```
% Define parameters , Variable

Qatar
```

Qatar = 1×2 table

	years	POPQater
1	2022	2695122

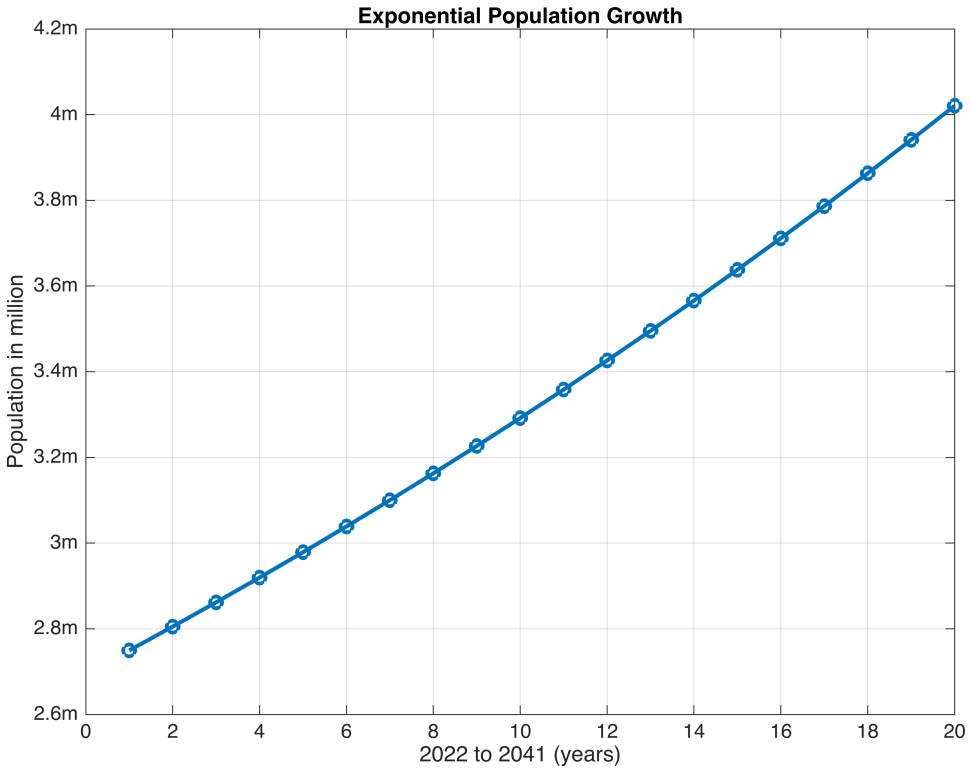
```
P_0 = Qatar.POPQater  % Initial population (26 million)
```

```
P_0 = 2695122
```

```
r = 0.02;   % Annual growth rate (2%)
t = 1:1:20;  % Time in years from 0 to 20 with a step of 1

% Compute population over time
P = P_0 * exp(r * t)
```

```
P = 1×20
10^6 ×
    2.7496    2.8051    2.8618    2.9196    2.9786    3.0387    3.1001    3.1628 ···
```

```


% Plot the result
figure;
plot(t, P/1e6, '-o', 'LineWidth', 2);
xlabel('2022 to 2041 (years)');
ylabel('Population in million');
title('Exponential Population Growth');
grid on;

ax = gca();
yt = get(ax,'YTick');
ax.YTickMode = 'manual';
ax.YTickLabel = yt+"m";
```


Exponential Population Growth
Population in million
4.2m
4m
3.8m
3.6m
3.4m
3.2m
3m
2.8m
2.6m
0
2
4
6
8
10
12
14
16
18
20
2022 to 2041 (years)