Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

Aim: Practical based on Data Visualization with Plotnine

IDE:

Installation

pip install plotnine

from plotnine import *
from plotnine.data import mtcars

print(mtcars.head())

```
1  from plotnine import *
2  from plotnine.data import mtcars
3  print(mtcars.head())
4
```

Output:

```
In [2]: from plotnine import *
   ...: from plotnine.data import mtcars
   ...: print(mtcars.head())
   ...:
   ...:
              name   mpg  cyl   disp   hp  ...   qsec  vs  am  gear  carb
0          Mazda RX4  21.0    6  160.0  110  ...  16.46   0   1     4     4
1      Mazda RX4 Wag  21.0    6  160.0  110  ...  17.02   0   1     4     4
2         Datsun 710  22.8    4  108.0   93  ...  18.61   1   1     4     1
3     Hornet 4 Drive  21.4    6  258.0  110  ...  19.44   1   0     3     1
4  Hornet Sportabout  18.7    8  360.0  175  ...  17.02   0   0     3     2

[5 rows x 12 columns]
```

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

```
                name   mpg  cyl   disp   hp  ...   qsec  vs  am  gear  carb
0          Mazda RX4  21.0    6  160.0  110  ...  16.46   0   1     4     4
1      Mazda RX4 Wag  21.0    6  160.0  110  ...  17.02   0   1     4     4
2         Datsun 710  22.8    4  108.0   93  ...  18.61   1   1     4     1
3     Hornet 4 Drive  21.4    6  258.0  110  ...  19.44   1   0     3     1
4  Hornet Sportabout  18.7    8  360.0  175  ...  17.02   0   0     3     2

[5 rows x 12 columns]
```

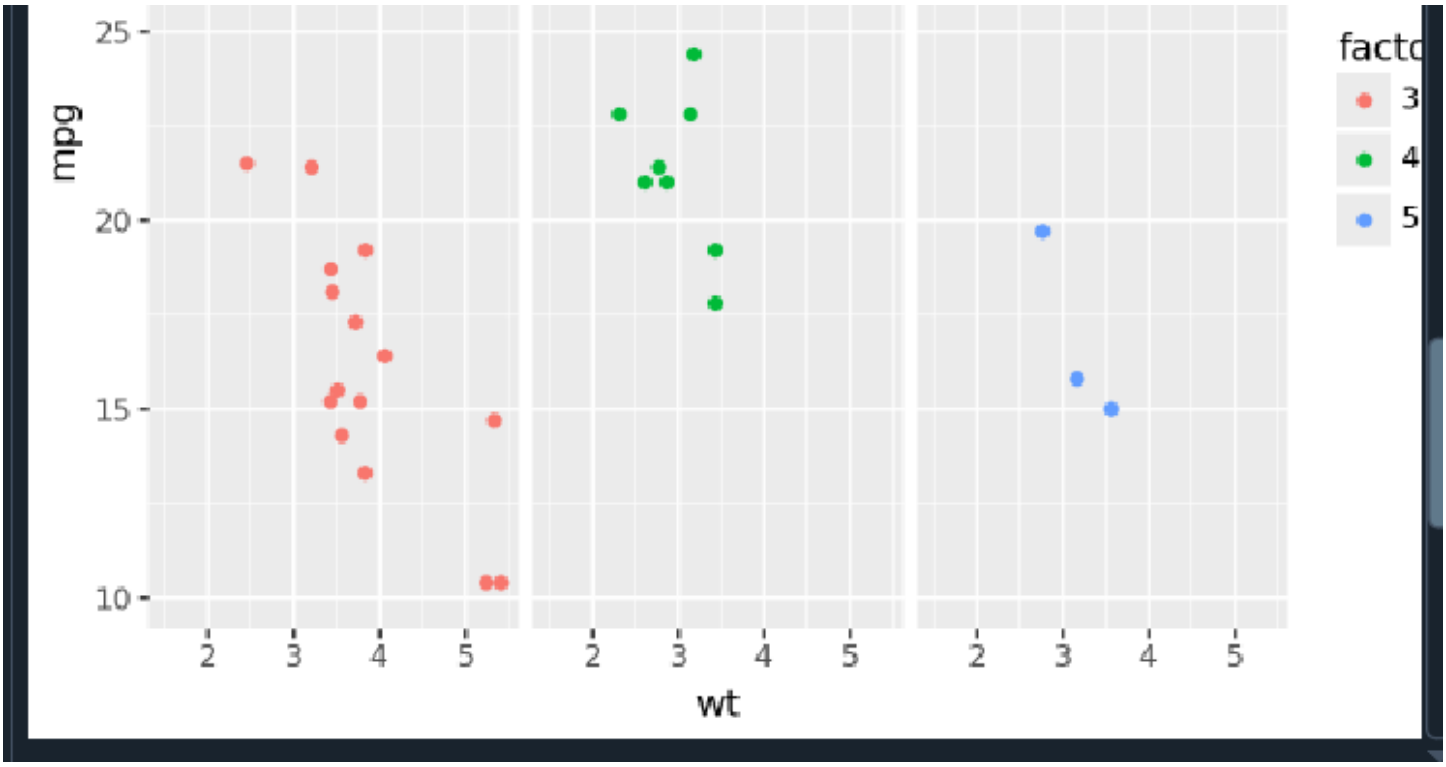
```
(ggplot(data=mtcars)
 + geom_point(mapping=aes(x="wt", y="mpg", color="factor(gear)"))
 + facet_wrap("~gear"))
```

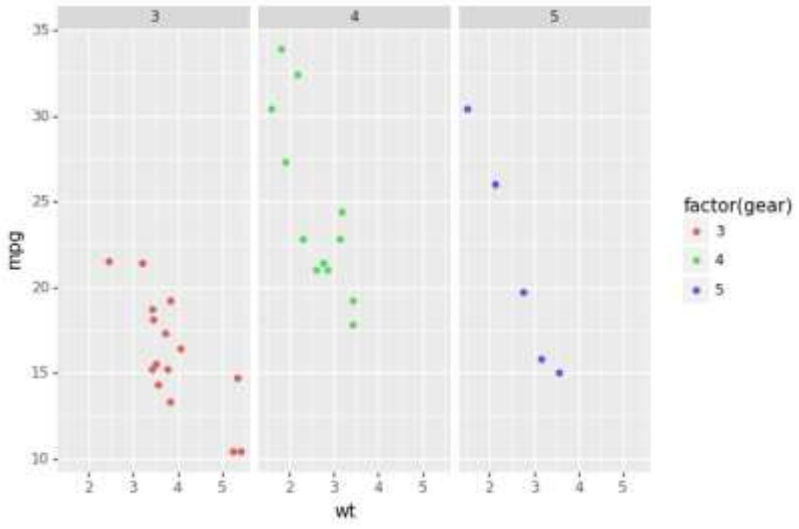
```
5  (ggplot(data=mtcars)
6  _+ geom_point(mapping=aes(x="wt", y="mpg", color="factor(gear)"))
7  _+ facet_wrap("~gear"))
8
```

Output:

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**





Understanding the Grammer of Graphics

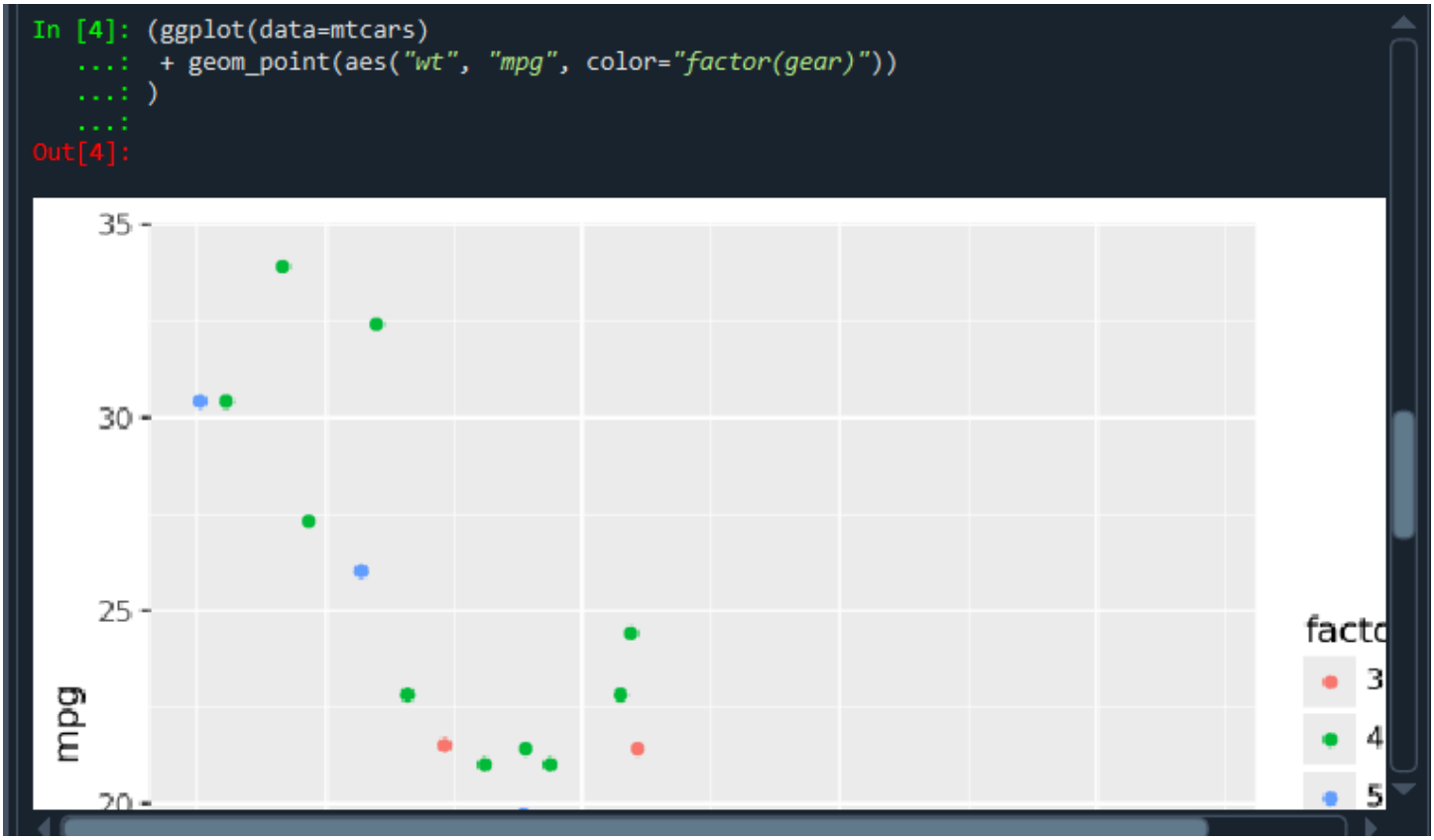
Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

```
(ggplot(data=mtcars)
 + geom_point(aes("wt", "mpg", color="factor(gear)"))
)
```

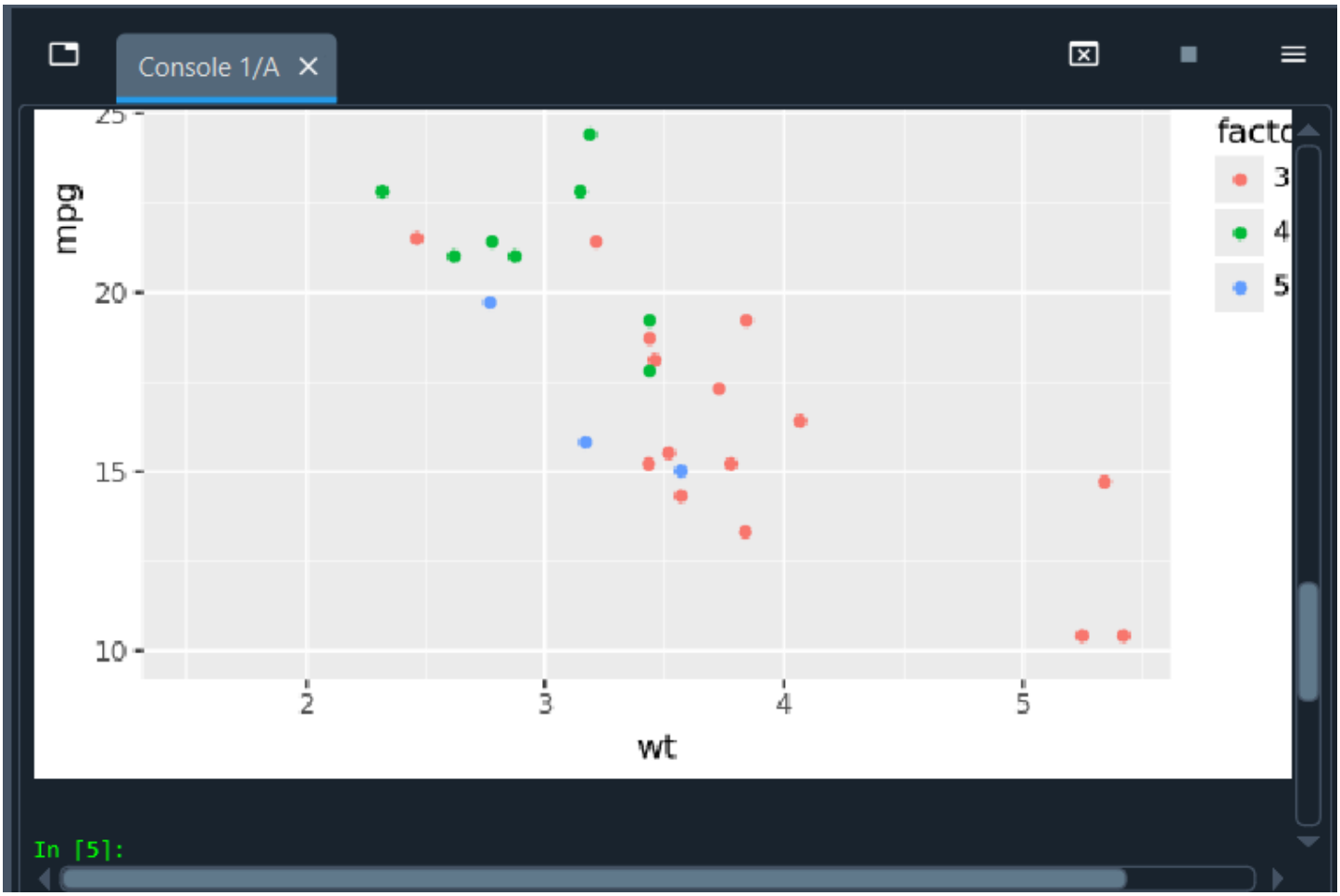
```
 9    (ggplot(data=mtcars)
10    + geom_point(aes("wt", "mpg", color="factor(gear)"))
11    )
12
```

Output:

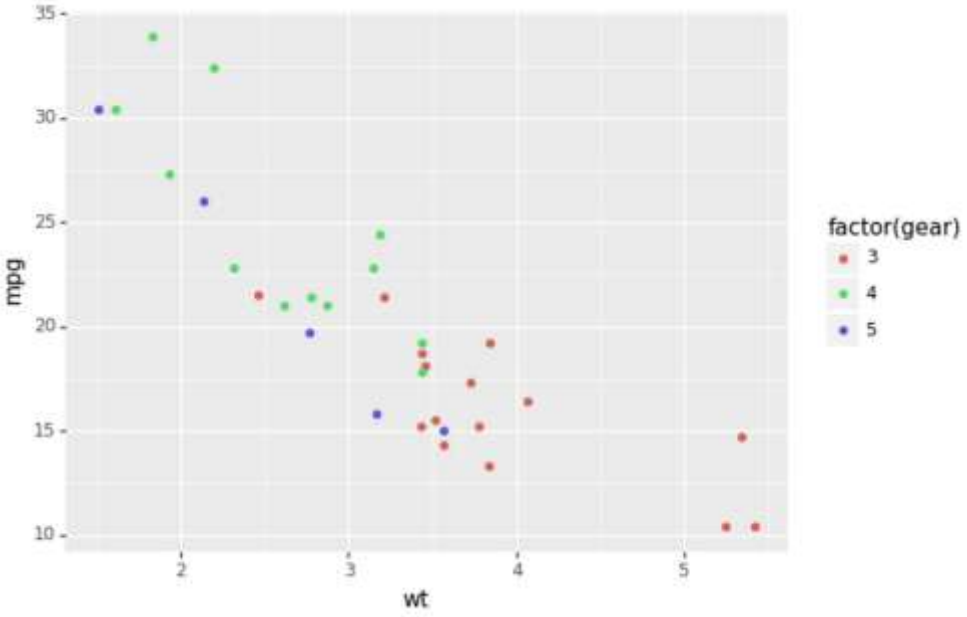
```
In [4]: (ggplot(data=mtcars)
   ...:  + geom_point(aes("wt", "mpg", color="factor(gear)"))
   ...: )
   ...:
Out[4]:
```



Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**



Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**



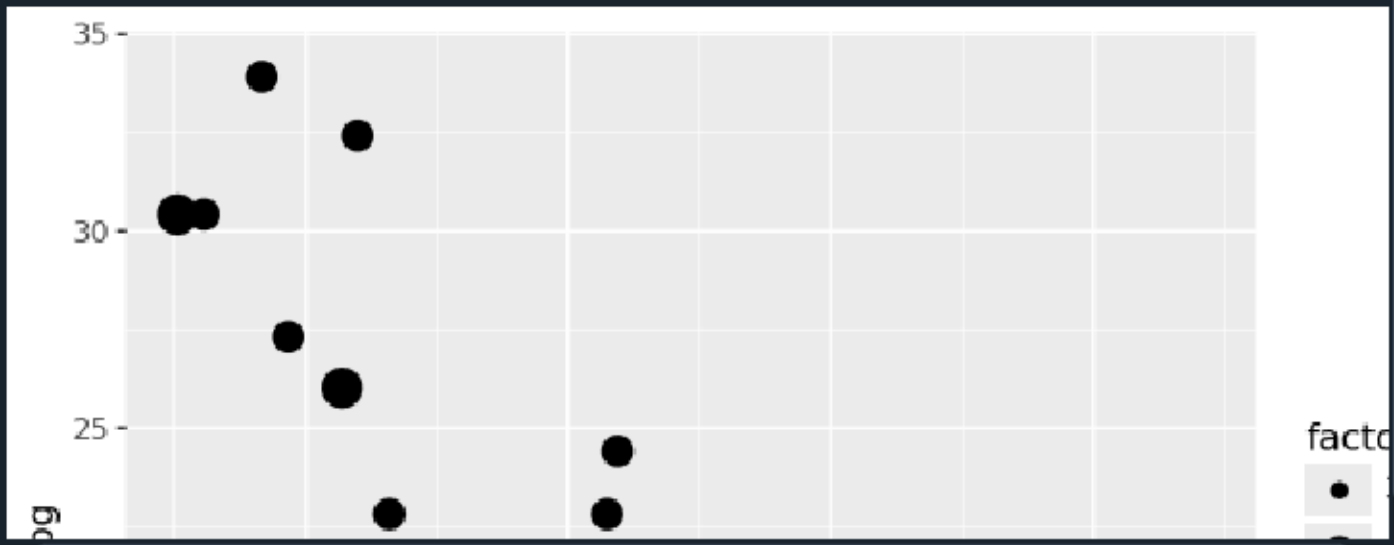
(ggplot(data=mtcars)
+ geom_point(aes("wt", "mpg", size="factor(gear)"))
)

```
(ggplot(data=mtcars)
+ geom_point(aes("wt", "mpg", size="factor(gear)"))
)
```

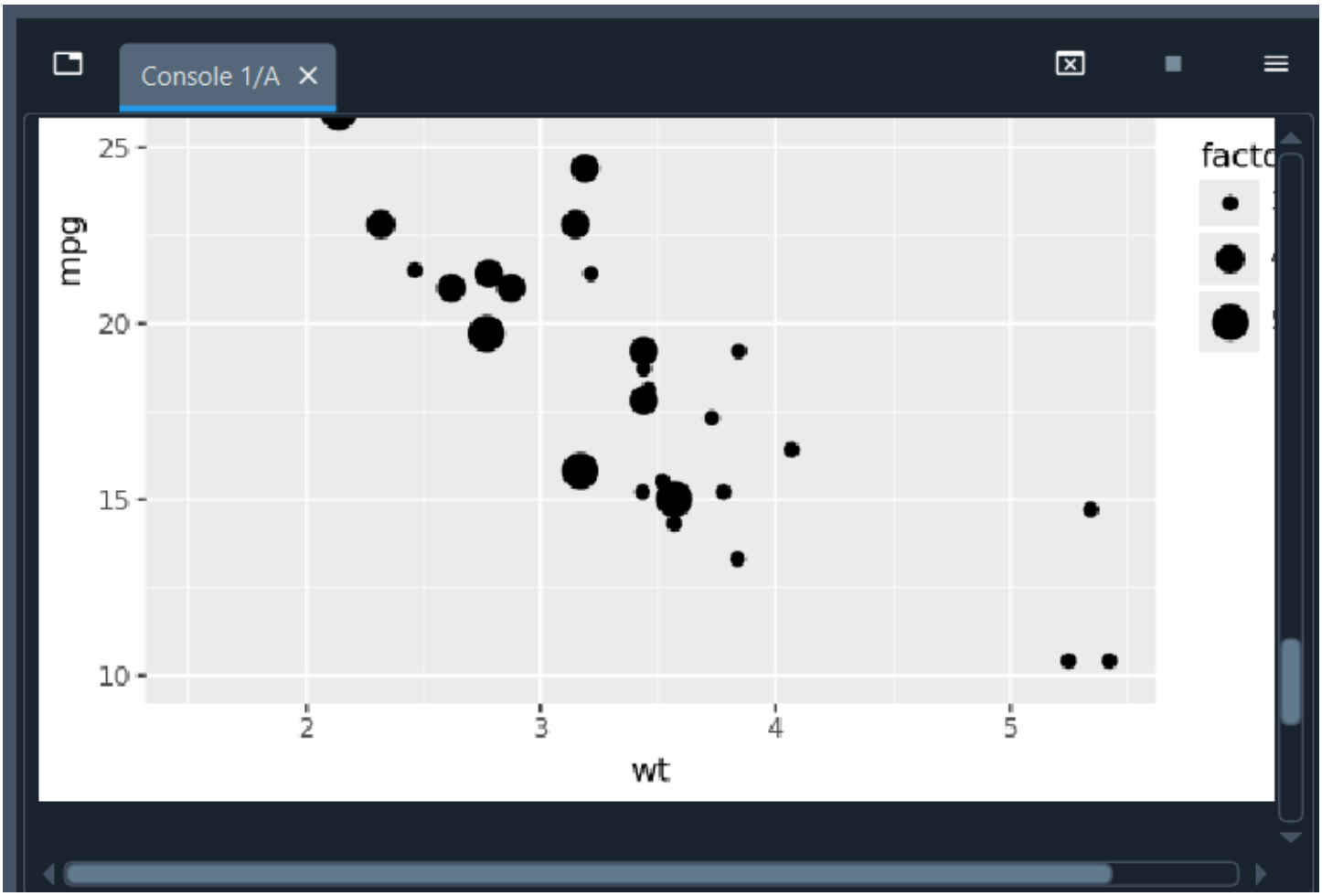
Output:

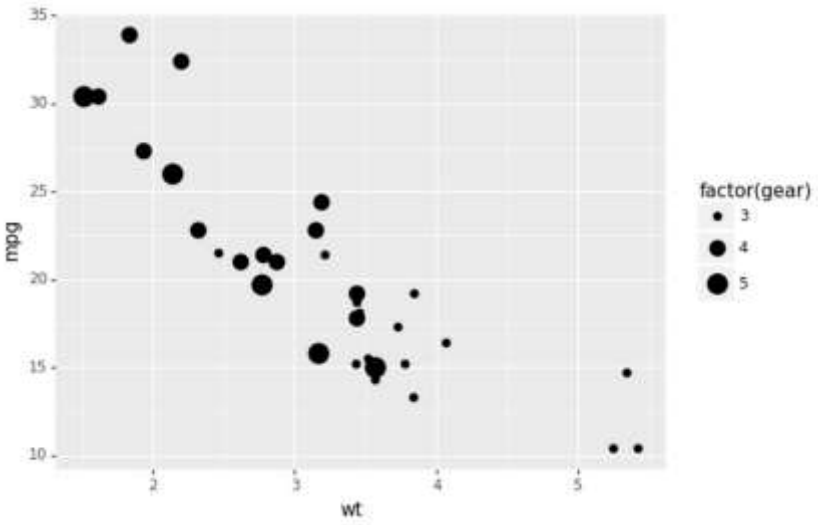
Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

```
In [5]: (ggplot(data=mtcars)
   ...:  + geom_point(aes("wt", "mpg", size="factor(gear)"))
   ...: )
   ...:
   ...:
C:\Users\devah\anaconda3\envs\myenv\Lib\site-packages\plotnine\scales\scale_size.py:46:
PlotnineWarning: Using size for a discrete variable is not advised.
Out[5]:
```



Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**





Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

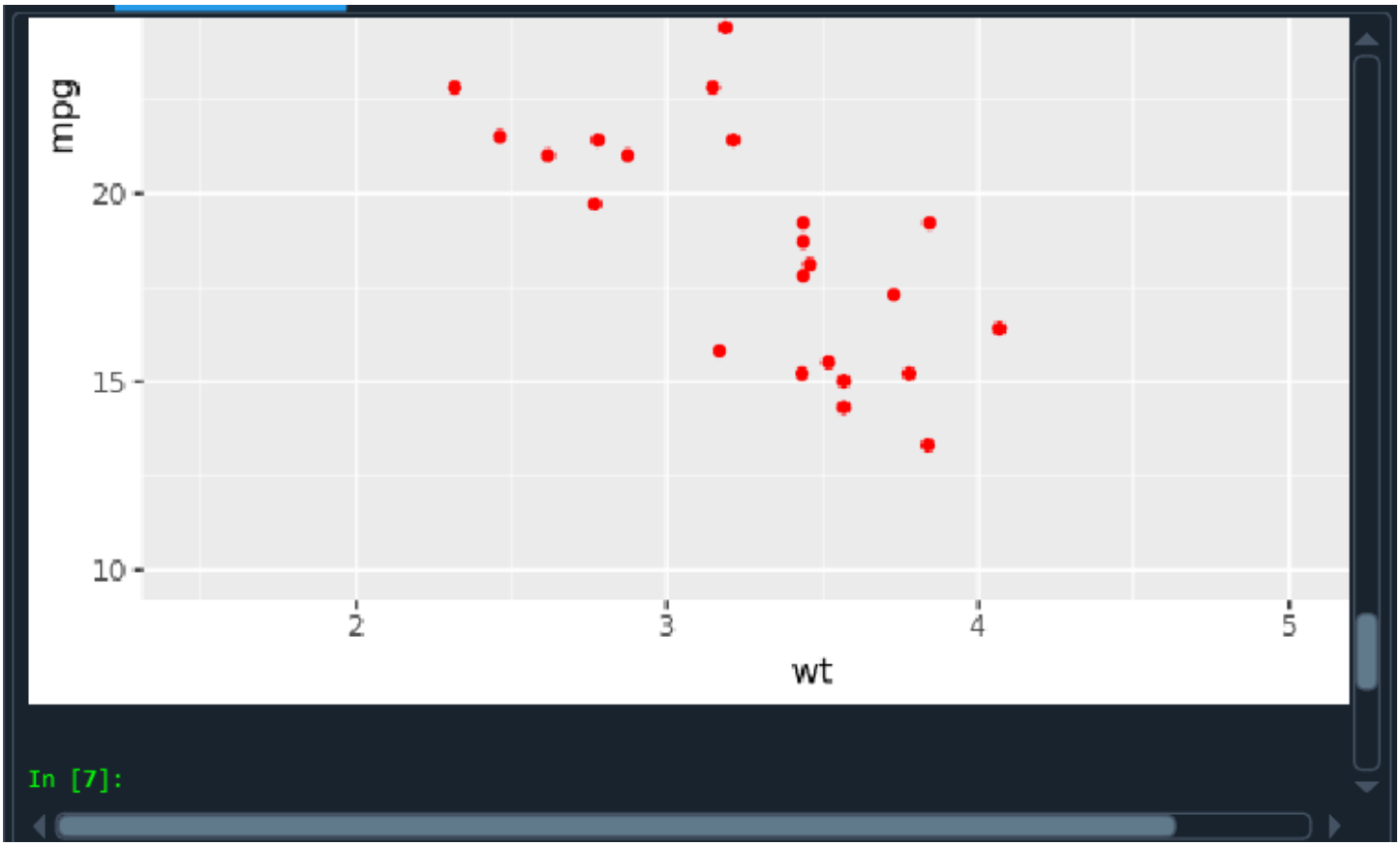
(ggplot(data=mtcars)
+ geom_point(aes("wt", "mpg"), color='red')
)

```
25
26  (ggplot(data=mtcars)
27  + geom_point(aes("wt", "mpg"), color='red')
28  )
```

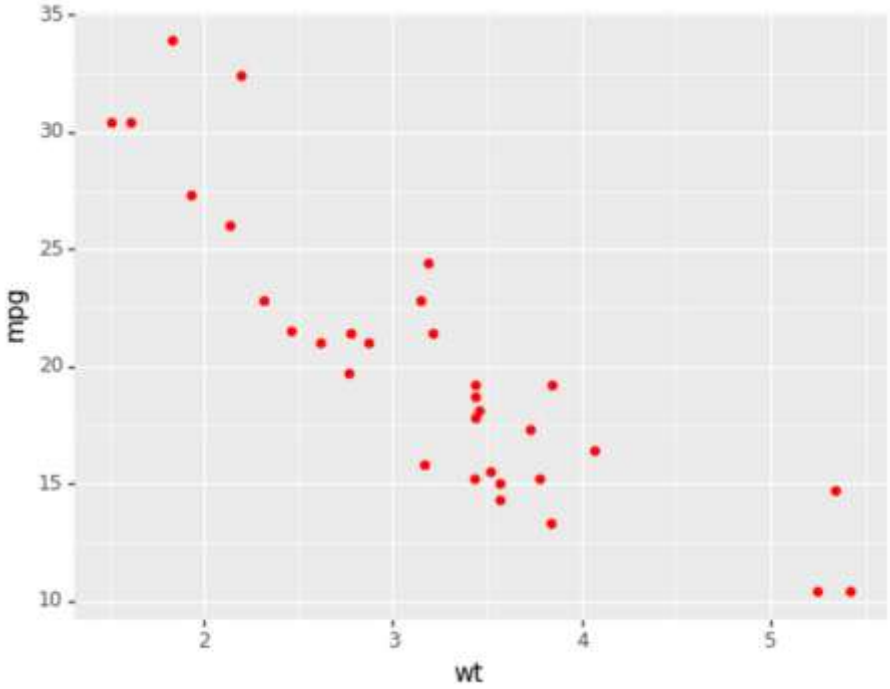
Output:

```
In [6]: (ggplot(data=mtcars)
   ...: + geom_point(aes("wt", "mpg"), color='red')
   ...: )
   ...:
Out[6]:
```

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**



Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**



Post Lab:

Visualize the raw data in the economics dataset

from_plotnine.data_import economics

print(economics)

```
from plotnine.data import economics
print(economics)
```

Output:

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

```
In [8]: from plotnine.data import economics
   ...: print(economics)
   ...:
          date      pce     pop  psavert  uempmed  unemploy
0   1967-07-01    507.4  198712     12.5      4.5      2944
1   1967-08-01    510.5  198911     12.5      4.7      2945
2   1967-09-01    516.3  199113     11.7      4.6      2958
3   1967-10-01    512.9  199311     12.5      4.9      3143
4   1967-11-01    518.1  199498     12.5      4.7      3066
..         ...      ...     ...      ...      ...       ...
569 2014-12-01  12122.0  320201      5.0     12.6      8688
570 2015-01-01  12080.8  320367      5.5     13.4      8979
571 2015-02-01  12095.9  320534      5.7     13.1      8705
572 2015-03-01  12161.5  320707      5.2     12.2      8575
573 2015-04-01  12158.9  320887      5.6     11.7      8549

[574 rows x 6 columns]

In [9]:
```

```
          date      pce     pop  psavert  uempmed  unemploy
0   1967-07-01    507.4  198712     12.5      4.5      2944
1   1967-08-01    510.5  198911     12.5      4.7      2945
2   1967-09-01    516.3  199113     11.7      4.6      2958
3   1967-10-01    512.9  199311     12.5      4.9      3143
4   1967-11-01    518.1  199498     12.5      4.7      3066
..         ...      ...     ...      ...      ...       ...
569 2014-12-01  12122.0  320201      5.0     12.6      8688
570 2015-01-01  12080.8  320367      5.5     13.4      8979
571 2015-02-01  12095.9  320534      5.7     13.1      8705
572 2015-03-01  12161.5  320707      5.2     12.2      8575
573 2015-04-01  12158.9  320887      5.6     11.7      8549

[574 rows x 6 columns]
```

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

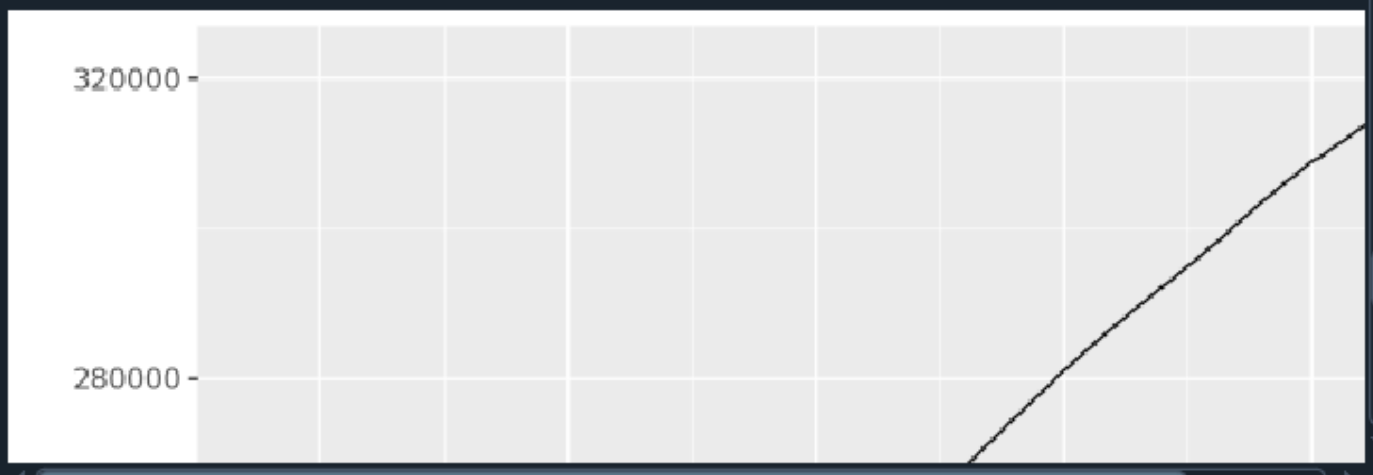
```
from plotnine.data import economics
from plotnine import ggplot, aes, geom_line

(
   ggplot(economics)  # What data to use
   + aes(x="date", y="pop")  # What variable to use
   + geom_line()  # Geometric object to use for drawing
)
```

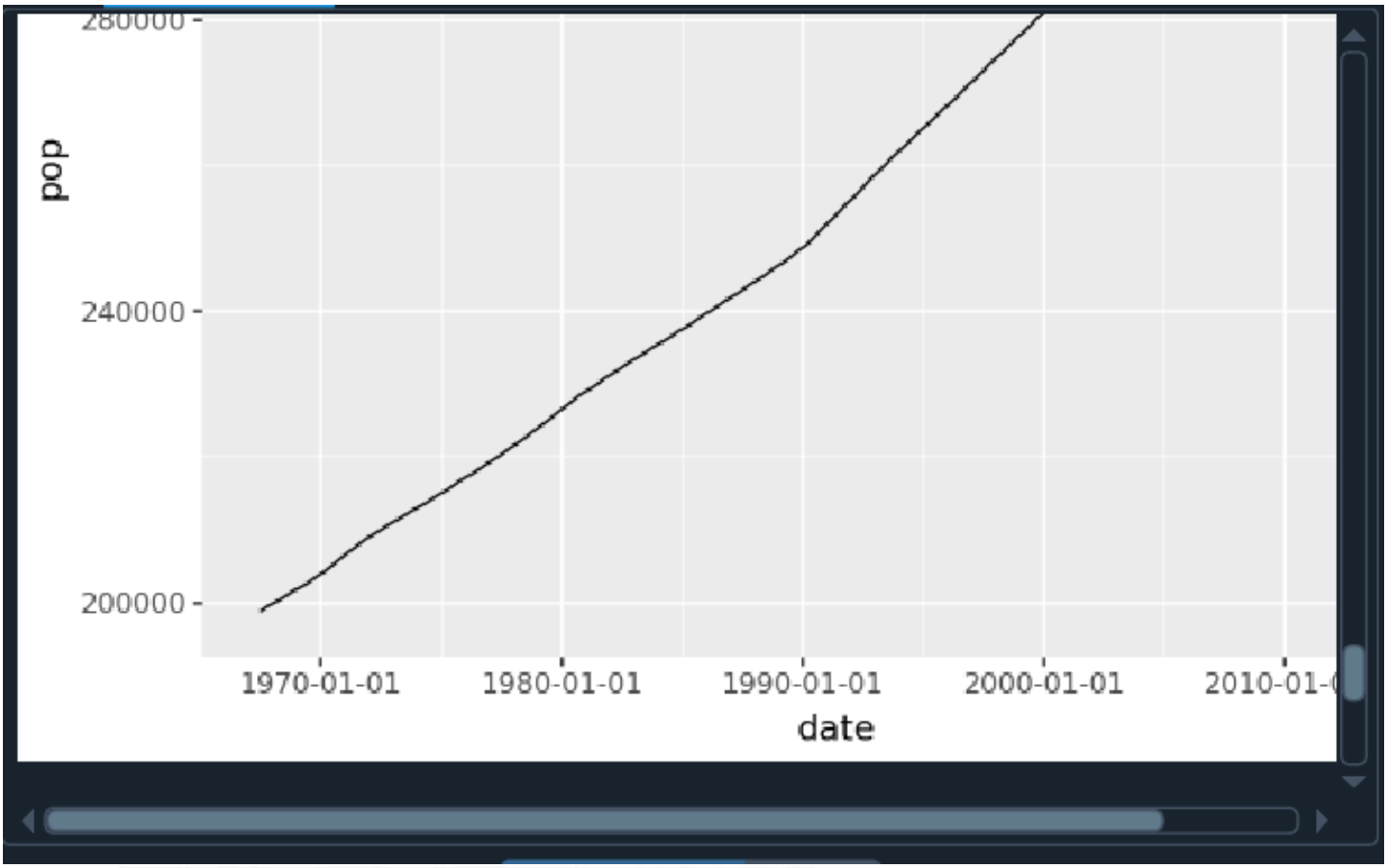
```
5   from plotnine.data import economics
6   from plotnine import ggplot, aes, geom_line
7
8   (
9       ggplot(economics)  # What data to use
10      + aes(x="date", y="pop")  # What variable to use
11      + geom_line()  # Geometric object to use for drawing
12  )
13
```

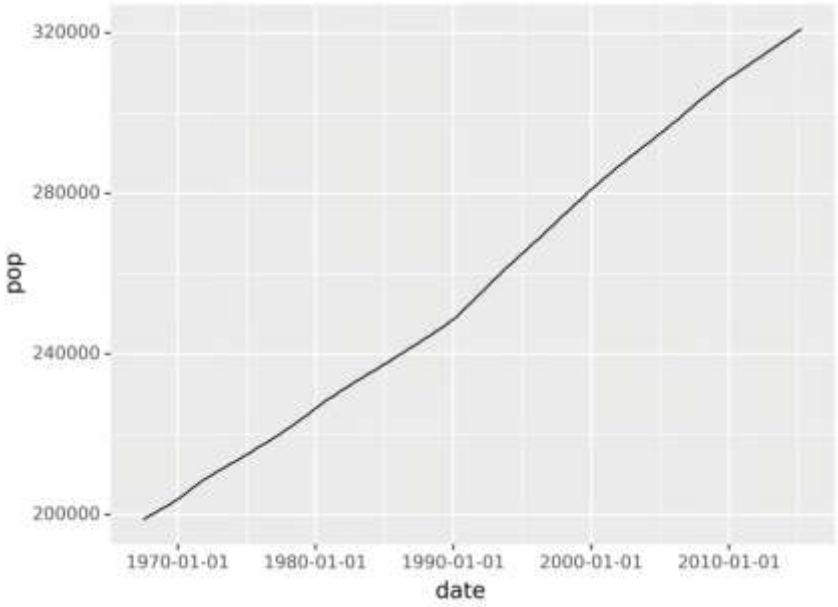
Output:

```
In [9]: from plotnine.data import economics
   ...: from plotnine import ggplot, aes, geom_line
   ...:
   ...: (
   ...:     ggplot(economics)  # What data to use
   ...:     + aes(x="date", y="pop")  # What variable to use
   ...:     + geom_line()  # Geometric object to use for drawing
   ...: )
   ...:
Out[9]:
```



Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**





Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

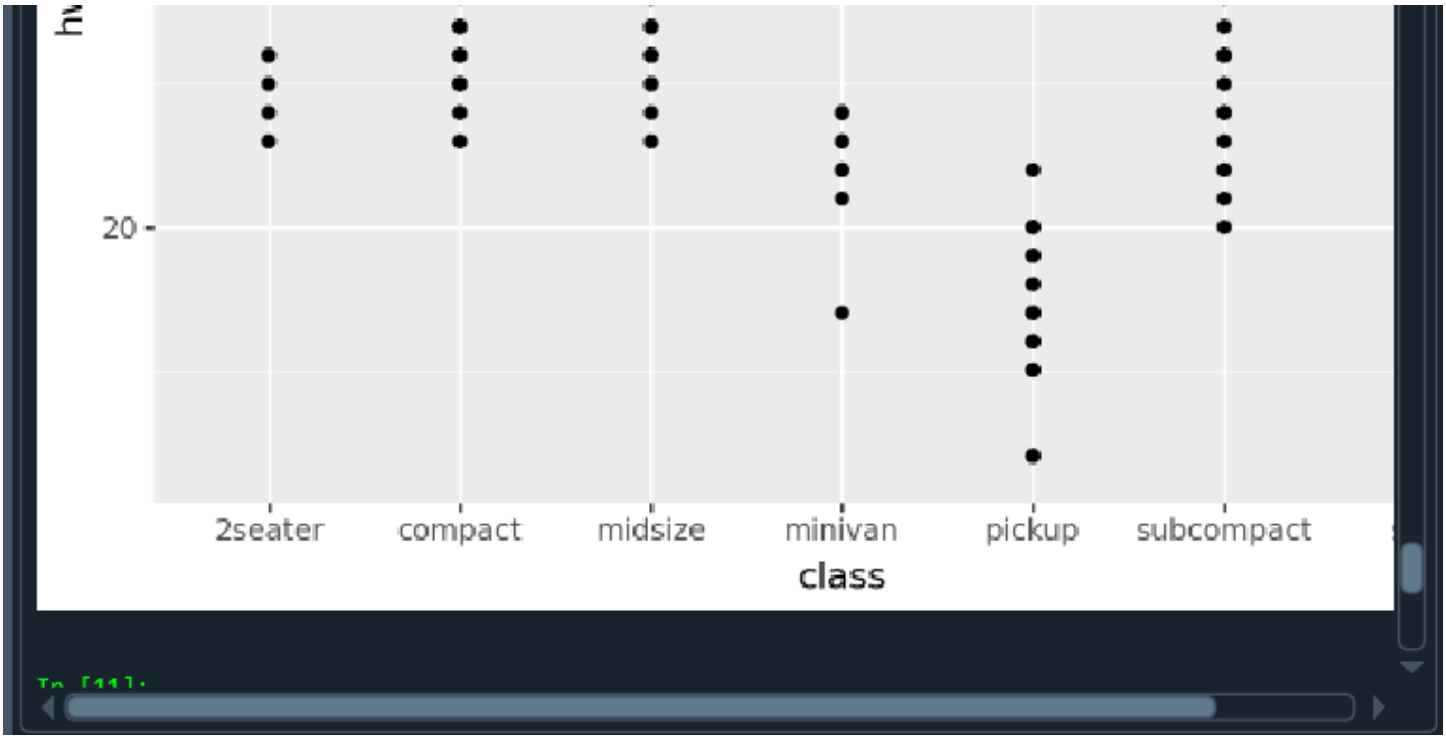
from plotnine.data import mpg
from plotnine import ggplot, aes, geom_point

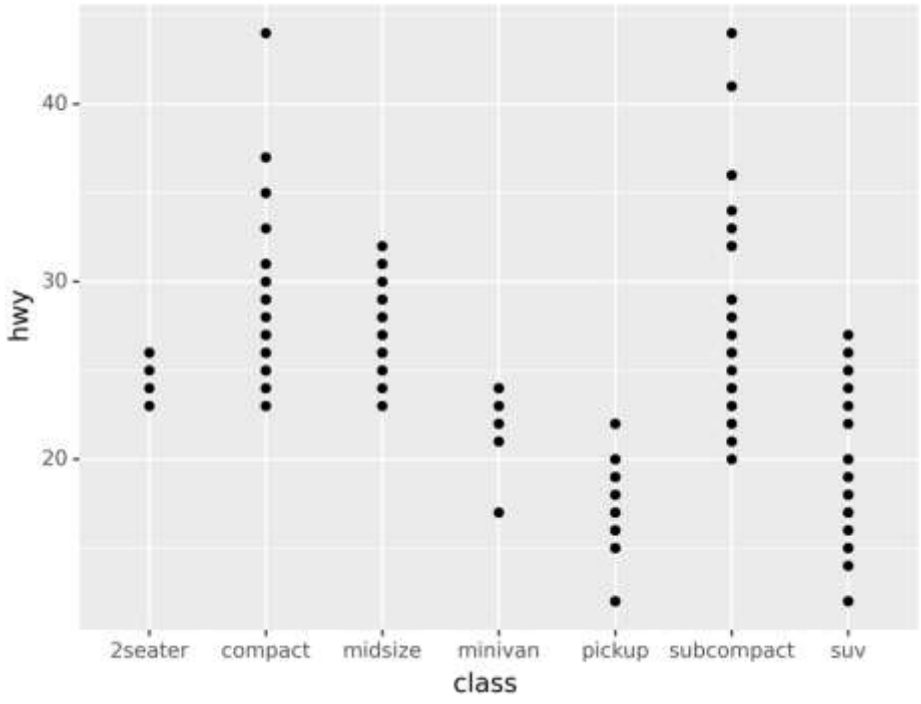
ggplot(mpg) + aes(x="class", y="hwy") + geom_point()

```
14
15  from plotnine.data import mpg
16  from plotnine import ggplot, aes, geom_point
17
18  ggplot(mpg) + aes(x="class", y="hwy") + geom_point()
19
```

Output:

Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**





	Marwadi University **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Practical based on Data Visualization with Plotnine	
Experiment No: 28	**Date:**	**Enrollment No: 92400133181**

GitHub:
https://github.com/mallaadisrinivasu132035-code/python.git