TP2 : Pandas_for_Beginners_Part_2

Int

```
print(df.iloc[2, 4])
```

out

Poison

Int

```
print(df.iloc[:5, :5])
```

out

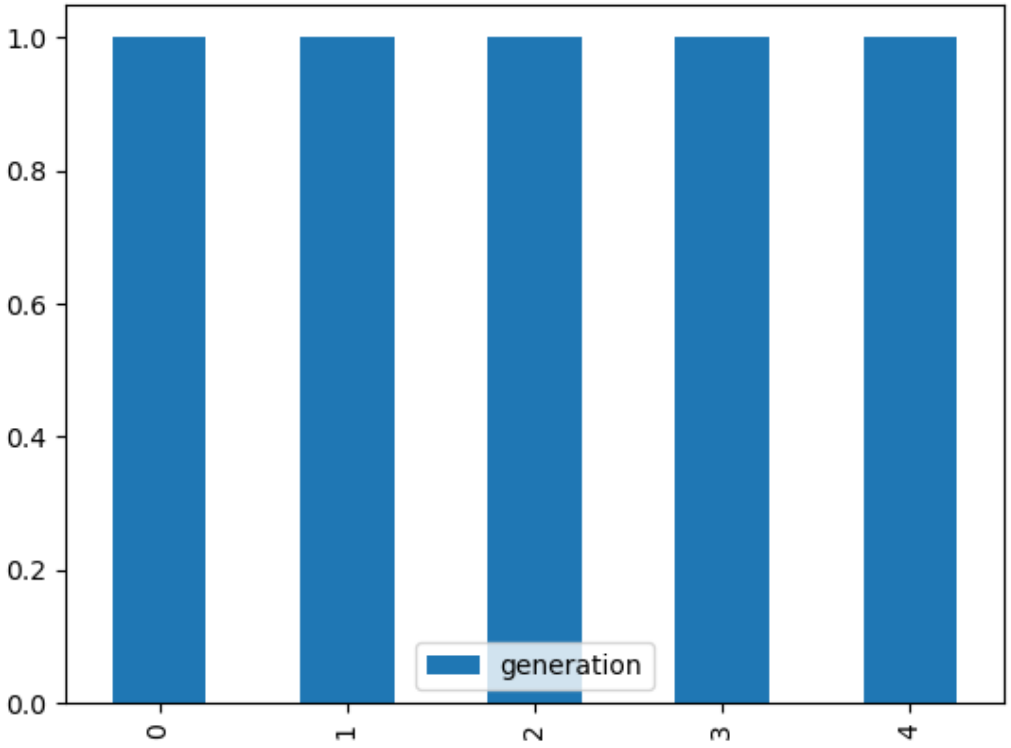
	dexnum	name	generation	type1	type2
0	1	Bulbasaur	1	Grass	Poison
1	2	Ivysaur	1	Grass	Poison
2	3	Venusaur	1	Grass	Poison
3	4	Charmander	1	Fire	NaN
4	5	Charmeleon	1	Fire	NaN

Int

```
df.iloc[:5, 1:5].plot.bar() # Bar char of the DataFrame provided above

plt.show()
```

out



Int

```
print(df.iloc[5])
```

Out

```
dexnum                        6
name                  Charizard
generation                    1
type1                      Fire
type2                    Flying
species            Flame Pokémon
height                       1.7
weight                      90.5
ability1                  Blaze
ability2            Solar Power
hidden_ability              NaN
hp                           78
attack                       84
defense                      78
sp_atk                      109
sp_def                       85
speed                       100
total                       534
ev_yield              3 Sp. Atk
catch_rate                   45
base_friendship              50
base_exp                    267
growth_rate         Medium Slow
egg_group1              Dragon
egg_group2              Monster
percent_male               87.5
percent_female             12.5
egg_cycles                   20
special_group           Ordinary
Name: 5, dtype: object
```

Int

```
print(df.iloc[[5]])
```

Out

```
   dexnum       name  generation  ... percent_female egg_cycles special_group
5       6  Charizard           1  ...           12.5         20      Ordinary

[1 rows x 29 columns]
```

Int

```
print(df.iloc[:, 1])
```

Out

```
0          Bulbasaur
1            Ivysaur
2           Venusaur
3         Charmander
4         Charmeleon
            ...
1020     Raging Bolt
1021    Iron Boulder
1022      Iron Crown
1023       Terapagos
1024       Pecharunt
Name: name, Length: 1025, dtype: object
```

Int

```
print(df.iloc[:, [1, 6]])
```

Out

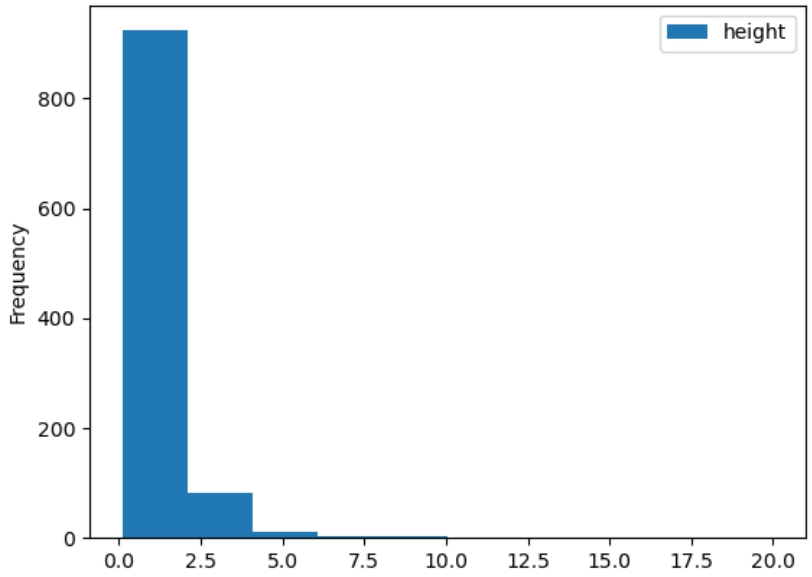
```
              name  height
0        Bulbasaur     0.7
1          Ivysaur     1.0
2         Venusaur     2.0
3       Charmander     0.6
4       Charmeleon     1.1
...            ...     ...
1020   Raging Bolt     5.2
1021  Iron Boulder     1.5
1022    Iron Crown     1.6
1023     Terapagos     0.2
1024     Pecharunt     0.3

[1025 rows x 2 columns]
```

Int

```
df.iloc[:, [1, 6]].plot.hist()
```

Out




```
df['Legendary'] = df['special_group'] == 'Legendary'
print(df.loc[df['Legendary'] == False])
```

```
 dexnum        name  generation     type1    type2  \
0        1     Bulbasaur         1     Grass   Poison
1        2       Ivysaur         1     Grass   Poison
2        3      Venusaur         1     Grass   Poison
3        4    Charmander         1      Fire      NaN
4        5    Charmeleon         1      Fire      NaN
    ...         ...        ...       ...      ...
1019  1020  Gouging Fire         9      Fire   Dragon
1020  1021   Raging Bolt         9  Electric   Dragon
```

1021 1022 Iron Boulder 9 Rock Psychic

1022 1023 Iron Crown 9 Steel Psychic

1024 1025 Pecharunt 9 Poison Ghost

species height weight ability1 ability2 \

0 Seed Pokémon 0.7 6.9 Overgrow Chlorophyll

1 Seed Pokémon 1.0 13.0 Overgrow Chlorophyll

2 Seed Pokémon 2.0 100.0 Overgrow Chlorophyll

3 Lizard Pokémon 0.6 8.5 Blaze Solar Power

4 Flame Pokémon 1.1 19.0 Blaze Solar Power

... ...

1019 Paradox Pokémon 3.5 590.0 Protosynthesis NaN

1020 Paradox Pokémon 5.2 480.0 Protosynthesis NaN

1021 Paradox Pokémon 1.5 162.5 Quark Drive NaN

1022 Paradox Pokémon 1.6 156.0 Quark Drive NaN

1024 Subjugation Pokémon 0.3 0.3 Poison Puppeteer NaN

hidden_ability hp attack defense sp_atk sp_def speed total \

0 NaN 45 49 49 65 65 45 318

1 NaN 60 62 63 80 80 60 405

2 NaN 80 82 83 100 100 80 525

3 NaN 39 52 43 60 50 65 309

4 NaN 58 64 58 80 65 80 405

... ...

1019 NaN 105 115 121 65 93 91 590

1020 NaN 125 73 91 137 89 75 590

1021 NaN 90 120 80 68 108 124 590

1022 NaN 90 72 100 122 108 98 590

1024 NaN 88 88 160 88 88 88 600

ev_yield catch_rate base_friendship base_exp growth_rate \

0 1 Sp. Atk 45 50 64 Medium Slow

1 1 Sp. Atk, 1 Sp. Def 45 50 142 Medium Slow

2 2 Sp. Atk, 1 Sp. Def 45 50 236 Medium Slow

3 1 Speed 45 50 62 Medium Slow

4 1 Sp. Atk, 1 Speed 45 50 142 Medium Slow

... ...

1019 3 Defense 10 — — Slow

1020 3 Sp. Atk 10 — — Slow

1021 3 Speed 10 — — Slow

1022 3 Sp. Atk 10 — — Slow

1024 3 Defense 3 — — Slow

egg_group1 egg_group2 percent_male percent_female egg_cycles \

0 Grass Monster 87.5 12.5 20

1 Grass Monster 87.5 12.5 20

2 Grass Monster 87.5 12.5 20

3 Dragon Monster 87.5 12.5 20

4 Dragon Monster 87.5 12.5 20

... ...

1019 Undiscovered NaN NaN NaN —

1020 Undiscovered NaN NaN NaN —

1021 Undiscovered NaN NaN NaN —

1022 Undiscovered NaN NaN NaN —

1024 Undiscovered NaN NaN NaN —

```
      special_group  Legendary
0          Ordinary      False
1          Ordinary      False
2          Ordinary      False
3          Ordinary      False
4          Ordinary      False
           ...       ...
1019  Ancient Paradox      False
1020  Ancient Paradox      False
1021   Future Paradox      False
1022   Future Paradox      False
1024        Mythical      False

[955 rows x 30 columns]
```

```
print(df.loc[
   (df['special_group'] == 'Legendary')
   & (df['type1'] == 'Grass')
])
```

```
  dexnum         name  generation  type1    type2            species  \
0        1     Bulbasaur          1  Grass   Poison        Seed Pokémon
1        2       Ivysaur          1  Grass   Poison        Seed Pokémon
2        3      Venusaur          1  Grass   Poison        Seed Pokémon
42       43       Oddish          1  Grass   Poison        Weed Pokémon
43       44        Gloom          1  Grass   Poison        Weed Pokémon
    ...          ...        ...    ...      ...                ...
1009    1010   Iron Leaves          9  Grass  Psychic      Paradox Pokémon
1010    1011      Dipplin          9  Grass   Dragon  Candy Apple Pokémon
```

1011 1012 Poltchageist 9 Grass Ghost Matcha Pokémon

1012 1013 Sinistcha 9 Grass Ghost Matcha Pokémon

1018 1019 Hydrapple 9 Grass Dragon —

height weight ability1 ability2 hidden_ability hp \

0 0.7 6.9 Overgrow Chlorophyll NaN 45

1 1.0 13.0 Overgrow Chlorophyll NaN 60

2 2.0 100.0 Overgrow Chlorophyll NaN 80

42 0.5 5.4 Chlorophyll Run Away NaN 45

43 0.8 8.6 Chlorophyll Stench NaN 60

... ...

1009 1.5 125.0 Quark Drive NaN NaN 90

1010 0.4 4.4 Supersweet Syrup Gluttony Sticky Hold 80

1011 0.1 1.1 Hospitality Heatproof NaN 40

1012 0.2 2.2 Hospitality Heatproof NaN 71

1018 1.8 93.0 Supersweet Syrup Regenerator Sticky Hold 106

attack defense sp_atk sp_def speed total ev_yield \

0 49 49 65 65 45 318 1 Sp. Atk

1 62 63 80 80 60 405 1 Sp. Atk, 1 Sp. Def

2 82 83 100 100 80 525 2 Sp. Atk, 1 Sp. Def

42 50 55 75 65 30 320 1 Sp. Atk

43 65 70 85 75 40 395 2 Sp. Atk

... ...

1009 130 88 70 108 104 590 3 Attack

1010 80 110 95 80 40 485 2 Defense

1011 45 45 74 54 50 308 1 Sp. Atk

1012 60 106 121 80 70 508 2 Sp. Atk

```
1018     80     110    120     80     44    540          3 Sp. Atk


     catch_rate base_friendship base_exp  growth_rate    egg_group1  \
0           45            50      64  Medium Slow       Grass
1           45            50     142  Medium Slow       Grass
2           45            50     236  Medium Slow       Grass
42         255            50      64  Medium Slow       Grass
43         120            50     138  Medium Slow       Grass
        ...           ...     ...         ...          ...
1009         5             —       —        Slow  Undiscovered
1010        45             —       —     Erratic      Dragon
1011       120             —       —  Medium Fast    Amorphous
1012        60             —       —  Medium Fast    Amorphous
1018        10             —       —     Erratic      Dragon


    egg_group2  percent_male  percent_female egg_cycles   special_group  \
0      Monster        87.5          12.5        20       Ordinary
1      Monster        87.5          12.5        20       Ordinary
2      Monster        87.5          12.5        20       Ordinary
42         NaN        50.0          50.0        20       Ordinary
43         NaN        50.0          50.0        20       Ordinary
       ...          ...           ...       ...           ...
1009       NaN         NaN          NaN         —  Future Paradox
1010     Grass        50.0          50.0         —       Ordinary
1011   Mineral         NaN          NaN         —       Ordinary
1012   Mineral         NaN          NaN         —       Ordinary
1018     Grass        50.0          50.0         —       Ordinary
```

```
    Legendary
0       False
1       False
2       False
42      False
43      False
      ...
1009    False
1010    False
1011    False
1012    False
1018    False

[100 rows x 30 columns]
```

```
print(df.loc[
   ~((df['type1'] == 'Grass')
   & (df['special_group'] == 'Legendary'))
])
```

```
    dexnum        name  generation    type1   type2  \
3        4   Charmander          1     Fire     NaN
4        5   Charmeleon          1     Fire     NaN
5        6    Charizard          1     Fire  Flying
6        7     Squirtle          1    Water     NaN
7        8    Wartortle          1    Water     NaN
   ...         ...        ...      ...     ...
1020  1021  Raging Bolt          9  Electric  Dragon
1021  1022  Iron Boulder         9     Rock  Psychic
```

1022 1023 Iron Crown 9 Steel Psychic

1023 1024 Terapagos 9 Normal NaN

1024 1025 Pecharunt 9 Poison Ghost

```
            species  height  weight        ability1     ability2  \
3         Lizard Pokémon     0.6     8.5          Blaze  Solar Power
4         Flame Pokémon      1.1    19.0          Blaze  Solar Power
5         Flame Pokémon      1.7    90.5          Blaze  Solar Power
6     Tiny Turtle Pokémon    0.5     9.0        Torrent    Rain Dish
7         Turtle Pokémon     1.0    22.5        Torrent    Rain Dish
             ...     ...     ...             ...         ...
1020     Paradox Pokémon     5.2   480.0    Protosynthesis         NaN
1021     Paradox Pokémon     1.5   162.5      Quark Drive          NaN
1022     Paradox Pokémon     1.6   156.0      Quark Drive          NaN
1023       Tera Pokémon      0.2     6.5       Tera Shift          NaN
1024  Subjugation Pokémon    0.3     0.3  Poison Puppeteer         NaN

    hidden_ability   hp  attack  defense  sp_atk  sp_def  speed  total  \
3              NaN   39     52       43      60      50     65    309
4              NaN   58     64       58      80      65     80    405
5              NaN   78     84       78     109      85    100    534
6              NaN   44     48       65      50      64     43    314
7              NaN   59     63       80      65      80     58    405
          ...  ...     ...     ...     ...     ...    ...    ...
1020           NaN  125     73       91     137      89     75    590
1021           NaN   90    120       80      68     108    124    590
1022           NaN   90     72      100     122     108     98    590
1023           NaN   90     65       85      65      85     60    450
```

```
1024         NaN   88     88     160     88     88     88    600


             ev_yield  catch_rate base_friendship base_exp  growth_rate  \
3              1 Speed         45            50       62  Medium Slow
4       1 Sp. Atk, 1 Speed         45            50      142  Medium Slow
5              3 Sp. Atk         45            50      267  Medium Slow
6              1 Defense         45            50       63  Medium Slow
7     1 Defense, 1 Sp. Def         45            50      142  Medium Slow
               ...         ...           ...     ...         ...
1020           3 Sp. Atk         10             —       —        Slow
1021            3 Speed          10             —       —        Slow
1022           3 Sp. Atk         10             —       —        Slow
1023           1 Defense        255             —       —        Slow
1024           3 Defense          3             —       —        Slow


      egg_group1 egg_group2  percent_male  percent_female egg_cycles  \
3        Dragon     Monster         87.5          12.5        20
4        Dragon     Monster         87.5          12.5        20
5        Dragon     Monster         87.5          12.5        20
6       Monster      Water 1        87.5          12.5        20
7       Monster      Water 1        87.5          12.5        20
         ...        ...           ...           ...        ...
1020  Undiscovered       NaN         NaN           NaN         —
1021  Undiscovered       NaN         NaN           NaN         —
1022  Undiscovered       NaN         NaN           NaN         —
1023  Undiscovered       NaN        50.0          50.0         —
1024  Undiscovered       NaN         NaN           NaN         —
```

```
      special_group  Legendary
3           Ordinary      False
4           Ordinary      False
5           Ordinary      False
6           Ordinary      False
7           Ordinary      False
            ...       ...
1020  Ancient Paradox      False
1021   Future Paradox      False
1022   Future Paradox      False
1023        Legendary       True
1024         Mythical      False

[925 rows x 30 columns]
```

```
print(df.query('(hp > 40) and (attack < 100)'))
```

```
dexnum        name  generation     type1    type2           species  \
0         1    Bulbasaur          1     Grass   Poison        Seed Pokémon
1         2     Ivysaur           1     Grass   Poison        Seed Pokémon
2         3     Venusaur          1     Grass   Poison        Seed Pokémon
4         5   Charmeleon          1      Fire      NaN        Flame Pokémon
5         6    Charizard          1      Fire   Flying        Flame Pokémon
```

```
     ...        ...        ...       ...      ...               ...
1018  1019    Hydrapple         9     Grass   Dragon                —
1020  1021  Raging Bolt         9  Electric   Dragon      Paradox Pokémon
1022  1023   Iron Crown         9     Steel  Psychic      Paradox Pokémon
1023  1024    Terapagos         9    Normal      NaN        Tera Pokémon
1024  1025    Pecharunt         9    Poison    Ghost  Subjugation Pokémon

     height  weight        ability1     ability2 hidden_ability   hp  \
0       0.7     6.9        Overgrow  Chlorophyll          NaN   45
1       1.0    13.0        Overgrow  Chlorophyll          NaN   60
2       2.0   100.0        Overgrow  Chlorophyll          NaN   80
4       1.1    19.0           Blaze  Solar Power          NaN   58
5       1.7    90.5           Blaze  Solar Power          NaN   78
    ...     ...             ...         ...          ... ...
1018    1.8    93.0  Supersweet Syrup  Regenerator    Sticky Hold  106
1020    5.2   480.0    Protosynthesis         NaN          NaN  125
1022    1.6   156.0      Quark Drive         NaN          NaN   90
1023    0.2     6.5       Tera Shift         NaN          NaN   90
1024    0.3     0.3  Poison Puppeteer         NaN          NaN   88

     attack  defense  sp_atk  sp_def  speed  total           ev_yield  \
0        49       49      65      65     45    318           1 Sp. Atk
1        62       63      80      80     60    405  1 Sp. Atk, 1 Sp. Def
2        82       83     100     100     80    525  2 Sp. Atk, 1 Sp. Def
4        64       58      80      65     80    405   1 Sp. Atk, 1 Speed
5        84       78     109      85    100    534           3 Sp. Atk
    ...      ...     ...     ...     ...    ...               ...
1018     80      110     120      80     44    540           3 Sp. Atk
```

```
1020     73      91     137     89     75    590          3 Sp. Atk
1022     72     100     122    108     98    590          3 Sp. Atk
1023     65      85      65     85     60    450          1 Defense
1024     88     160      88     88     88    600          3 Defense

     catch_rate base_friendship base_exp  growth_rate    egg_group1  \
0           45            50       64  Medium Slow       Grass
1           45            50      142  Medium Slow       Grass
2           45            50      236  Medium Slow       Grass
4           45            50      142  Medium Slow      Dragon
5           45            50      267  Medium Slow      Dragon
        ...           ...     ...         ...          ...
1018        10             —       —      Erratic      Dragon
1020        10             —       —        Slow  Undiscovered
1022        10             —       —        Slow  Undiscovered
1023       255             —       —        Slow  Undiscovered
1024         3             —       —        Slow  Undiscovered

    egg_group2  percent_male  percent_female egg_cycles    special_group  \
0      Monster          87.5            12.5         20        Ordinary
1      Monster          87.5            12.5         20        Ordinary
2      Monster          87.5            12.5         20        Ordinary
4      Monster          87.5            12.5         20        Ordinary
5      Monster          87.5            12.5         20        Ordinary
       ...           ...             ...        ...            ...
1018     Grass          50.0            50.0          —        Ordinary
1020       NaN           NaN             NaN         —  Ancient Paradox
1022       NaN           NaN             NaN         —   Future Paradox
```

1023 NaN 50.0 50.0 — Legendary

1024 NaN NaN NaN — Mythical

Legendary

0 False

1 False

2 False

4 False

5 False

...

1018 False

1020 False

1022 False

1023 True

1024 False

[647 rows x 30 columns]

```
min_hp = 70
print(df.query('(hp > @min_hp)'))
```

dexnum name generation type1 type2 \

2 3 Venusaur 1 Grass Poison

5 6 Charizard 1 Fire Flying

8 9 Blastoise 1 Water NaN

17 18 Pidgeot 1 Normal Flying

```
27      28     Sandslash         1    Ground      NaN
   ...         ...        ...      ...      ...
1020    1021   Raging Bolt         9  Electric   Dragon
1021    1022  Iron Boulder         9      Rock  Psychic
1022    1023    Iron Crown         9     Steel  Psychic
1023    1024     Terapagos         9    Normal      NaN
1024    1025     Pecharunt         9    Poison    Ghost

             species  height  weight        ability1      ability2  \
2          Seed Pokémon     2.0   100.0        Overgrow    Chlorophyll
5         Flame Pokémon     1.7    90.5          Blaze    Solar Power
8     Shellfish Pokémon     1.6    85.5         Torrent      Rain Dish
17         Bird Pokémon     1.5    39.5        Keen Eye   Tangled Feet
27        Mouse Pokémon     1.0    29.5        Sand Veil     Sand Rush
              ...    ...     ...             ...          ...
1020     Paradox Pokémon     5.2   480.0    Protosynthesis          NaN
1021     Paradox Pokémon     1.5   162.5       Quark Drive          NaN
1022     Paradox Pokémon     1.6   156.0       Quark Drive          NaN
1023       Tera Pokémon     0.2     6.5        Tera Shift          NaN
1024  Subjugation Pokémon     0.3     0.3  Poison Puppeteer          NaN

    hidden_ability   hp  attack  defense  sp_atk  sp_def  speed  total  \
2              NaN   80      82       83     100     100     80    525
5              NaN   78      84       78     109      85    100    534
8              NaN   79      83      100      85     105     78    530
17       Big Pecks   83      80       75      70      70    101    479
27             NaN   75     100      110      45      55     65    450
          ...  ...     ...      ...     ...     ...    ...    ...
```

```
1020         NaN  125     73      91    137     89     75    590
1021         NaN   90    120      80     68    108    124    590
1022         NaN   90     72     100    122    108     98    590
1023         NaN   90     65      85     65     85     60    450
1024         NaN   88     88     160     88     88     88    600

              ev_yield  catch_rate base_friendship base_exp  growth_rate  \
2     2 Sp. Atk, 1 Sp. Def         45            50      236  Medium Slow
5             3 Sp. Atk         45            50      267  Medium Slow
8             3 Sp. Def         45            50      239  Medium Slow
17              3 Speed         45            50      216  Medium Slow
27            2 Defense         90            50      158  Medium Fast
                  ...          ...           ...      ...          ...
1020          3 Sp. Atk         10             —        —        Slow
1021            3 Speed         10             —        —        Slow
1022          3 Sp. Atk         10             —        —        Slow
1023          1 Defense        255             —        —        Slow
1024          3 Defense          3             —        —        Slow

       egg_group1 egg_group2  percent_male  percent_female egg_cycles  \
2         Grass     Monster         87.5          12.5        20
5        Dragon     Monster         87.5          12.5        20
8       Monster     Water 1         87.5          12.5        20
17       Flying       NaN          50.0          50.0        15
27        Field       NaN          50.0          50.0        20
          ...         ...           ...           ...       ...
1020  Undiscovered      NaN          NaN           NaN         —
1021  Undiscovered      NaN          NaN           NaN         —
```

1022 Undiscovered NaN NaN NaN —

1023 Undiscovered NaN 50.0 50.0 —

1024 Undiscovered NaN NaN NaN —

	special_group	Legendary
2	Ordinary	False
5	Ordinary	False
8	Ordinary	False
17	Ordinary	False
27	Ordinary	False
...	...	
1020	Ancient Paradox	False
1021	Future Paradox	False
1022	Future Paradox	False
1023	Legendary	True
1024	Mythical	False

[426 rows x 30 columns]