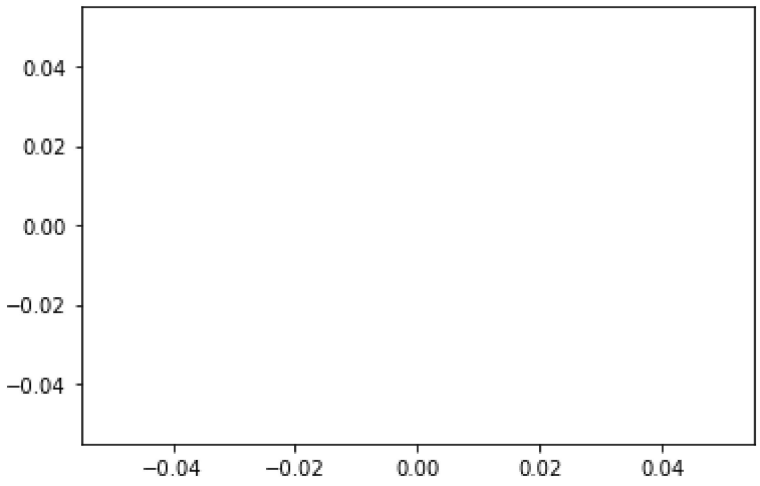
In [21]:
```
realme
```

Out[21]:

brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera	nu

In [22]:
```
plt.plot(realme.model, realme.processor)
```

Out[22]:
```
[<matplotlib.lines.Line2D at 0x18b39b13be0>]
```



In [23]:
```
apple = df[df.brand == 'Apple']
```

In [24]:
```
apple
```

Out[24]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
0	Apple	iPhone SE	Black	64	2	Water	4.7	Very Small	1
1	Apple	iPhone 12 Mini	Red	64	4	Ceramic	5.4	Small	2
2	Apple	iPhone SE	Red	64	2	Water	4.7	Very Small	1
3	Apple	iPhone XR	Others	64	3	iOS	6.1	Medium	1
4	Apple	iPhone 12	Red	128	4	Ceramic	6.1	Medium	2
5	Apple	iPhone 12	Blue	64	4	Ceramic	6.1	Medium	2
6	Apple	iPhone 12	White	128	4	Ceramic	6.1	Medium	2
7	Apple	iPhone 12	Green	64	4	Ceramic	6.1	Medium	2
8	Apple	iPhone 12	Blue	128	4	Ceramic	6.1	Medium	2
9	Apple	iPhone 12	Black	128	4	Ceramic	6.1	Medium	2

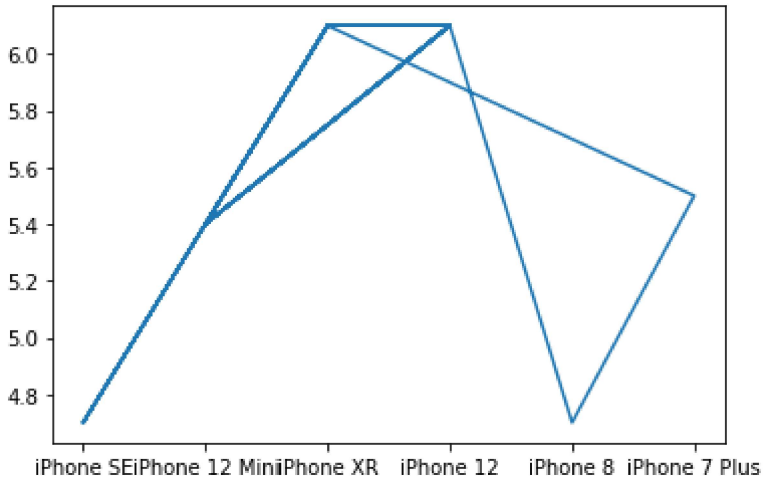
	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
10	Apple	iPhone 12 Mini	Black	64	4	Ceramic	5.4	Small	2
11	Apple	iPhone 12	Green	128	4	Ceramic	6.1	Medium	2
12	Apple	iPhone 12 Mini	White	128	4	Ceramic	5.4	Small	2
13	Apple	iPhone 12	Blue	256	4	Ceramic	6.1	Medium	2
14	Apple	iPhone 12 Mini	Black	128	4	Ceramic	5.4	Small	2
15	Apple	iPhone XR	White	128	3	Water	6.1	Medium	1
16	Apple	iPhone 12	Red	64	4	Ceramic	6.1	Medium	2
17	Apple	iPhone 12	Black	64	4	Ceramic	6.1	Medium	2
18	Apple	iPhone 12 Mini	White	64	4	Ceramic	5.4	Small	2
19	Apple	iPhone 12	Black	256	4	Ceramic	6.1	Medium	2
20	Apple	iPhone 12 Mini	Purple	256	4	Ceramic	5.4	Small	2
21	Apple	iPhone XR	Yellow	128	3	Water	6.1	Medium	1
22	Apple	iPhone 12	White	256	4	Ceramic	6.1	Medium	2
23	Apple	iPhone 12	White	64	4	Ceramic	6.1	Medium	2
24	Apple	iPhone XR	Others	128	3	iOS	6.1	Medium	1
25	Apple	iPhone XR	Black	128	3	Water	6.1	Medium	1
26	Apple	iPhone 12	Green	256	4	Ceramic	6.1	Medium	2
27	Apple	iPhone XR	Others	64	3	Water	6.1	Medium	1
28	Apple	iPhone 12 Mini	Green	64	4	Ceramic	5.4	Small	2
29	Apple	iPhone XR	Others	128	3	Water	6.1	Medium	1

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
30	Apple	iPhone 12 Mini	Blue	64	4	Ceramic	5.4	Small	2
31	Apple	iPhone 12 Mini	Red	128	4	Ceramic	5.4	Small	2
32	Apple	iPhone 12 Mini	Blue	256	4	Ceramic	5.4	Small	2
33	Apple	iPhone XR	Black	64	3	iOS	6.1	Medium	1
34	Apple	iPhone 12 Mini	White	256	4	Ceramic	5.4	Small	2
35	Apple	iPhone SE	White	64	2	Water	4.7	Very Small	1
36	Apple	iPhone 12 Mini	Red	256	4	Ceramic	5.4	Small	2
37	Apple	iPhone 12 Mini	Black	256	4	Ceramic	5.4	Small	2
38	Apple	iPhone 12 Mini	Purple	128	4	Ceramic	5.4	Small	2
39	Apple	iPhone 12 Mini	Green	256	4	Ceramic	5.4	Small	2
40	Apple	iPhone 12 Mini	Green	128	4	Ceramic	5.4	Small	2
41	Apple	iPhone 12	Red	256	4	Ceramic	6.1	Medium	2
42	Apple	iPhone 8	Gold	64	2	iOS	4.7	Very Small	1
43	Apple	iPhone 7 Plus	Black	32	2	iOS	5.5	Small	2
44	Apple	iPhone XR	Black	128	3	iOS	6.1	Medium	1
45	Apple	iPhone XR	White	128	3	iOS	6.1	Medium	1
46	Apple	iPhone XR	Yellow	128	3	iOS	6.1	Medium	1
47	Apple	iPhone XR	White	64	3	iOS	6.1	Medium	1
48	Apple	iPhone XR	White	64	3	Water	6.1	Medium	1

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
49	Apple	iPhone XR	Black	64	3	Water	6.1	Medium	1
50	Apple	iPhone XR	Blue	64	3	iOS	6.1	Medium	1
51	Apple	iPhone XR	Blue	128	3	iOS	6.1	Medium	1
52	Apple	iPhone 12	Purple	128	4	Ceramic	6.1	Medium	2
53	Apple	iPhone XR	Blue	64	3	Water	6.1	Medium	1
54	Apple	iPhone XR	Yellow	64	3	iOS	6.1	Medium	1
55	Apple	iPhone 12	Purple	256	4	Ceramic	6.1	Medium	2

In [25]:
```
plt.plot(apple.model, apple.display_size)
```

Out[25]:
```
[<matplotlib.lines.Line2D at 0x18b39b73ca0>]
```



In [26]:
```
plt.plot(apple.model, apple.rating)
```

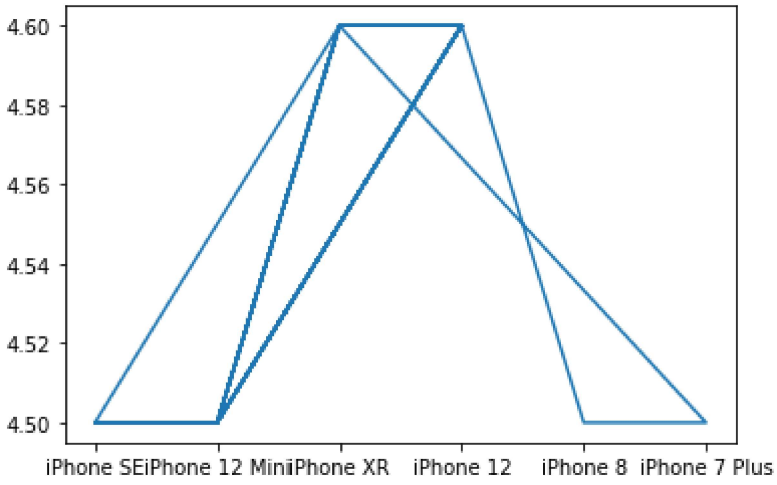
```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-26-466d0c3d7fb4> in <module>
----> 1 plt.plot(apple.model, apple.rating)

~\anaconda3\lib\site-packages\pandas\core\generic.py in __getattr__(self, name)
   5463             if self._info_axis._can_hold_identifiers_and_holds_name(name):
   5464                 return self[name]
-> 5465             return object.__getattribute__(self, name)
   5466
   5467     def __setattr__(self, name: str, value) -> None:

AttributeError: 'DataFrame' object has no attribute 'rating'
```

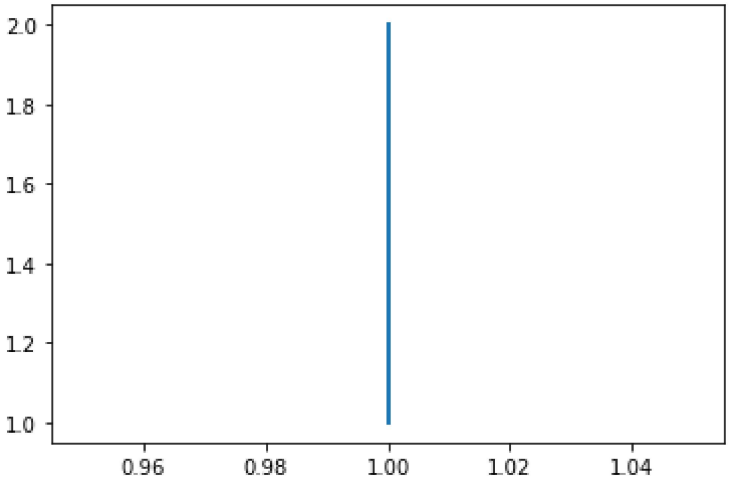
In [27]:
```
plt.plot(apple.model, apple.ratings)
```

Out[27]: [<matplotlib.lines.Line2D at 0x18b39d063d0>]



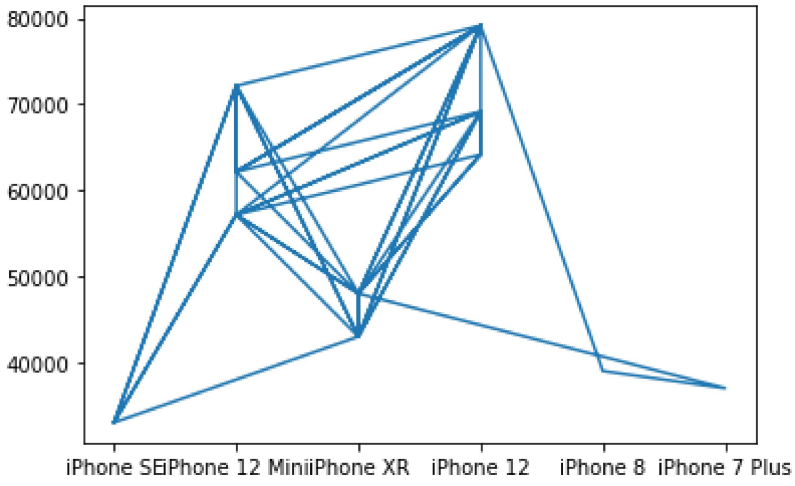
In [28]:
```
plt.plot(apple.num_front_camera, apple.num_rear_camera)
```

Out[28]: [<matplotlib.lines.Line2D at 0x18b39d5c5e0>]



In [29]:
```
plt.plot(apple.model, apple.sales_price)
```

Out[29]: [<matplotlib.lines.Line2D at 0x18b3ad7dbb0>]



In [30]:
```
plt.show()
```

In [31]:

```
df.head()
```

Out[31]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera	n
0	Apple	iPhone SE	Black	64	2	Water	4.7	Very Small	1	
1	Apple	iPhone 12 Mini	Red	64	4	Ceramic	5.4	Small	2	
2	Apple	iPhone SE	Red	64	2	Water	4.7	Very Small	1	
3	Apple	iPhone XR	Others	64	3	iOS	6.1	Medium	1	
4	Apple	iPhone 12	Red	128	4	Ceramic	6.1	Medium	2	

In [32]:

```
realme = df[df.brand == 'Realme']
```

In [33]:

```
realme
```

Out[33]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
112	Realme	C20	Blue	32	2	MediaTek	6.5	Large	1
113	Realme	C20	Gray	32	2	MediaTek	6.5	Large	1
114	Realme	C11 2021	Gray	32	2	Others	6.5	Large	1
115	Realme	C11 2021	Blue	32	2	Others	6.5	Large	1
116	Realme	C21Y	Black	64	4	Others	6.5	Large	3
...	...	...	...	...	...	...	...	...	...
245	Realme	Narzo 10A	Blue	32	3	MediaTek	6.5	Large	3
246	Realme	Narzo 20A	Silver	32	3	Qualcomm	6.5	Large	3
247	Realme	Narzo 10	Green	128	4	MediaTek	6.5	Large	4
248	Realme	Narzo 10	White	128	4	MediaTek	6.5	Large	4
249	Realme	Narzo 20A	Silver	64	4	Qualcomm	6.5	Large	3

138 rows × 15 columns

In [34]:

```
plt.plot(realme.model, reamle.processor)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-34-53fc52b9a22b> in <module>
----> 1 plt.plot(realme.model, reamle.processor)

NameError: name 'reamle' is not defined
```

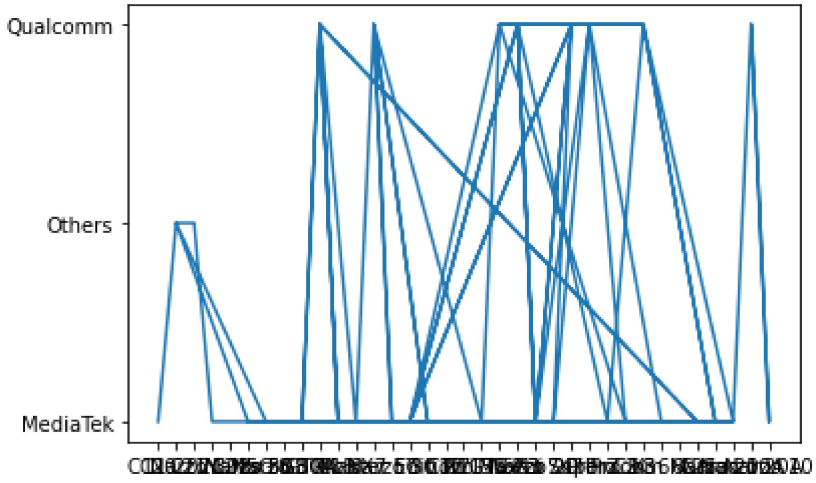
In [35]:
```
plt.plot(reamle.model, realme.processor)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-35-de1afbb3000a> in <module>
----> 1 plt.plot(reamle.model, realme.processor)

NameError: name 'reamle' is not defined
```

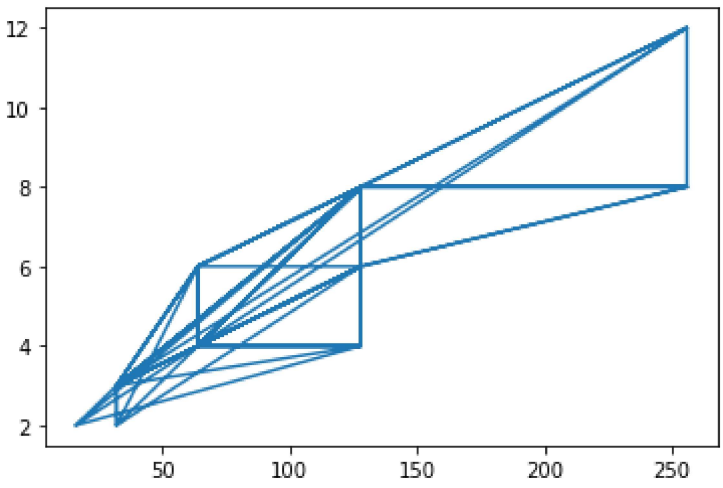
In [36]:
```
plt.plot(realme.model, realme.processor)
```

Out[36]:
```
[<matplotlib.lines.Line2D at 0x18b3addcca0>]
```

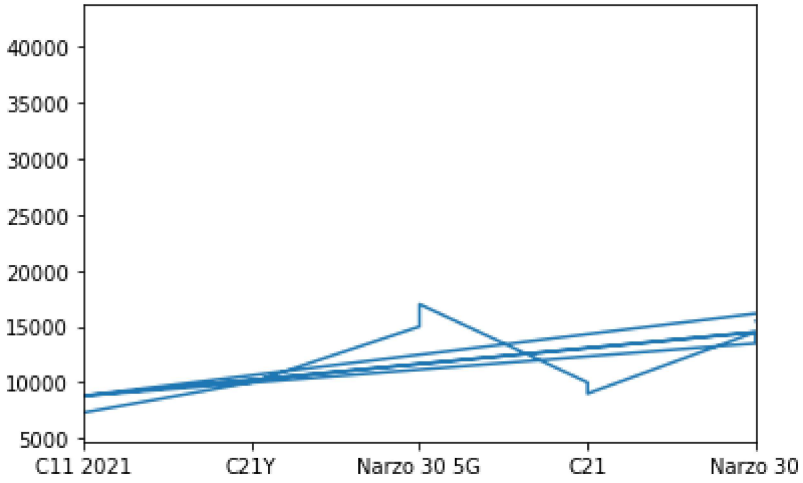


In [37]:
```
plt.plot(realme.ROM, realme.RAM)
```

Out[37]:
```
[<matplotlib.lines.Line2D at 0x18b3ae6d430>]
```



In [39]:
```
plt.plot(realme.model, realme.sales_price)
plt.xlim([1,5])
plt.show()
```



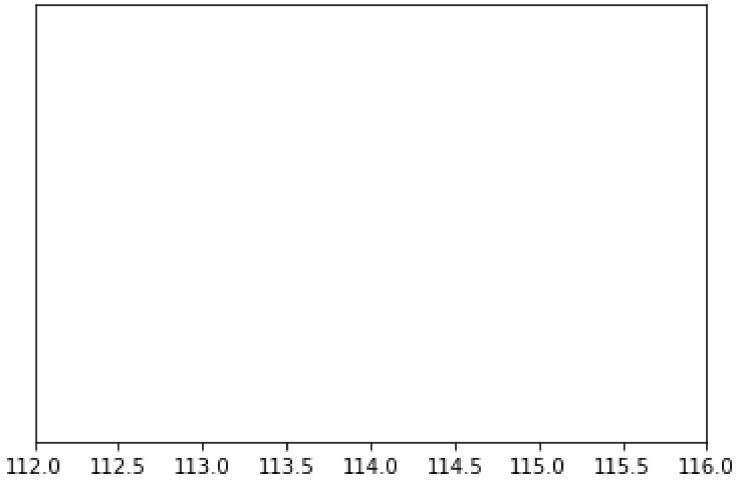
In [40]:
```
realme
```

Out[40]:

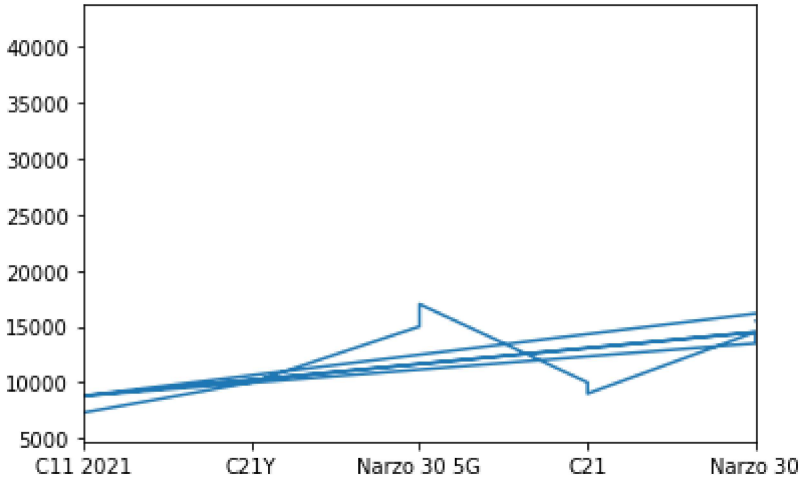
	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
112	Realme	C20	Blue	32	2	MediaTek	6.5	Large	1
113	Realme	C20	Gray	32	2	MediaTek	6.5	Large	1
114	Realme	C11 2021	Gray	32	2	Others	6.5	Large	1
115	Realme	C11 2021	Blue	32	2	Others	6.5	Large	1
116	Realme	C21Y	Black	64	4	Others	6.5	Large	3
...	...	...	...	...	...	...	...	...	..
245	Realme	Narzo 10A	Blue	32	3	MediaTek	6.5	Large	3
246	Realme	Narzo 20A	Silver	32	3	Qualcomm	6.5	Large	3
247	Realme	Narzo 10	Green	128	4	MediaTek	6.5	Large	4
248	Realme	Narzo 10	White	128	4	MediaTek	6.5	Large	4
249	Realme	Narzo 20A	Silver	64	4	Qualcomm	6.5	Large	3

138 rows × 15 columns

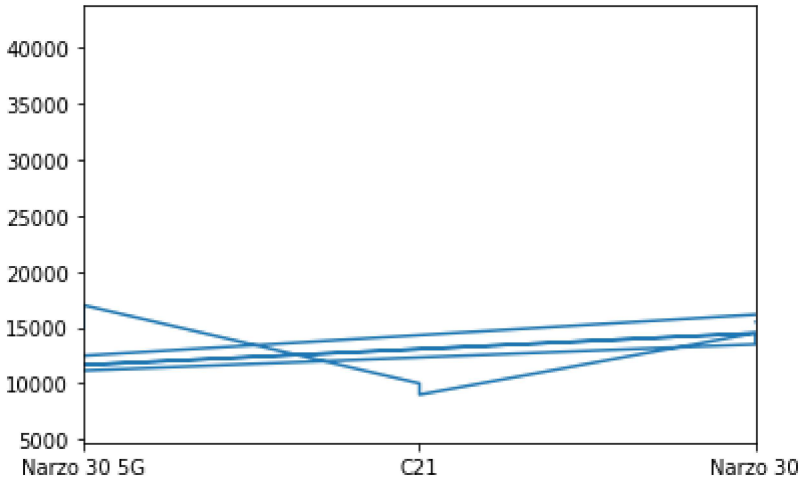
In [43]:
```
plt.plot(realme.sales_price, realme.model)
plt.ylim([112,116])
plt.xlim([112,116])
plt.show()
```



In [44]:
```
plt.plot(realme.model, realme.sales_price)
plt.xlim([1,5])
plt.show()
```

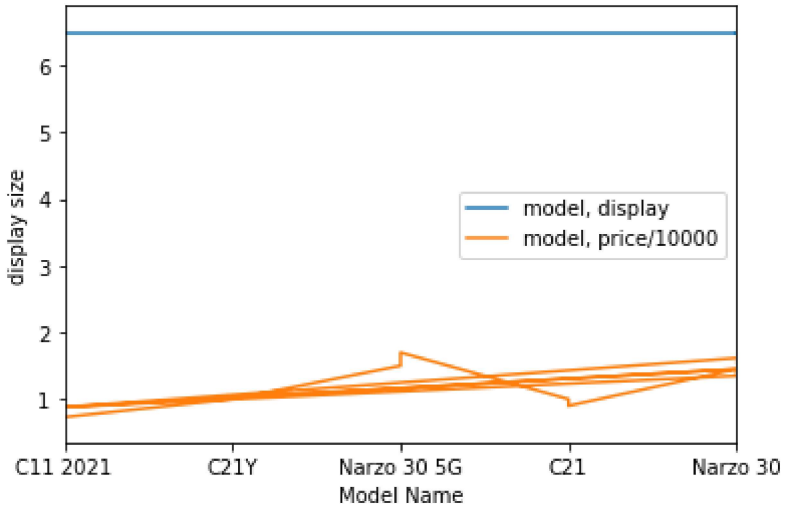


In [45]:
```
plt.plot(realme.model, realme.sales_price)
plt.xlim([3,5])
plt.show()
```



In [49]:
```
plt.plot(realme.model, realme.display_size)
plt.plot(realme.model, realme.sales_price/10000)
plt.xlabel("Model Name")
plt.ylabel("display size")
plt.legend(["model, display", "model, price/10000"])
```

```
plt.xlim([1,5])
plt.show()
```

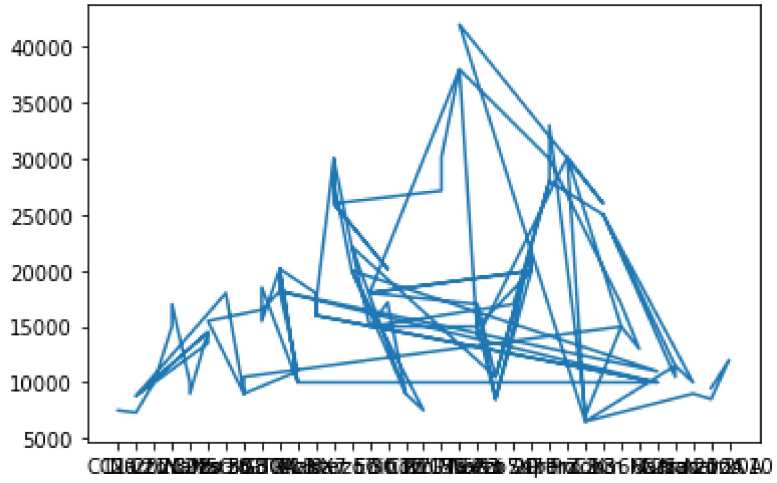


In [50]:

```
plt.plot(realme.model, realme.sales_price)
plt.arrow()
plt.xlim([1,5])
plt.show()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-50-f58040094dbf> in <module>
      1 plt.plot(realme.model, realme.sales_price)
----> 2 plt.arrow()
      3 plt.xlim([1,5])
      4 plt.show()

TypeError: arrow() missing 4 required positional arguments: 'x', 'y', 'dx', and 'dy'
```

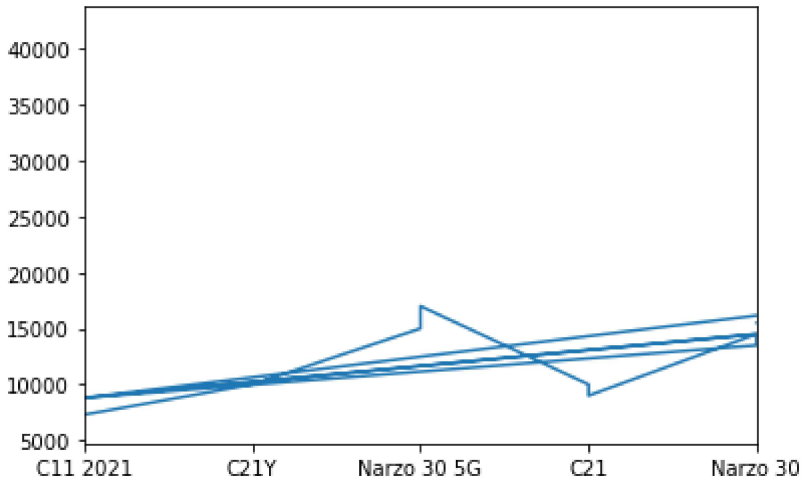


In [51]:

```
plt.plot(realme.model, realme.sales_price)
plt.xlim([1,5])
plt.arrow(x,y)
plt.show()
```

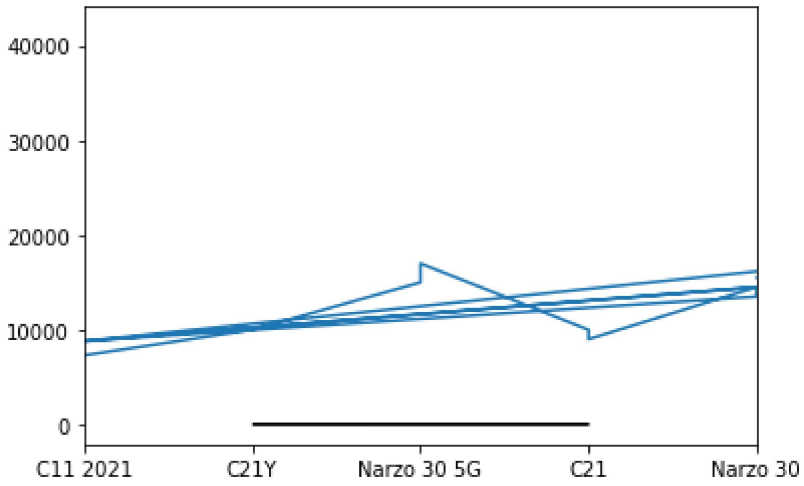
```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-51-ebad024aed0d> in <module>
      1 plt.plot(realme.model, realme.sales_price)
      2 plt.xlim([1,5])
----> 3 plt.arrow(x,y)
      4 plt.show()
```

```
NameError: name 'x' is not defined
```



In [52]:

```
plt.plot(realme.model, realme.sales_price)
plt.xlim([1,5])
plt.arrow(2,4,2,2)
plt.show()
```

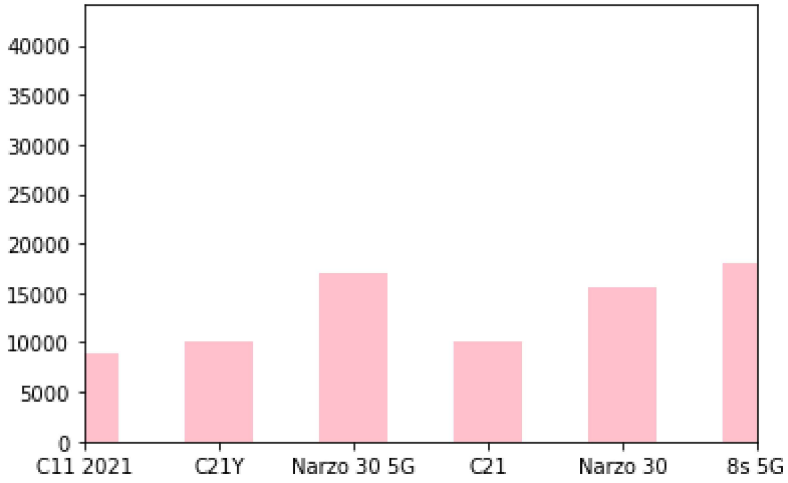


In [65]:

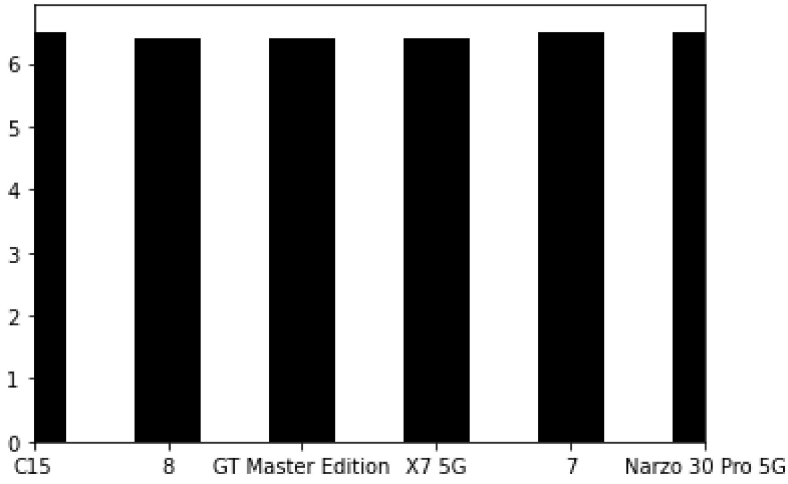
```
plt.bar(realme.model, realme.sales_price, color = "pink", width = 0.5)
plt.xlim([1,6])
plt.bar_label("C21")
plt.show()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-65-d03a5db8f1d4> in <module>
      1 plt.bar(realme.model, realme.sales_price, color = "pink", width = 0.5)
      2 plt.xlim([1,6])
----> 3 plt.bar_label("C21")
      4 plt.show()

AttributeError: module 'matplotlib.pyplot' has no attribute 'bar_label'
```



In [73]:
```
plt.bar(realme.model, realme.display_size, color = 'black', width = 0.5)
plt.xlim([10,15])
plt.show()
```



In [74]:
```
realme
```

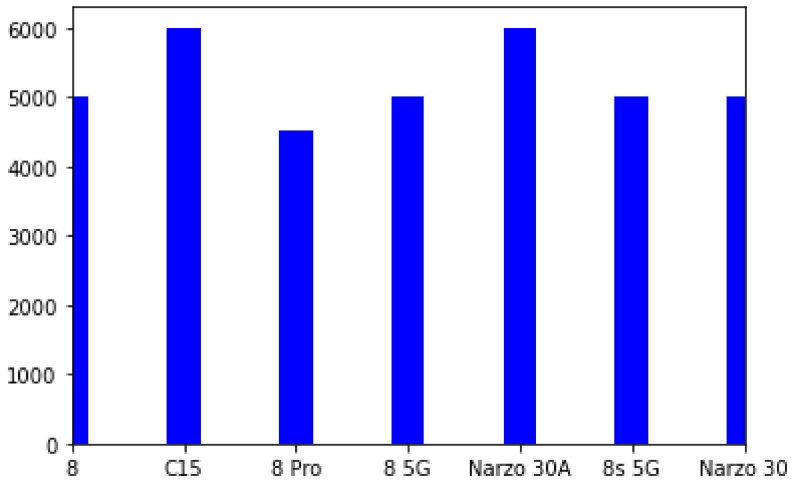
Out[74]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
112	Realme	C20	Blue	32	2	MediaTek	6.5	Large	1
113	Realme	C20	Gray	32	2	MediaTek	6.5	Large	1
114	Realme	C11 2021	Gray	32	2	Others	6.5	Large	1
115	Realme	C11 2021	Blue	32	2	Others	6.5	Large	1
116	Realme	C21Y	Black	64	4	Others	6.5	Large	3
...	...	...	...	...	...	...	...	...	..
245	Realme	Narzo 10A	Blue	32	3	MediaTek	6.5	Large	3
246	Realme	Narzo 20A	Silver	32	3	Qualcomm	6.5	Large	3
247	Realme	Narzo 10	Green	128	4	MediaTek	6.5	Large	4

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
248	Realme	Narzo 10	White	128	4	MediaTek	6.5	Large	4
249	Realme	Narzo 20A	Silver	64	4	Qualcomm	6.5	Large	3

138 rows × 15 columns

In [79]:
```
plt.bar( realme.model,realme.battery_capacity, color = 'blue', width = 0.3)
plt.xlim([11,5])
plt.show()
```



In [80]:
```
realme.iloc[2]
```

Out[80]:
```
brand                Realme
model              C11 2021
base_color             Gray
ROM                      32
RAM                       2
processor            Others
display_size            6.5
screen_size           Large
num_rear_camera           1
num_front_camera          1
battery_capacity       5000
ratings                 4.3
num_of_ratings        19399
sales_price            7299
discount_percent       0.08
Name: 114, dtype: object
```

In [81]:
```
realme.iloc[0]
```

Out[81]:
```
brand                Realme
model                   C20
base_color             Blue
ROM                      32
RAM                       2
processor          MediaTek
display_size            6.5
screen_size           Large
num_rear_camera           1
```

```
num_front_camera           1
battery_capacity        5000
ratings                  4.4
num_of_ratings        195910
sales_price             7499
discount_percent        0.06
Name: 112, dtype: object
```

In [82]:
```
realme
```

Out[82]:

	brand	model	base_color	ROM	RAM	processor	display_size	screen_size	num_rear_camera
112	Realme	C20	Blue	32	2	MediaTek	6.5	Large	1
113	Realme	C20	Gray	32	2	MediaTek	6.5	Large	1
114	Realme	C11 2021	Gray	32	2	Others	6.5	Large	1
115	Realme	C11 2021	Blue	32	2	Others	6.5	Large	1
116	Realme	C21Y	Black	64	4	Others	6.5	Large	3
...	...	...	...	...	...	...	...	...	..
245	Realme	Narzo 10A	Blue	32	3	MediaTek	6.5	Large	3
246	Realme	Narzo 20A	Silver	32	3	Qualcomm	6.5	Large	3
247	Realme	Narzo 10	Green	128	4	MediaTek	6.5	Large	4
248	Realme	Narzo 10	White	128	4	MediaTek	6.5	Large	4
249	Realme	Narzo 20A	Silver	64	4	Qualcomm	6.5	Large	3

138 rows × 15 columns

In [83]:
```
realme.ROM
```

Out[83]:
```
112     32
113     32
114     32
115     32
116     64
      ...
245     32
246     32
247    128
248    128
249     64
Name: ROM, Length: 138, dtype: int64
```

In [84]:
```
realme.model.iloc[5]
```

Out[84]:
```
'C21Y'
```

In [85]:
```
# here we can get battery capacity of any model
```

In [86]:
```
realme.battery_capacity.iloc[8]
```

Out[86]:
```
5000
```

In [ ]:
```

```