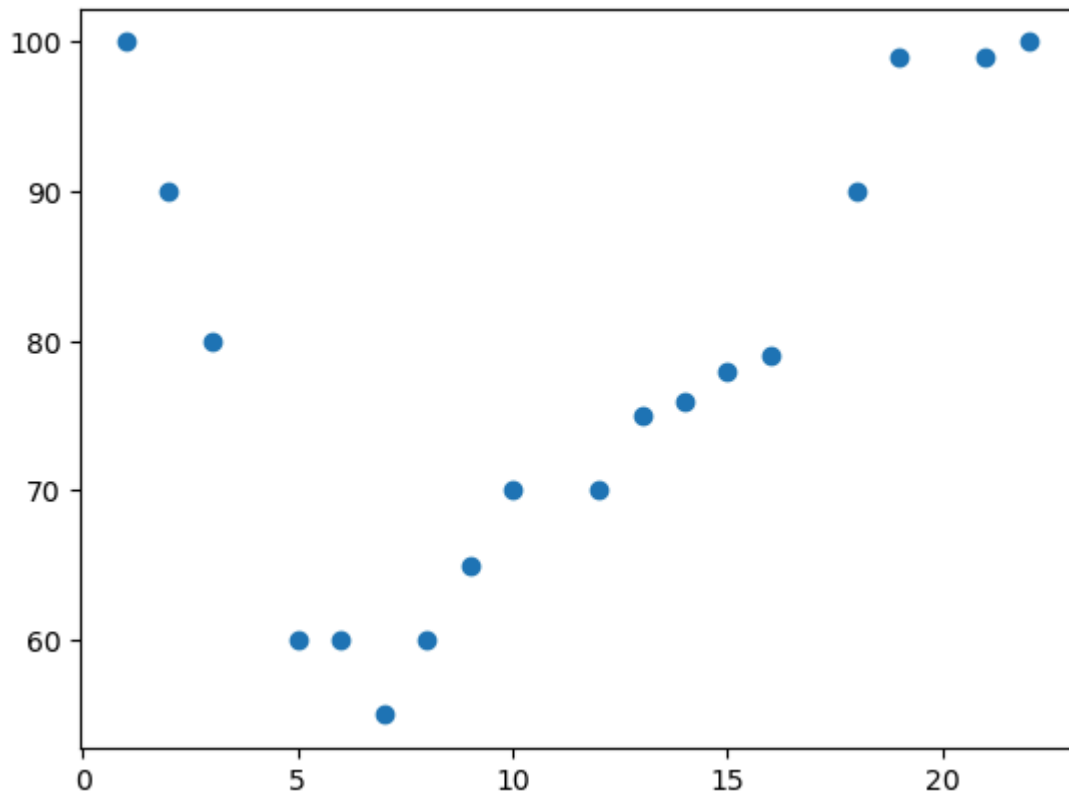# Polynomial Regression

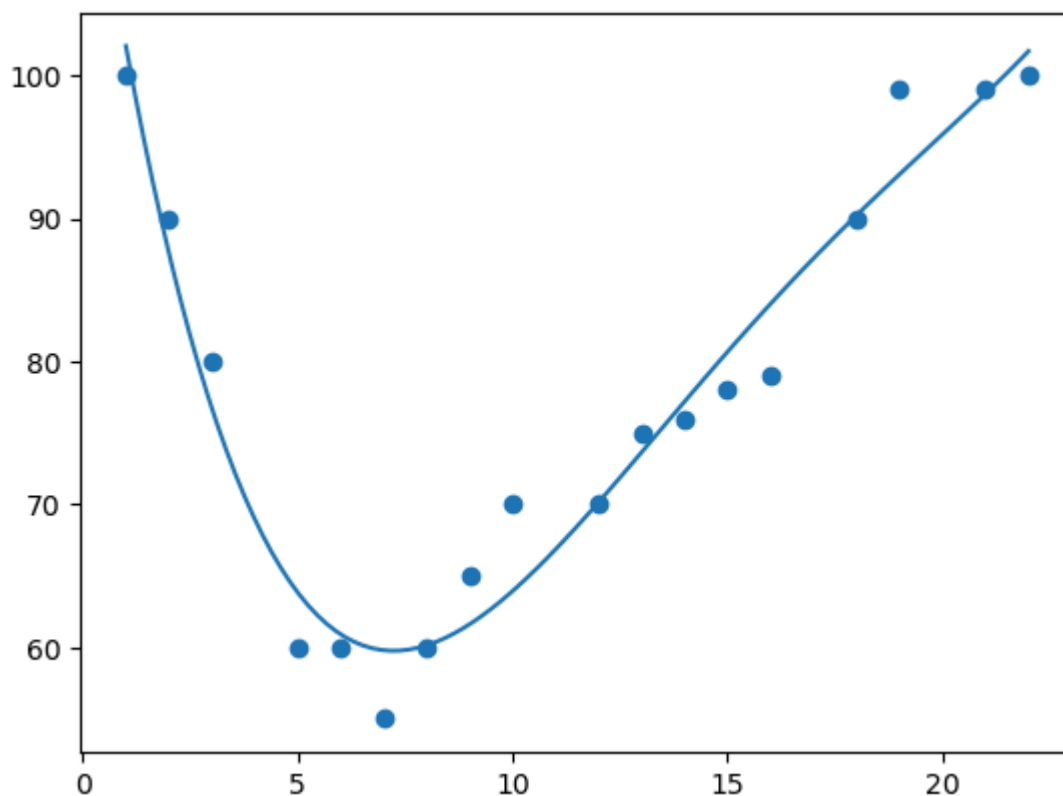In [1]:
```python
import matplotlib.pyplot as plt
```

In [2]:
```python
x = [1,2,3,5,6,7,8,9,10,12,13,14,15,16,18,19,21,22]
y = [100,90,80,60,60,55,60,65,70,70,75,76,78,79,90,99,99,100]
plt.scatter(x,y)
plt.show()
```

In [3]:
```python
import numpy as np
import matplotlib.pyplot as plt
x = [1,2,3,5,6,7,8,9,10,12,13,14,15,16,18,19,21,22]
y = [100,90,80,60,60,55,60,65,70,70,75,76,78,79,90,99,99,100]

mymodel=np.poly1d(np.polyfit(x,y,4))
myline=np.linspace(1,22,100)

plt.scatter(x,y)
plt.plot(myline,mymodel(myline))
plt.show()
```


In [5]:
```python
import numpy as np
from sklearn.metrics import r2_score

x = [1,2,3,5,6,7,8,9,10,12,13,14,15,16,18,19,21,22]
y = [100,90,80,60,60,55,60,65,70,70,75,76,78,79,90,99,99,100]

my_model=np.poly1d(np.polyfit(x,y,4))

print(r2_score(y,my_model(x)))
```

```
0.9542030834699508
```

In [6]:
```python
import numpy
from sklearn.metrics import r2_score

x = [1,2,3,5,6,7,8,9,10,12,13,14,15,16,18,19,21,22]
y = [100,90,80,60,60,55,60,65,70,70,75,76,78,79,90,99,99,100]

my_model = numpy.poly1d(numpy.polyfit(x, y, 4))

speed = my_model(17)
print(speed)
```

87.21097471965435

In [ ]: