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

In [8]:
```
df=pd.read_csv(r"C:\Users\Chinenye Claire\AppData\Roaming\Microsoft\Windows\St
```

In [82]:
```
df.head(10)
```

Out[82]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 2004-01-01 | 12 | 18 | 4 | 1 |
| **1** | 2004-02-01 | 12 | 21 | 2 | 1 |
| **2** | 2004-03-01 | 9 | 21 | 2 | 1 |
| **3** | 2004-04-01 | 10 | 16 | 4 | 1 |
| **4** | 2004-05-01 | 7 | 14 | 3 | 1 |
| **5** | 2004-06-01 | 9 | 17 | 3 | 1 |
| **6** | 2004-07-01 | 9 | 16 | 3 | 1 |
| **7** | 2004-08-01 | 7 | 14 | 3 | 1 |
| **8** | 2004-09-01 | 10 | 17 | 4 | 1 |
| **9** | 2004-10-01 | 8 | 17 | 4 | 1 |

In [11]:
```
df.describe()
```

Out[11]:

| | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|
| **count** | 194.000000 | 194.000000 | 194.000000 | 194.000000 |
| **mean** | 20.953608 | 27.396907 | 24.231959 | 0.257732 |
| **std** | 23.951006 | 28.091490 | 34.476887 | 0.438517 |
| **min** | 4.000000 | 7.000000 | 1.000000 | 0.000000 |
| **25%** | 6.000000 | 9.000000 | 2.000000 | 0.000000 |
| **50%** | 8.000000 | 13.000000 | 3.000000 | 0.000000 |
| **75%** | 26.750000 | 31.500000 | 34.000000 | 1.000000 |
| **max** | 100.000000 | 100.000000 | 100.000000 | 1.000000 |

In [12]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 194 entries, 0 to 193
Data columns (total 5 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   Mes               194 non-null    object
 1   data science      194 non-null    int64 
 2   machine learning  194 non-null    int64 
 3   deep learning     194 non-null    int64 
 4   categorical       194 non-null    int64 
dtypes: int64(4), object(1)
memory usage: 7.7+ KB
```

In [15]:
```
pd.set_option('display.max.rows',500)
pd.set_option('display.max.columns',500)
pd.set_option('display.width',1000)
```

In [69]:
```
format_dict={'data science':'${0:,.2f}', 'Mes':'{:%m-%Y}', 'machine learning':
#.2f means 2 decimal places (floats), .2% means 2 decimal places in percentage
```

In [70]:
```
df['Mes']=pd.to_datetime(df['Mes'])
```

In [72]:
```
df.head().style.format(format_dict)
```

Out[72]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 01-2004 | $12.00 | 1800.00% | 4 | 1 |
| **1** | 02-2004 | $12.00 | 2100.00% | 2 | 1 |
| **2** | 03-2004 | $9.00 | 2100.00% | 2 | 1 |
| **3** | 04-2004 | $10.00 | 1600.00% | 4 | 1 |
| **4** | 05-2004 | $7.00 | 1400.00% | 3 | 1 |

In [76]:
```
format_dict={'Mes':'{:%m-%Y}'}
df.head().style.format(format_dict).highlight_max(color='darkgreen').highlight_
```

Out[76]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 01-2004 | 12 | 18 | 4 | 1 |
| **1** | 02-2004 | 12 | 21 | 2 | 1 |
| **2** | 03-2004 | 9 | 21 | 2 | 1 |
| **3** | 04-2004 | 10 | 16 | 4 | 1 |
| **4** | 05-2004 | 7 | 14 | 3 | 1 |

In [77]:
```
df.head(10).style.format(format_dict).background_gradient(subset=['data scienc
```

Out[77]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 01-2004 | 12 | 18 | 4 | 1 |
| **1** | 02-2004 | 12 | 21 | 2 | 1 |
| **2** | 03-2004 | 9 | 21 | 2 | 1 |
| **3** | 04-2004 | 10 | 16 | 4 | 1 |
| **4** | 05-2004 | 7 | 14 | 3 | 1 |
| **5** | 06-2004 | 9 | 17 | 3 | 1 |
| **6** | 07-2004 | 9 | 16 | 3 | 1 |
| **7** | 08-2004 | 7 | 14 | 3 | 1 |
| **8** | 09-2004 | 10 | 17 | 4 | 1 |
| **9** | 10-2004 | 8 | 17 | 4 | 1 |

In [78]:
```
df.head(10).style.format(format_dict).bar(color='red', subset=['data science',
```

Out[78]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 01-2004 | 12 | 18 | 4 | 1 |
| **1** | 02-2004 | 12 | 21 | 2 | 1 |
| **2** | 03-2004 | 9 | 21 | 2 | 1 |
| **3** | 04-2004 | 10 | 16 | 4 | 1 |
| **4** | 05-2004 | 7 | 14 | 3 | 1 |
| **5** | 06-2004 | 9 | 17 | 3 | 1 |
| **6** | 07-2004 | 9 | 16 | 3 | 1 |
| **7** | 08-2004 | 7 | 14 | 3 | 1 |
| **8** | 09-2004 | 10 | 17 | 4 | 1 |
| **9** | 10-2004 | 8 | 17 | 4 | 1 |

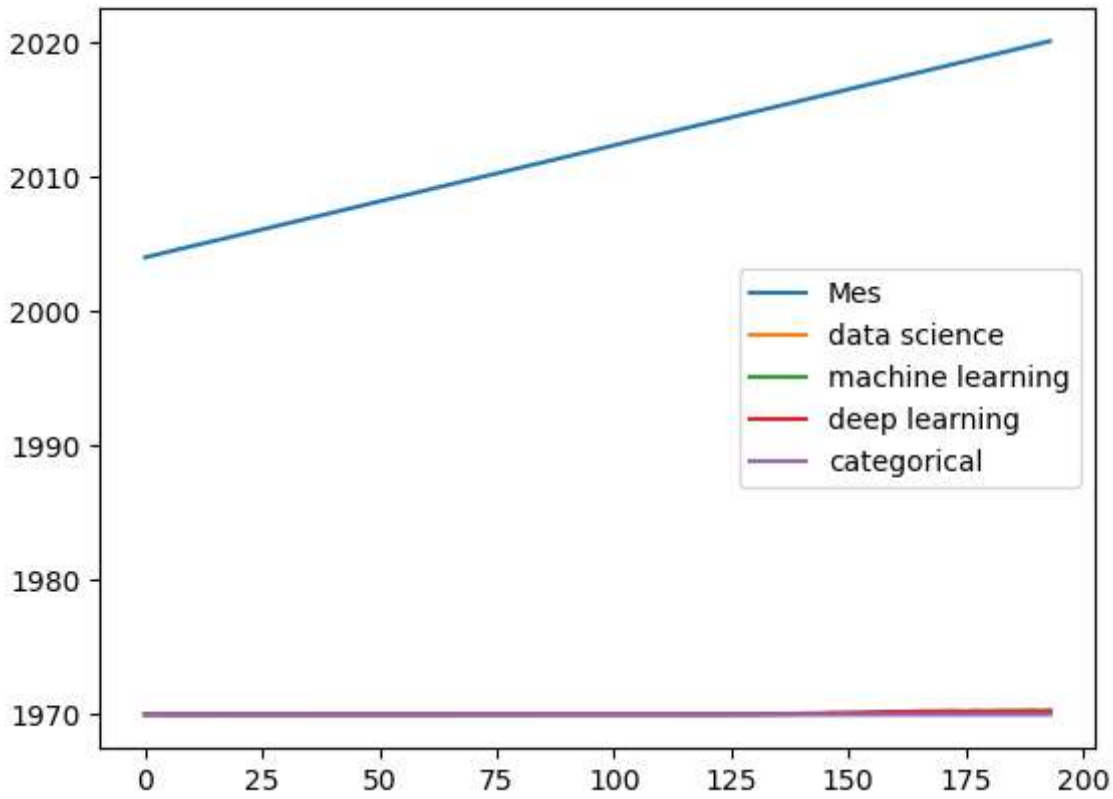
In [79]:
```
df.head(10).style.format(format_dict).background_gradient(subset=['data scienc
```

Out[79]:

| | Mes | data science | machine learning | deep learning | categorical |
|---|---|---|---|---|---|
| **0** | 01-2004 | 12 | 18 | 4 | 1 |
| **1** | 02-2004 | 12 | 21 | 2 | 1 |
| **2** | 03-2004 | 9 | 21 | 2 | 1 |
| **3** | 04-2004 | 10 | 16 | 4 | 1 |
| **4** | 05-2004 | 7 | 14 | 3 | 1 |
| **5** | 06-2004 | 9 | 17 | 3 | 1 |
| **6** | 07-2004 | 9 | 16 | 3 | 1 |
| **7** | 08-2004 | 7 | 14 | 3 | 1 |
| **8** | 09-2004 | 10 | 17 | 4 | 1 |
| **9** | 10-2004 | 8 | 17 | 4 | 1 |

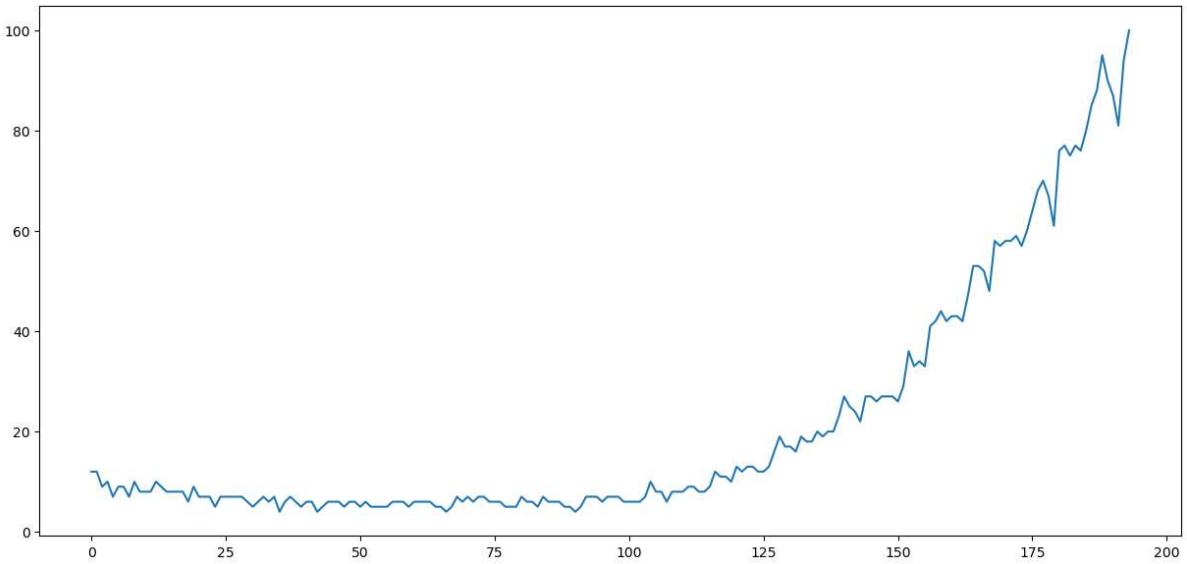
In [81]:
```
df.plot()
```

Out[81]: <Axes: >



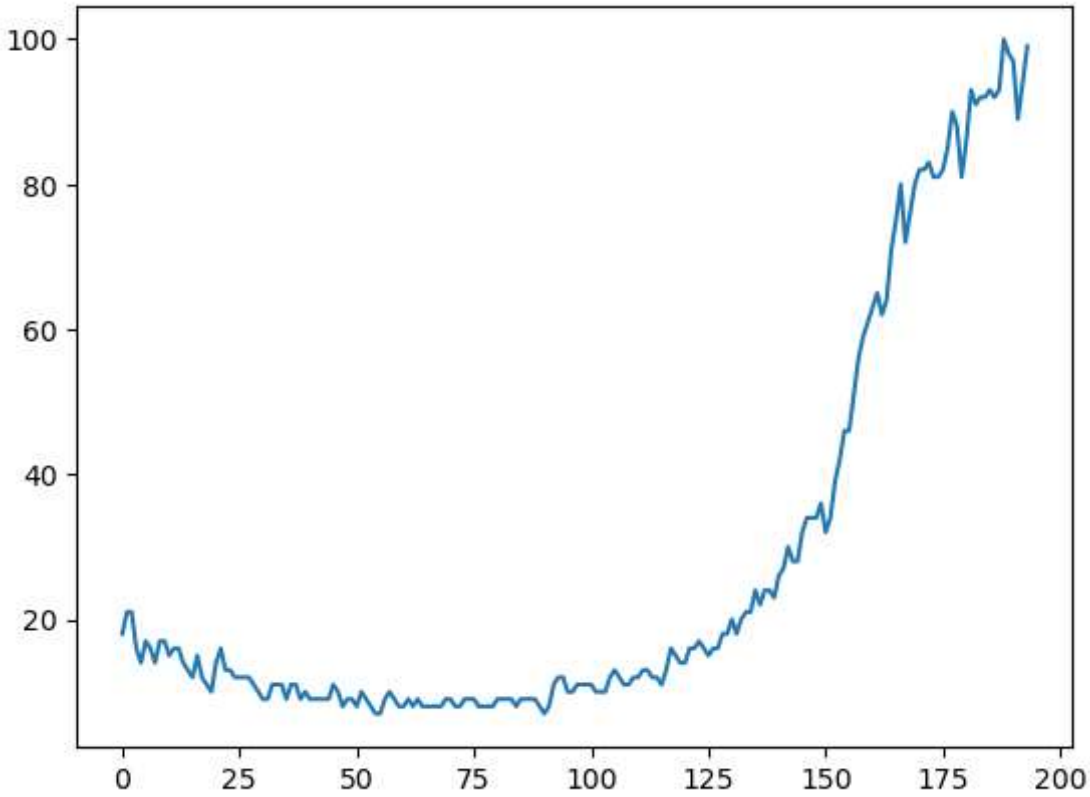
In [29]:
```
df["data science"].plot(figsize=(15,7))
```

Out[29]: <Axes: >



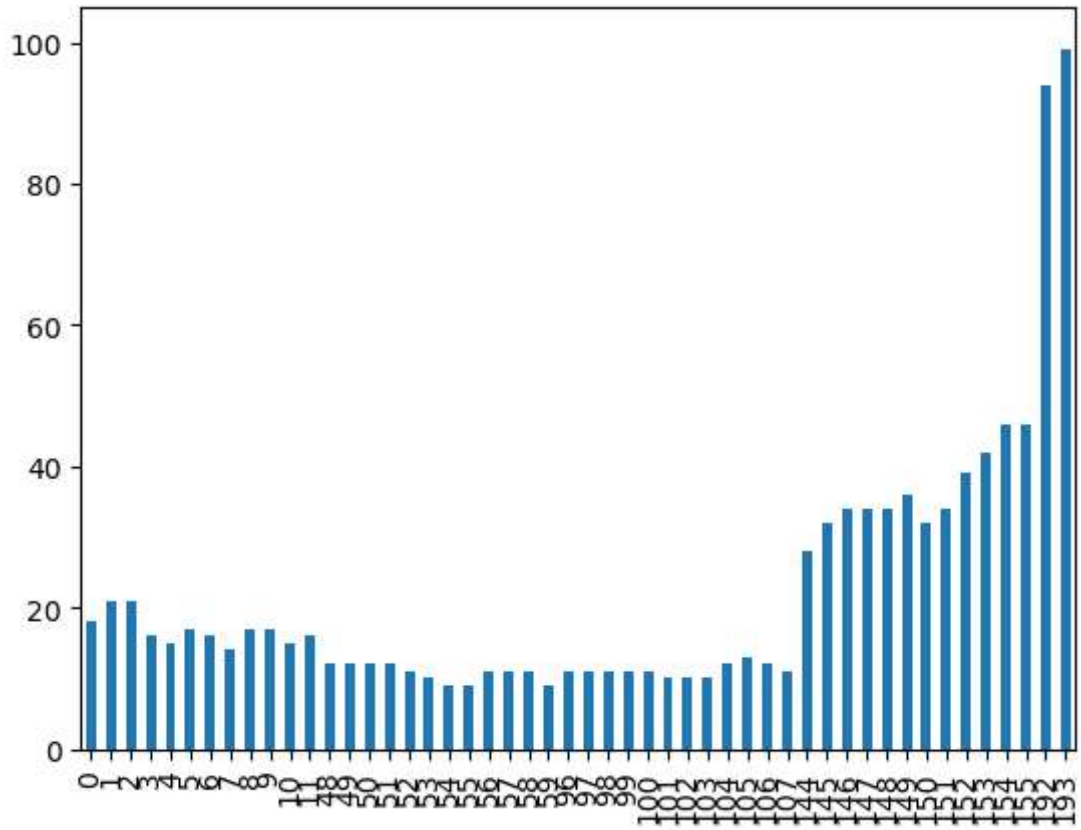

In [92]:
```
df["machine learning"].plot()
```

Out[92]: <Axes: >



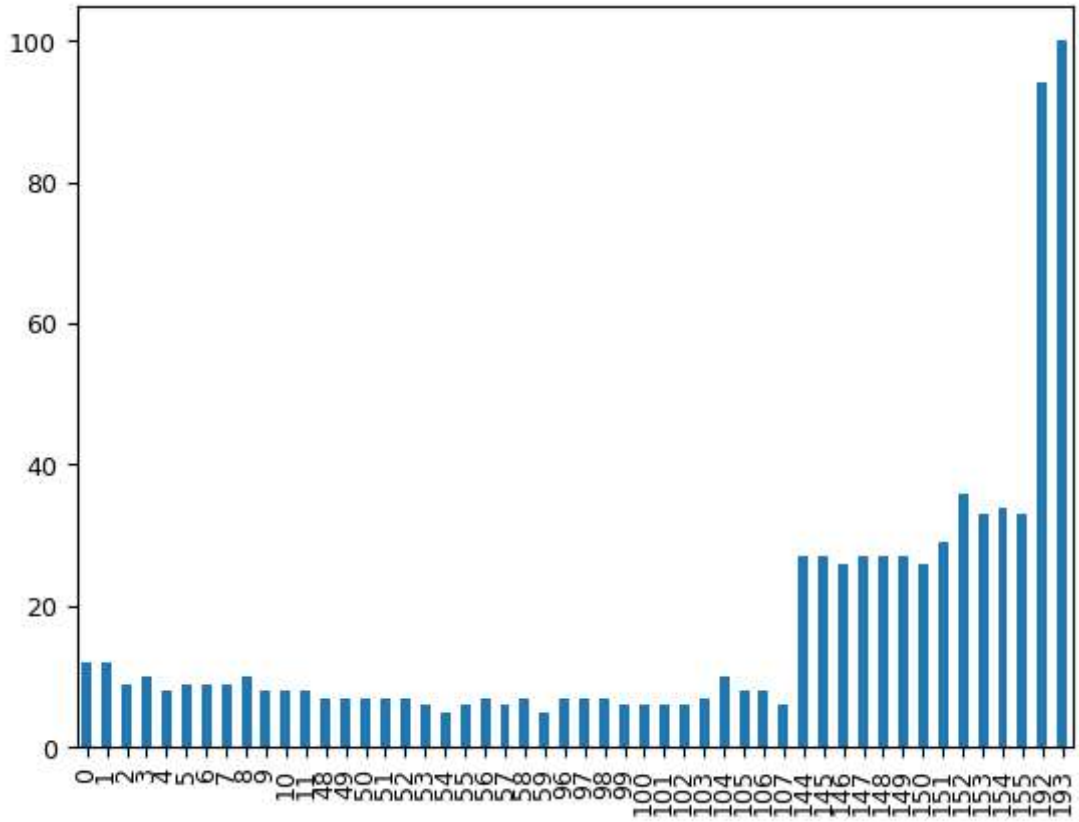
In [66]:
```
df.groupby('categorical')['machine learning'].plot(kind='bar')
```

Out[66]:
```
categorical
0    Axes(0.125,0.11;0.775x0.77)
1    Axes(0.125,0.11;0.775x0.77)
Name: machine learning, dtype: object
```



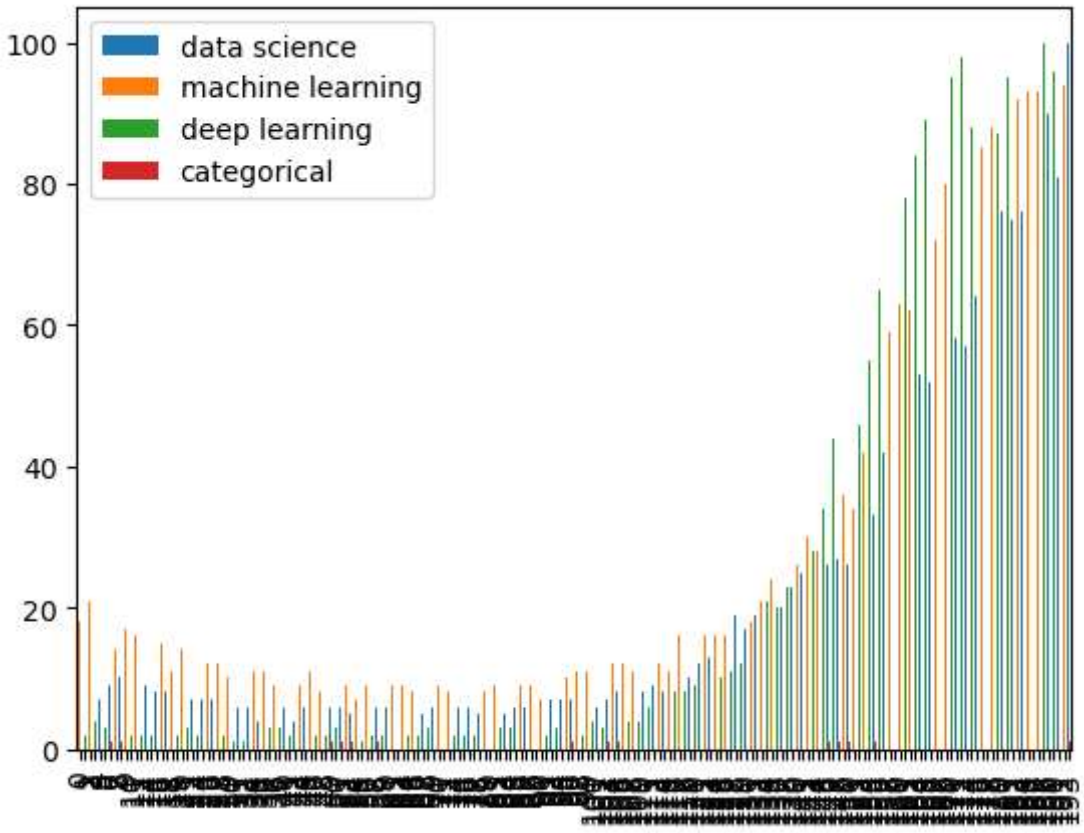
In [49]:
```
df.groupby("categorical")["data science"].plot.bar(x='Mes', y='data science',
```

Out[49]:
```
categorical
0    Axes(0.125,0.11;0.775x0.77)
1    Axes(0.125,0.11;0.775x0.77)
Name: data science, dtype: object
```



In [52]:
```
df.plot(kind="bar")
```

Out[52]: <Axes: >



In [55]:
```
df.hist()
```

Out[55]:
```
array([[<Axes: title={'center': 'data science'}>,
        <Axes: title={'center': 'machine learning'}>],
       [<Axes: title={'center': 'deep learning'}>,
        <Axes: title={'center': 'categorical'}>]], dtype=object)
```