pandas_basic

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1 Pandas - Basics

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Github: https://github.com/sandeeppreetam/python_notebooks/blob/main/Pandas%20Basics.ipynb

[40]:
```
import pandas as pd
import warnings

pd.set_option('display.max_rows', 10)
warnings.filterwarnings("ignore")
```

2 Creating DataFrame

[2]:
```
# Empty Dataframe

df = pd.DataFrame(columns=['Name', 'Grade'])
df
```

[2]:
```
Empty DataFrame
Columns: [Name, Grade]
Index: []
```

[3]:
```
# List of Lists

lst = [['Name', 'Grade'],['Sandeep', 'F'],['Sam', 'A+']]

df = pd.DataFrame(lst[1:], columns=lst[0])
df
```

[3]:
```
      Name Grade
0  Sandeep     F
1      Sam    A+
```

[4]:
```
# Dictionary
# Keys - Column Names
# Values - List - Row Items
```

```
dic = {
     'Names' : ['Sandeep', 'Sam']
    ,'Grade' : ['F', 'A+']
}

df = pd.DataFrame(dic)
df
```

[4]:
```
     Names Grade
0  Sandeep     F
1      Sam    A+
```

[5]:
```
# Reading Data
pokemon_url = 'https://gist.githubusercontent.com/armgilles/
 ↪194bcff35001e7eb53a2a8b441e8b2c6/raw/
 ↪92200bc0a673d5ce2110aaad4544ed6c4010f687/pokemon.csv'

df = pd.read_csv(pokemon_url)
```

3 Exploring DataFrame

[6]:
```
# Sample Data
df.tail(5)
df.head(3)
```

[6]:
```
   #       Name Type 1  Type 2  Total  HP  Attack  Defense  Sp. Atk  Sp. Def  \
0  1  Bulbasaur  Grass  Poison    318  45      49       49       65       65
1  2    Ivysaur  Grass  Poison    405  60      62       63       80       80
2  3   Venusaur  Grass  Poison    525  80      82       83      100      100

   Speed  Generation  Legendary
0     45           1      False
1     60           1      False
2     80           1      False
```

[7]:
```
# Num of Rows and Columns
df.shape
```

[7]:
```
(800, 13)
```

[8]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 800 entries, 0 to 799
Data columns (total 13 columns):
 #   Column      Non-Null Count  Dtype
---  ------      --------------  -----
```

```
 0   #           800 non-null    int64
 1   Name        800 non-null    object
 2   Type 1      800 non-null    object
 3   Type 2      414 non-null    object
 4   Total       800 non-null    int64
 5   HP          800 non-null    int64
 6   Attack      800 non-null    int64
 7   Defense     800 non-null    int64
 8   Sp. Atk     800 non-null    int64
 9   Sp. Def     800 non-null    int64
 10  Speed       800 non-null    int64
 11  Generation  800 non-null    int64
 12  Legendary   800 non-null    bool
dtypes: bool(1), int64(9), object(3)
memory usage: 75.9+ KB
```

[9]:
```
# Stats
df.describe()
```

[9]:
```
                #      Total          HP      Attack     Defense     Sp. Atk  \
count  800.000000  800.00000  800.000000  800.000000  800.000000  800.000000
mean   362.813750  435.10250   69.258750   79.001250   73.842500   72.820000
std    208.343798  119.96304   25.534669   32.457366   31.183501   32.722294
min      1.000000  180.00000    1.000000    5.000000    5.000000   10.000000
25%    184.750000  330.00000   50.000000   55.000000   50.000000   49.750000
50%    364.500000  450.00000   65.000000   75.000000   70.000000   65.000000
75%    539.250000  515.00000   80.000000  100.000000   90.000000   95.000000
max    721.000000  780.00000  255.000000  190.000000  230.000000  194.000000

          Sp. Def       Speed  Generation
count  800.000000  800.000000   800.00000
mean    71.902500   68.277500     3.32375
std     27.828916   29.060474     1.66129
min     20.000000    5.000000     1.00000
25%     50.000000   45.000000     2.00000
50%     70.000000   65.000000     3.00000
75%     90.000000   90.000000     5.00000
max    230.000000  180.000000     6.00000
```

[10]:
```
# Unique Values
df.nunique()
```

[10]:
```
#             721
Name          800
Type 1         18
Type 2         18
Total         200
             …
```

```
Sp. Atk       105
Sp. Def        92
Speed         108
Generation      6
Legendary       2
Length: 13, dtype: int64
```

[11]:
```
# Null Values
df.isna().sum()
```

[11]:
```
#               0
Name            0
Type 1          0
Type 2        386
Total           0
             …
Sp. Atk         0
Sp. Def         0
Speed           0
Generation      0
Legendary       0
Length: 13, dtype: int64
```

4 Filtering Data

[12]:
```
# Boolean Indexing

df[['Name', 'Type 1']]

df[(df['Type 1'] == 'Grass') & (df['Type 2'] == 'Poison')]

df[(df['Type 1'] == 'Grass') & (df['Type 2'] == 'Poison')][['Name', 'HP']]
```

[12]:
```
                         Name   HP
0                   Bulbasaur   45
1                     Ivysaur   60
2                    Venusaur   80
3       VenusaurMega Venusaur   80
48                     Oddish   45
..                        …    …
344                   Roselia   50
451                     Budew   40
452                  Roserade   60
651                  Foongus    69
652                Amoonguss   114
```

```
[15 rows x 2 columns]
```

[13]:
```
# Query

df.query("`Type 1` == 'Fire'")

max_hp = 200

df.query('HP > @max_hp')
```

[13]:
```
       #     Name  Type 1 Type 2  Total   HP  Attack  Defense  Sp. Atk  \
121  113  Chansey  Normal    NaN    450  250       5        5       35
261  242  Blissey  Normal    NaN    540  255      10       10       75

     Sp. Def  Speed  Generation  Legendary
121      105     50           1      False
261      135     55           2      False
```

[14]:
```
# loc and iloc

df.loc[0:10:3,'Name':'Speed']

df.loc[[0,6,9],['Name', 'Type 1', 'HP', 'Attack', 'Speed']]

df.iloc[0:100:3, 0:10:2]
```

[14]:
```
     #  Type 1  Total  Attack  Sp. Atk
0    1   Grass    318      49       65
3    3   Grass    625     100      122
6    6    Fire    534      84      109
9    7   Water    314      48       50
12   9   Water    630     103      135
..  ..     …      …       …        …
87  80   Water    590      75      130
90  83  Normal    352      65       58
93  86   Water    325      45       45
96  89  Poison    500     105       65
99  92   Ghost    310      35      100

[34 rows x 5 columns]
```

5 Sorting

[15]:
```
df.sort_index()
df[['Name', 'HP', 'Attack']].sort_values(by = ['HP', 'Attack'], ascending =␣
 ↪[False, True])
```

```
[15]:          Name   HP  Attack
     261    Blissey  255      10
     121    Chansey  250       5
     217  Wobbuffet  190      33
     351    Wailord  170      90
     655  Alomomola  165      75
     ..         ...  ...     ...
     487   Mime Jr.   20      25
     186      Pichu   20      40
     388    Duskull   20      40
     55     Diglett   10      55
     316   Shedinja    1      90

     [800 rows x 3 columns]
```

6 Derived Columns

```
[16]: df['Special_Index'] = df['HP'] * df ['Attack']
      df
```

```
[16]:        #                   Name   Type 1  Type 2  Total  HP  Attack  Defense  \
     0      1              Bulbasaur    Grass  Poison    318  45      49       49
     1      2                Ivysaur    Grass  Poison    405  60      62       63
     2      3               Venusaur    Grass  Poison    525  80      82       83
     3      3  VenusaurMega Venusaur    Grass  Poison    625  80     100      123
     4      4             Charmander     Fire     NaN    309  39      52       43
     ..   ...                    ...      ...     ...    ...  ..     ...
     795  719                Diancie     Rock   Fairy    600  50     100      150
     796  719    DiancieMega Diancie     Rock   Fairy    700  50     160      110
     797  720    HoopaHoopa Confined  Psychic   Ghost    600  80     110       60
     798  720     HoopaHoopa Unbound  Psychic    Dark    680  80     160       60
     799  721              Volcanion     Fire   Water    600  80     110      120

          Sp. Atk  Sp. Def  Speed  Generation  Legendary  Special_Index
     0         65       65     45           1      False           2205
     1         80       80     60           1      False           3720
     2        100      100     80           1      False           6560
     3        122      120     80           1      False           8000
     4         60       50     65           1      False           2028
     ..       ...      ...    ...         ...        ...            ...
     795      100      150     50           6       True           5000
     796      160      110    110           6       True           8000
     797      150      130     70           6       True           8800
     798      170      130     80           6       True          12800
     799      130       90     70           6       True           8800

     [800 rows x 14 columns]
```

```
[17]: df.rename(columns = {'Special_Index': 'power_index'})
```

```
[17]:        #                       Name   Type 1  Type 2  Total  HP  Attack  Defense  \
     0      1                  Bulbasaur    Grass  Poison    318  45      49       49
     1      2                    Ivysaur    Grass  Poison    405  60      62       63
     2      3                   Venusaur    Grass  Poison    525  80      82       83
     3      3      VenusaurMega Venusaur    Grass  Poison    625  80     100      123
     4      4                 Charmander     Fire     NaN    309  39      52       43
     ..   …                          …       …      …    …  ..     …       …
     795  719                    Diancie     Rock   Fairy    600  50     100      150
     796  719        DiancieMega Diancie     Rock   Fairy    700  50     160      110
     797  720        HoopaHoopa Confined  Psychic   Ghost    600  80     110       60
     798  720         HoopaHoopa Unbound  Psychic    Dark    680  80     160       60
     799  721                  Volcanion     Fire   Water    600  80     110      120

          Sp. Atk  Sp. Def  Speed  Generation  Legendary  power_index
     0         65       65     45           1      False         2205
     1         80       80     60           1      False         3720
     2        100      100     80           1      False         6560
     3        122      120     80           1      False         8000
     4         60       50     65           1      False         2028
     ..       …      …    …         …        …          …
     795      100      150     50           6       True         5000
     796      160      110    110           6       True         8000
     797      150      130     70           6       True         8800
     798      170      130     80           6       True        12800
     799      130       90     70           6       True         8800

     [800 rows x 14 columns]
```

7 Aggregations

```
[18]: df.HP.mean()
```

```
[18]: 69.25875
```

```
[19]: df[df.HP == df.HP.min()]
```

```
[19]:        #      Name Type 1 Type 2  Total  HP  Attack  Defense  Sp. Atk  \
     316  292  Shedinja     Bug  Ghost    236   1      90       45       30

          Sp. Def  Speed  Generation  Legendary  Special_Index
     316       30     40           3      False             90
```

```
[20]: df.describe()
```

[20]:
```
                #      Total          HP      Attack     Defense     Sp. Atk  \
count  800.000000  800.00000  800.000000  800.000000  800.000000  800.000000
mean   362.813750  435.10250   69.258750   79.001250   73.842500   72.820000
std    208.343798  119.96304   25.534669   32.457366   31.183501   32.722294
min      1.000000  180.00000    1.000000    5.000000    5.000000   10.000000
25%    184.750000  330.00000   50.000000   55.000000   50.000000   49.750000
50%    364.500000  450.00000   65.000000   75.000000   70.000000   65.000000
75%    539.250000  515.00000   80.000000  100.000000   90.000000   95.000000
max    721.000000  780.00000  255.000000  190.000000  230.000000  194.000000

           Sp. Def       Speed  Generation  Special_Index
count  800.000000  800.000000   800.00000     800.000000
mean    71.902500   68.277500     3.32375    5821.158750
std     27.828916   29.060474     1.66129    3724.069946
min     20.000000    5.000000     1.00000      90.000000
25%     50.000000   45.000000     2.00000    3000.000000
50%     70.000000   65.000000     3.00000    5100.000000
75%     90.000000   90.000000     5.00000    7906.000000
max    230.000000  180.000000     6.00000   24000.000000
```

[21]:
```
df.agg(
{
    'HP': ['min', 'max']
    ,'Attack' : ['mean']
    ,'Defense' : ['median']
}
)
```

[21]:
```
           HP    Attack  Defense
min       1.0       NaN      NaN
max     255.0       NaN      NaN
mean      NaN  79.00125      NaN
median    NaN       NaN     70.0
```

[22]:
```
df.groupby('Type 1').mean()
```

[22]:
```
                   #       Total         HP      Attack     Defense  \
Type 1
Bug       334.492754  378.927536  56.884058   70.971014   70.724638
Dark      461.354839  445.741935  66.806452   88.387097   70.225806
Dragon    474.375000  550.531250  83.312500  112.125000   86.375000
Electric  363.500000  443.409091  59.795455   69.090909   66.295455
Fairy     449.529412  413.176471  74.117647   61.529412   65.705882
…                …           …          …         …           …
Poison    251.785714  399.142857  67.250000   74.678571   68.821429
Psychic   380.807018  475.947368  70.631579   71.456140   67.684211
Rock      392.727273  453.750000  65.363636   92.863636  100.795455
```

```
Steel     442.851852  487.703704  65.222222   92.703704  126.370370
Water     303.089286  430.455357  72.062500   74.151786   72.946429

            Sp. Atk     Sp. Def      Speed  Generation  Legendary  \
Type 1
Bug       53.869565  64.797101  61.681159    3.217391   0.000000
Dark      74.645161  69.516129  76.161290    4.032258   0.064516
Dragon    96.843750  88.843750  83.031250    3.875000   0.375000
Electric  90.022727  73.704545  84.500000    3.272727   0.090909
Fairy     78.529412  84.705882  48.588235    4.117647   0.058824
…               …          …          …          …          …
Poison    60.428571  64.392857  63.571429    2.535714   0.000000
Psychic   98.403509  86.280702  81.491228    3.385965   0.245614
Rock      63.340909  75.477273  55.909091    3.454545   0.090909
Steel     67.518519  80.629630  55.259259    3.851852   0.148148
Water     74.812500  70.517857  65.964286    2.857143   0.035714

          Special_Index
Type 1
Bug         4370.333333
Dark        6125.709677
Dragon      9925.250000
Electric    4421.659091
Fairy       5089.235294
…                   …
Poison      5291.607143
Psychic     5356.421053
Rock        6465.977273
Steel       6263.740741
Water       5663.651786

[18 rows x 11 columns]
```

[23]:
```python
df.groupby(['Type 1', 'Type 2'])['HP', 'Attack', 'Defense'].mean()
```

```
<ipython-input-23-5cd67bc49d54>:1: FutureWarning: Indexing with multiple keys
(implicitly converted to a tuple of keys) will be deprecated, use a list
instead.
  df.groupby(['Type 1', 'Type 2'])['HP', 'Attack', 'Defense'].mean()
```

[23]:
```
                          HP      Attack     Defense
Type 1 Type 2
Bug    Electric  60.000000   62.000000   55.000000
       Fighting  80.000000  155.000000   95.000000
       Fire      70.000000   72.500000   60.000000
       Flying    63.000000   70.142857   61.571429
       Ghost      1.000000   90.000000   45.000000
…                      …          …          …
```

```
Water   Ice        90.000000   83.333333  113.333333
        Poison     61.666667   68.333333   58.333333
        Psychic    87.000000   73.000000  104.000000
        Rock       70.750000   82.750000  112.750000
        Steel      84.000000   86.000000   88.000000

[136 rows x 3 columns]
```

[24]:
```
df.pivot_table(values = 'HP', index = 'Type 1', columns = 'Type 2', aggfunc=␣
 ↪'max')
```

[24]:
```
Type 2     Bug   Dark  Dragon  Electric  Fairy  Fighting   Fire  Flying  \
Type 1
Bug        NaN    NaN     NaN      70.0    NaN      80.0   85.0    86.0
Dark       NaN    NaN    92.0       NaN    NaN      65.0   75.0   126.0
Dragon     NaN    NaN     NaN     100.0   75.0       NaN  100.0   105.0
Electric   NaN    NaN    90.0       NaN   67.0       NaN   50.0    90.0
Fairy      NaN    NaN     NaN       NaN    NaN       NaN    NaN    85.0
…          …     …       …         …     …          …     …       …
Poison    40.0  103.0    65.0       NaN    NaN      83.0    NaN    85.0
Psychic    NaN   80.0     NaN       NaN   68.0     106.0  100.0   106.0
Rock      75.0  100.0    82.0       NaN   50.0      91.0    NaN    80.0
Steel      NaN    NaN   100.0       NaN   57.0      91.0    NaN    65.0
Water      NaN   95.0    90.0     125.0  100.0      91.0    NaN    95.0

Type 2    Ghost  Grass  Ground    Ice  Normal  Poison  Psychic   Rock  Steel  \
Type 1
Bug         1.0   75.0    60.0    NaN     NaN    70.0      NaN   70.0   75.0
Dark       50.0    NaN     NaN   70.0     NaN     NaN     86.0    NaN   65.0
Dragon      NaN    NaN   108.0  125.0     NaN     NaN     80.0    NaN    NaN
Electric   50.0   50.0     NaN   50.0    62.0     NaN      NaN    NaN   70.0
Fairy       NaN    NaN     NaN    NaN     NaN     NaN      NaN    NaN    NaN
…          …     …      …       …     …       …      …        …     …
Poison      NaN    NaN    90.0    NaN     NaN     NaN      NaN    NaN    NaN
Psychic    80.0  100.0     NaN    NaN     NaN     NaN      NaN    NaN    NaN
Rock        NaN   86.0    80.0  123.0     NaN     NaN     70.0    NaN   60.0
Steel      60.0    NaN    75.0    NaN     NaN     NaN    100.0   70.0    NaN
Water     100.0   80.0   111.0  130.0     NaN    80.0     95.0  100.0   84.0

Type 2    Water
Type 1
Bug        40.0
Dark        NaN
Dragon      NaN
Electric   50.0
Fairy       NaN
…          …
```

```
Poison      50.0
Psychic      NaN
Rock        72.0
Steel        NaN
Water        NaN

[18 rows x 18 columns]
```

8 Combining DataFrames

[25]:
```
fire_pokemon = df[df['Type 1'] == 'Fire']
water_pokemon = df[df['Type 1'] == 'Water']
```

[26]:
```
fire_water_pokemon = pd.concat([fire_pokemon, water_pokemon], axis = 0, keys =␣
↪['fire','water'])
fire_water_pokemon
```

[26]:
```
             #                       Name Type 1  Type 2  Total  HP  Attack  \
fire  4      4                 Charmander   Fire     NaN    309  39      52
      5      5                 Charmeleon   Fire     NaN    405  58      64
      6      6                  Charizard   Fire  Flying    534  78      84
      7      6  CharizardMega Charizard X   Fire  Dragon    634  78     130
      8      6  CharizardMega Charizard Y   Fire  Flying    634  78     104
…         …                         …      …      …     …  ..       …
water 724  656                    Froakie  Water     NaN    314  41      56
      725  657                  Frogadier  Water     NaN    405  54      63
      726  658                   Greninja  Water    Dark    530  72      95
      762  692                  Clauncher  Water     NaN    330  50      53
      763  693                  Clawitzer  Water     NaN    500  71      73

           Defense  Sp. Atk  Sp. Def  Speed  Generation  Legendary  \
fire  4         43       60       50     65           1      False
      5         58       80       65     80           1      False
      6         78      109       85    100           1      False
      7        111      130       85    100           1      False
      8         78      159      115    100           1      False
…             …      …      …      …      …          …
water 724       40       62       44     71           6      False
      725       52       83       56     97           6      False
      726       67      103       71    122           6      False
      762       62       58       63     44           6      False
      763       88      120       89     59           6      False

           Special_Index
fire  4             2028
      5             3712
      6             6552
      7            10140
      8             8112
…                   …
water 724           2296
      725           3402
      726           6840
      762           2650
      763           5183

[164 rows x 14 columns]
```

[27]:
```
hindi_names = pd.DataFrame({'English':['Fire', 'Water'], 'Hindi': ['Agni',␣
 ↪'Pani']})
hindi_names
```

[27]:
```
  English Hindi
0    Fire  Agni
1   Water  Pani
```

[28]:
```
pd.merge(fire_water_pokemon, hindi_names, how = 'outer', left_on = 'Type 1',␣
 ↪right_on = 'English')
```

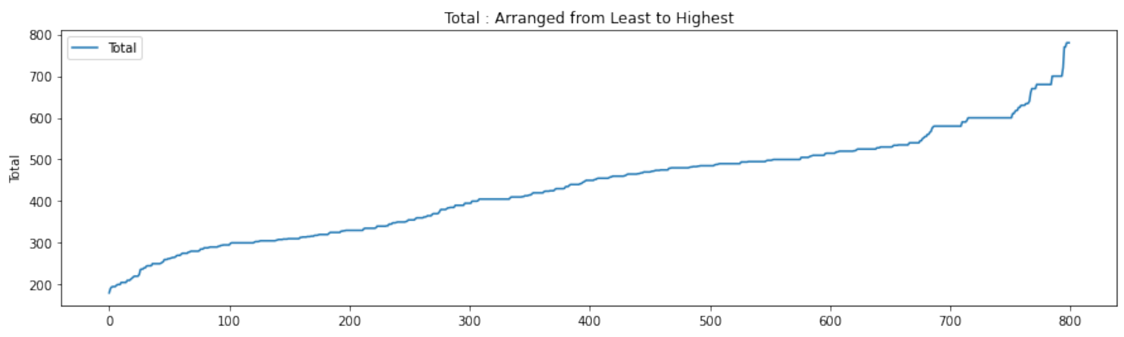
[28]:
```
       #                       Name Type 1  Type 2  Total  HP  Attack  \
0      4                 Charmander   Fire     NaN    309  39      52
1      5                 Charmeleon   Fire     NaN    405  58      64
2      6                  Charizard   Fire  Flying    534  78      84
3      6  CharizardMega Charizard X   Fire  Dragon    634  78     130
4      6  CharizardMega Charizard Y   Fire  Flying    634  78     104
..   …                          …     …      …   ..    …
159  656                    Froakie  Water     NaN    314  41      56
160  657                  Frogadier  Water     NaN    405  54      63
161  658                   Greninja  Water    Dark    530  72      95
162  692                  Clauncher  Water     NaN    330  50      53
163  693                  Clawitzer  Water     NaN    500  71      73

     Defense  Sp. Atk  Sp. Def  Speed  Generation  Legendary  Special_Index  \
0         43       60       50     65           1      False           2028
1         58       80       65     80           1      False           3712
2         78      109       85    100           1      False           6552
3        111      130       85    100           1      False          10140
4         78      159      115    100           1      False           8112
..       …        …        …      …          …         …              …
159       40       62       44     71           6      False           2296
160       52       83       56     97           6      False           3402
161       67      103       71    122           6      False           6840
162       62       58       63     44           6      False           2650
```

```
163        88       120         89      59            6       False              5183

    English Hindi
0      Fire  Agni
1      Fire  Agni
2      Fire  Agni
3      Fire  Agni
4      Fire  Agni
..      …     …
159   Water  Pani
160   Water  Pani
161   Water  Pani
162   Water  Pani
163   Water  Pani

[164 rows x 16 columns]
```

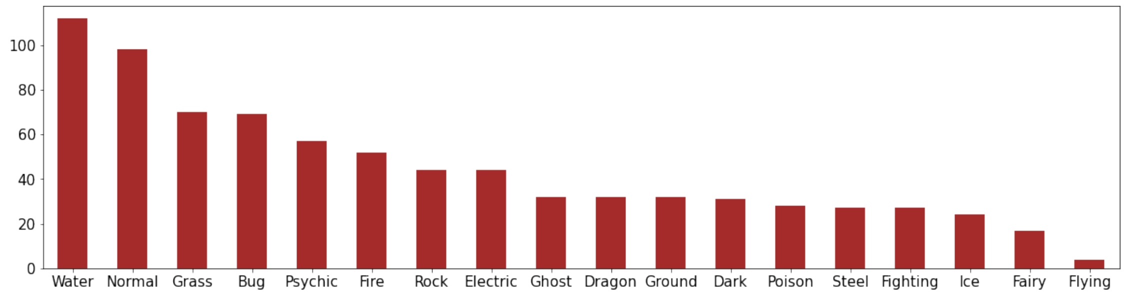
9 Plotting

1. Line
2. Bar
3. Histogram
4. Pie
5. Scatter
6. Area
7. Box Plot
8. KDE

[29]:
```
# Line
index_v_total = df.Total.sort_values().reset_index()

index_v_total
index_v_total.plot(
    kind = 'line'
    , y='Total'
    , figsize = (15,4)
    , title = 'Total : Arranged from Least to Highest'
    , ylabel = 'Total'
);
```

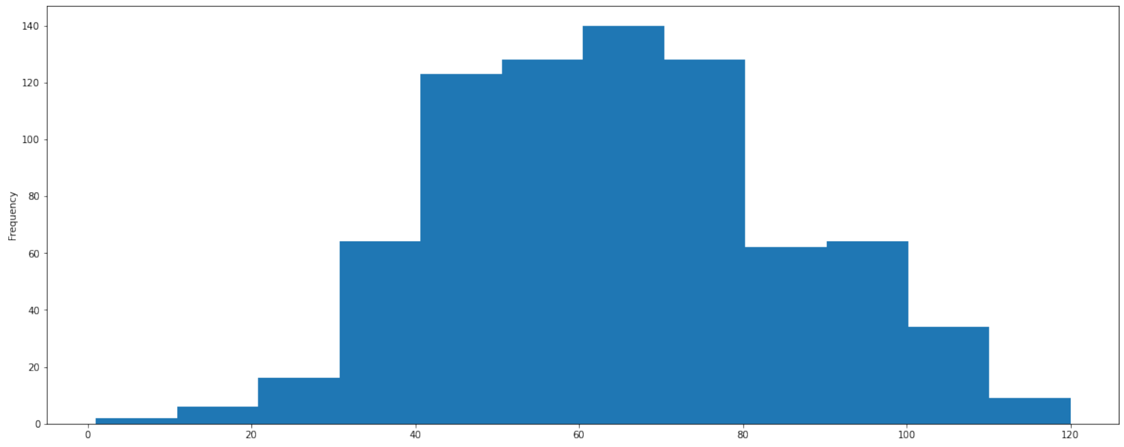


[30]:
```
# Bar

count_of_pokemon = df['Type 1'].value_counts()
count_of_pokemon.plot(
     kind = 'bar'
    , figsize = (20,5)
    ,fontsize = 15
    ,rot = 0
    ,color = 'brown'

);
```

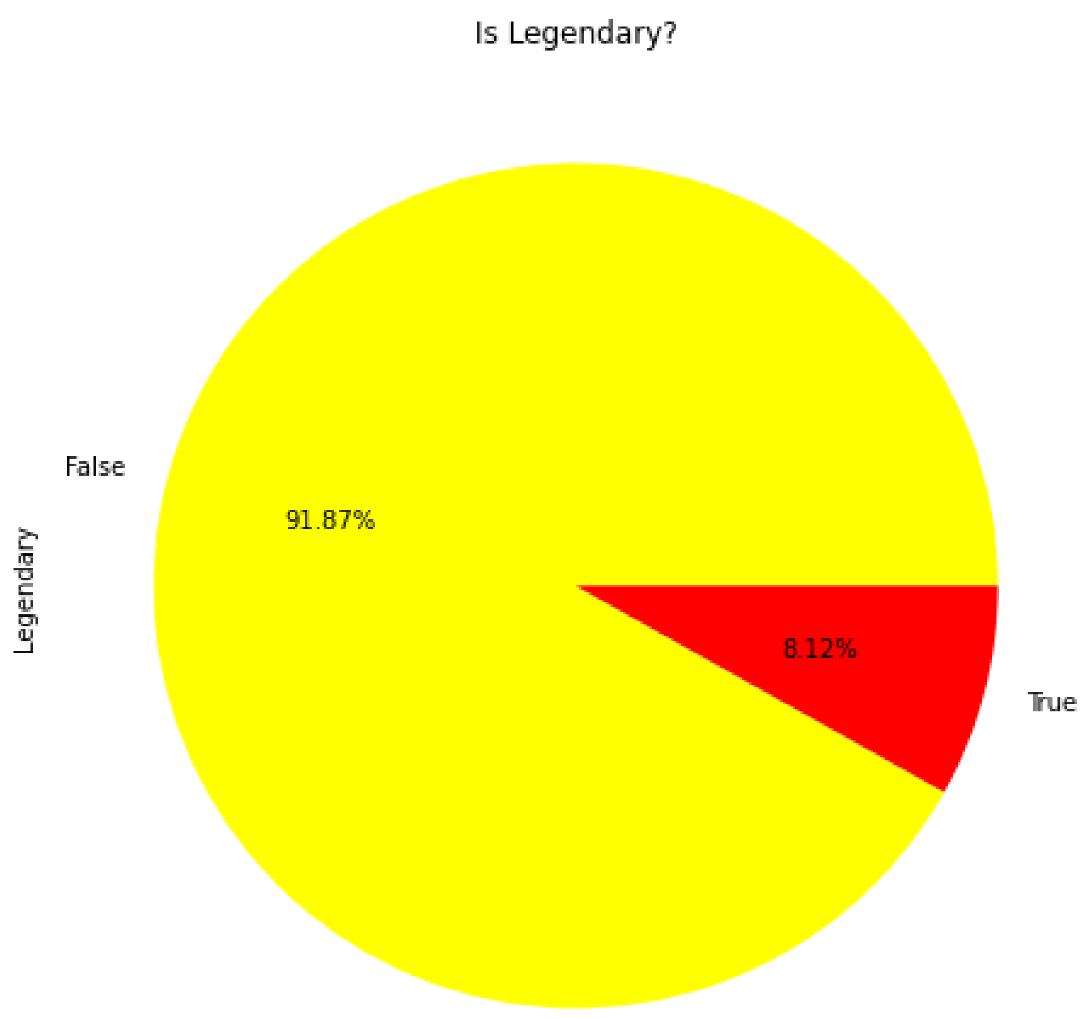


[31]:
```
# Histogram

HP_buckets = df[df['HP'].between(0,120)]['HP']

HP_buckets.plot(
    kind = 'hist'
    ,figsize = (20,8)
    ,bins = 12
)
```

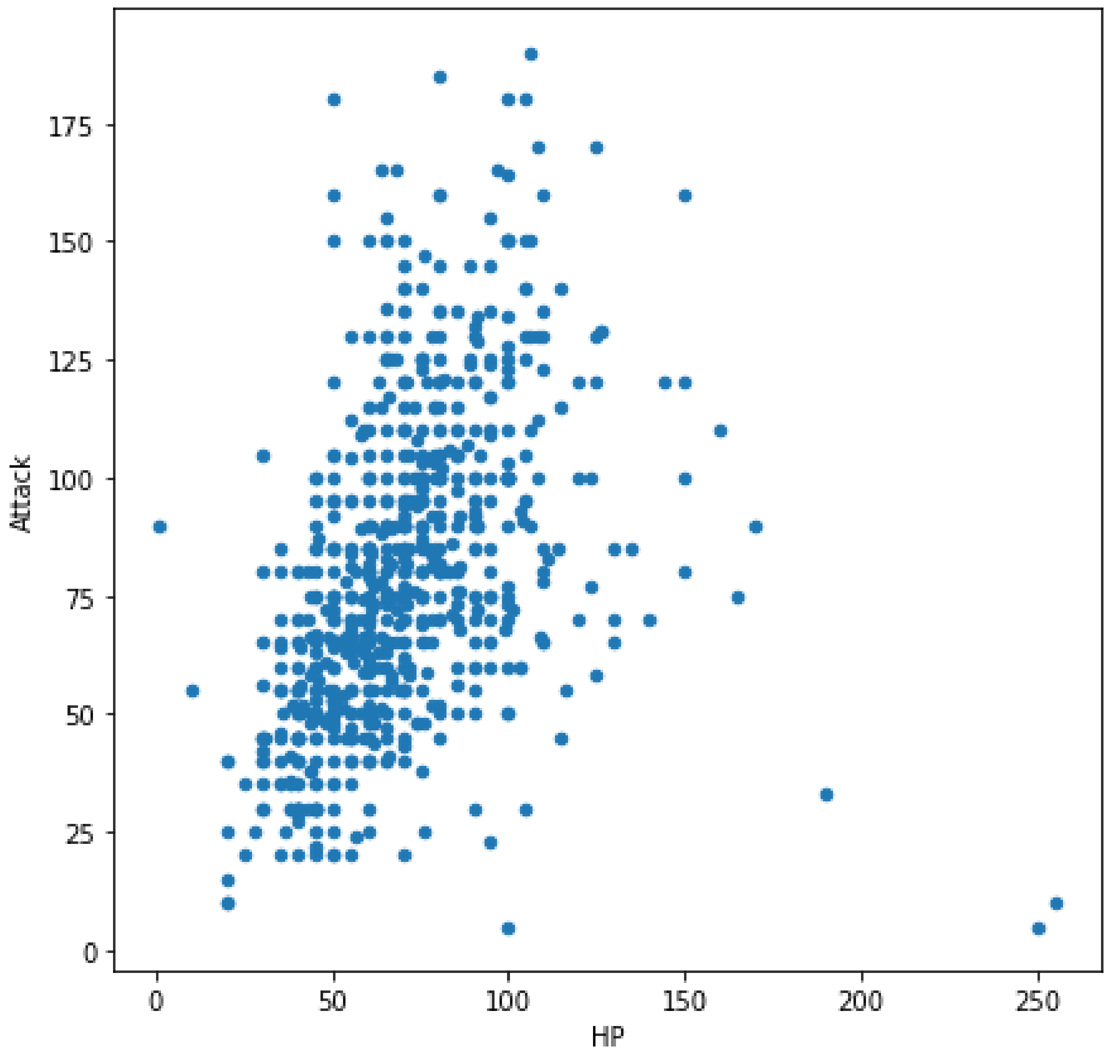
[31]:
```
<AxesSubplot:ylabel='Frequency'>
```



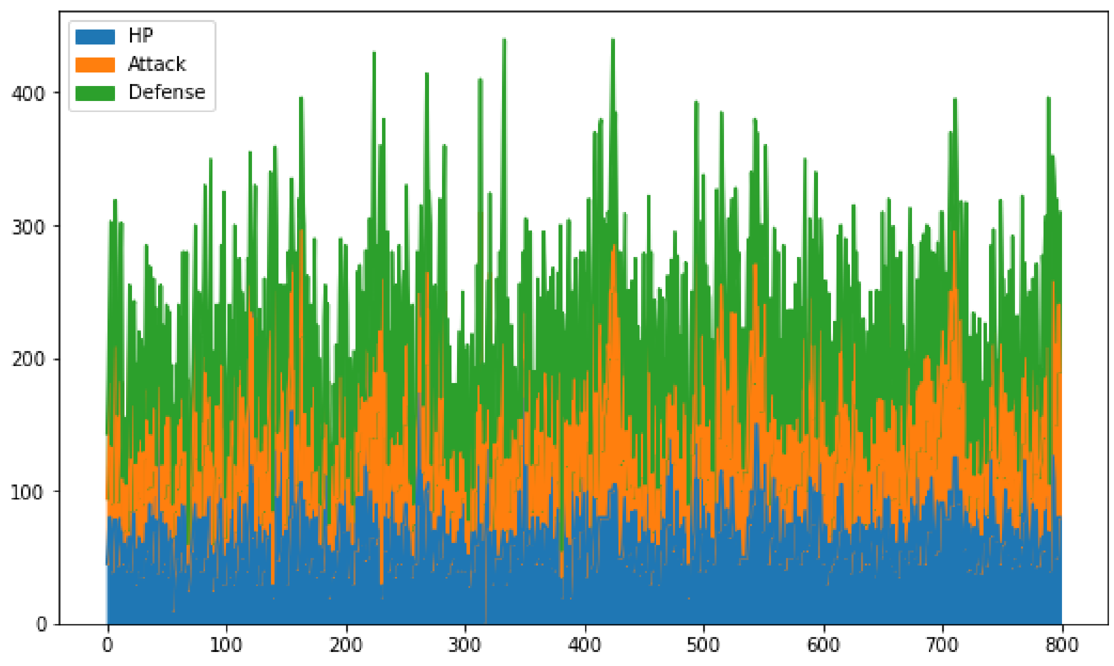
[32]:
```
# Pie

legendary_split = df.Legendary.value_counts()

legendary_split.plot(
    kind = 'pie'
    ,figsize = (8,8)
    ,colors = ['Yellow', 'Red']
    ,autopct = '%0.2f%%'
    ,title = 'Is Legendary?'
);
```



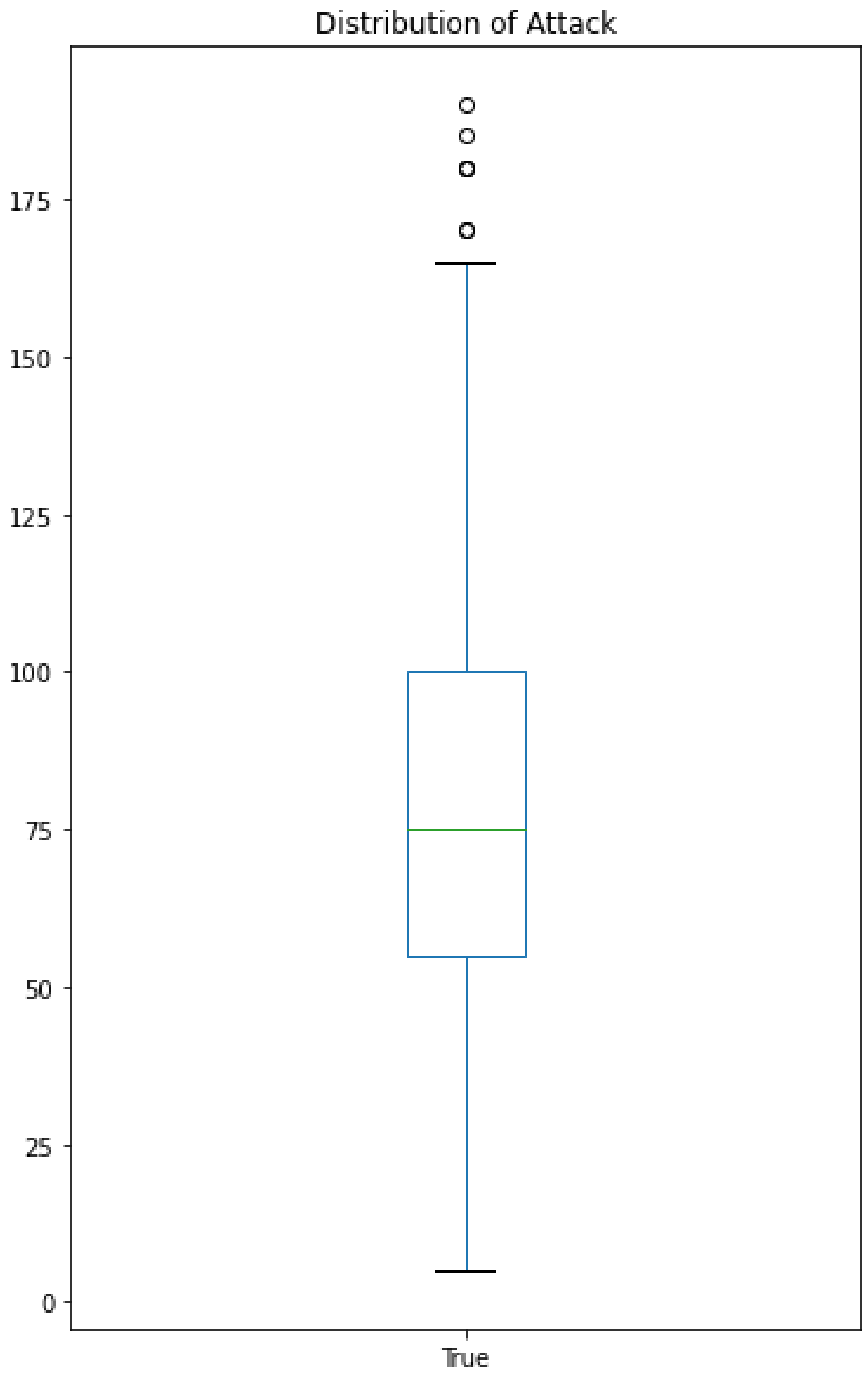
[33]:
```python
# Scatter

HPvAttack = df[['HP', 'Attack']]

HPvAttack.plot(
    kind = 'scatter'
    ,x = 'HP'
    ,y = 'Attack'
    ,figsize = (7,7)
);
```



[34]:
```
# Area
Stats = df[['HP', 'Attack', 'Defense']]
Stats.plot(
    kind = 'area'
    ,figsize = (10,6)
);
```

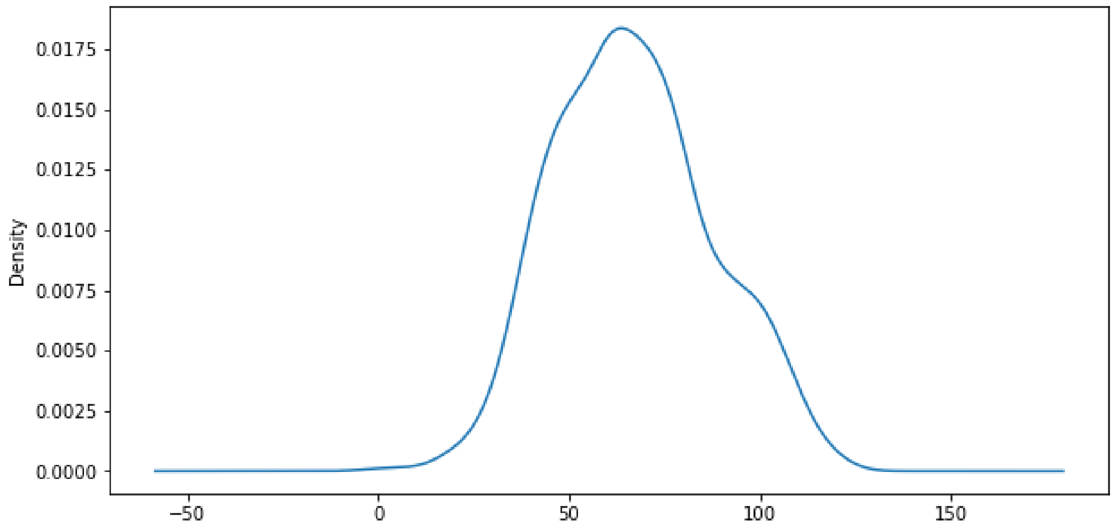


[35]:
```
# Box

Attack = df.Attack

Attack.plot(
kind = 'box'
    ,figsize = (6,10)
    ,label = True
    ,title = 'Distribution of Attack'
);
```


Distribution of Attack
175
150
125
100
75
50
25
0
True

```
[36]: # KDE

HP_buckets = df[df['HP'].between(0,120)]['HP']

HP_buckets.plot(
    kind = 'kde'
    ,figsize = (10,5)
);
```

```
/Users/sandeep/opt/anaconda3/lib/python3.8/site-packages/scipy/__init__.py:138:
UserWarning: A NumPy version >=1.16.5 and <1.23.0 is required for this version
of SciPy (detected version 1.24.3)
  warnings.warn(f"A NumPy version >={np_minversion} and <{np_maxversion} is
required for this version of "
```



10 Practice Questions

1. What's the most common type 1 of Legendary Pokemons?
2. How do the base stats of Generation 1 Pokémon compare to those of Generation 2 Pokémon?
3. Which type combination is the most common among non-Legendary Pokémon?
4. Highest HP pokemon for each Type 1?
5. What are the top 10 Pokémon with the highest Special Attack stats, and what types are they associated with?