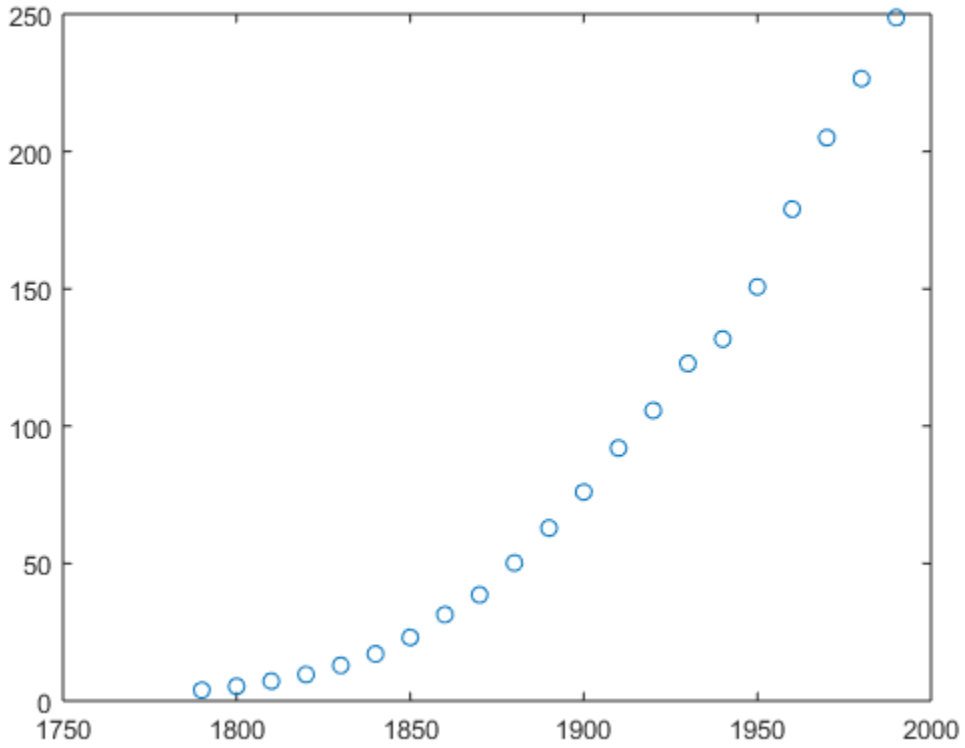
Create Fit Options and Fit Type Before Fitting

Load and plot the data, create fit options and fit type using the `fittype` and `fitoptions` functions, then create and plot the fit.

Load and plot the data in `census.mat`.

```
load census
plot(cdate,pop,'o')
```



Create a fit options object and a fit type for the custom nonlinear model $y = a(x-b)^n$, where *a* and *b* are coefficients and *n* is a problem-dependent parameter.

```
fo = fitoptions('Method','NonlinearLeastSquares',...
                'Lower',[0,0],...
                'Upper',[Inf,max(cdate)],...
                'StartPoint',[1 1]);
ft = fittype('a*(x-b)^n','problem','n','options',fo);
```

Fit the data using the fit options and a value of $n = 2$.

```
[curve2,gof2] = fit(cdate,pop,ft,'problem',2)
```

```
curve2 =

     General model:
     curve2(x) = a*(x-b)^n
     Coefficients (with 95% confidence bounds):
       a =    0.006092  (0.005743, 0.006441)
       b =        1789  (1784, 1793)
     Problem parameters:
       n =           2

gof2 =

           sse: 246.1543
       rsquare: 0.9980
           dfe: 19
    adjrsquare: 0.9979
          rmse: 3.5994
```

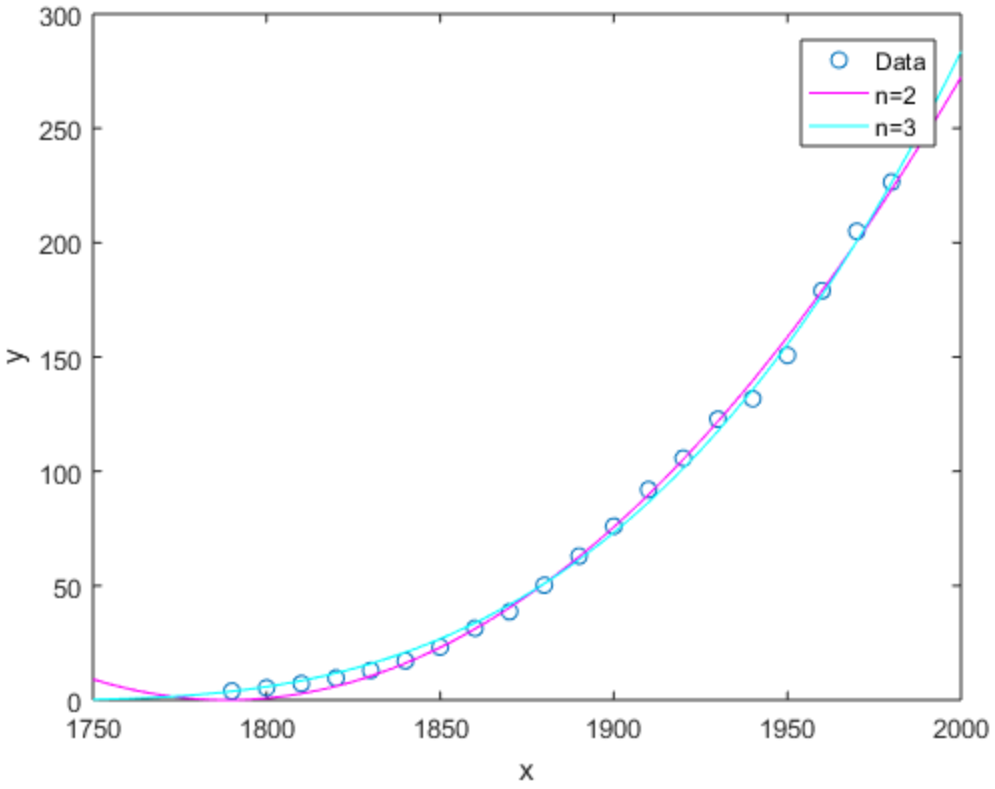
Fit the data using the fit options and a value of $n = 3$.

```
[curve3,gof3] = fit(cdate,pop,ft,'problem',3)
```

```
curve3 =

     General model:
     curve3(x) = a*(x-b)^n
     Coefficients (with 95% confidence bounds):
       a =   1.359e-05  (1.245e-05, 1.474e-05)
       b =        1725  (1718, 1731)
     Problem parameters:
       n =           3

gof3 =

           sse: 232.0058
       rsquare: 0.9981
           dfe: 19
    adjrsquare: 0.9980
          rmse: 3.4944
```

Plot the fit results with the data.

```
hold on
plot(curve2,'m')
plot(curve3,'c')
legend('Data','n=2','n=3')
hold off
```



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