a) Write a FUNCTION called myGAUSS to implement a Gaussian function.Given argument x, compute y = g(x) as described in https://en.wikipedia.org/wiki/Gaussian_function.

The Gaussian function is given by

$$g(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}((x-\mu)/\sigma)^2}$$

where μ is the mean and σ is the standard deviation of the the Gaussian Probability Distribution Function.

For simplicity let us denote the mean and the standard deviation by u and s, respectively, so that we would not have to deal with Greek characters. Everything else is pretty straightforward. The only thing to be mindful about is making sure that the function can handle matrix x inputs with element-by-element multiplication((x-u).^2).

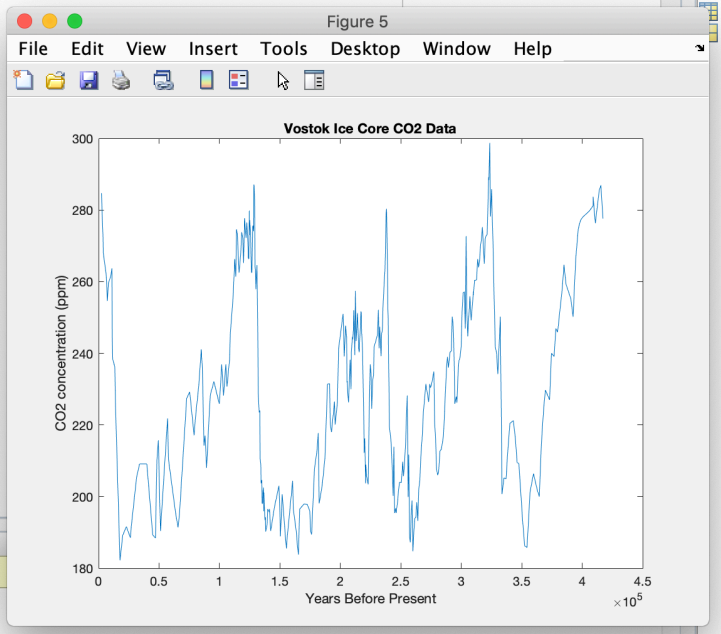
Editor - /Users/[redacted]/Documents/MATLAB/myGAUSS.m

HW1p-2.m | Lecture08312010.m | HW1p-3.m | myGAUSS.m | gaussianSAMPLES.m

```
1   % myGAUSS
2   %
3   % Given the x-value, myGAUSS returns a height, the y-value based on the
4   % the Gaussian Probability Distribution function (PDF) with mean u and
5   % standard deviation s.
6   %
7   % Usage:
8   %           function [y] = myGAUSS(x, u, s)
9   %
10  % Where:
11  %           INPUTS
12  %           x  = The point along the x-axis
13  %           u  = The mean of the Gaussian PDF
14  %           s  = The standard deviation of the Gaussian PDF
15  %
16  %           OUTPUT
17  %           y  = The height of the function at x
18  %
19  % Created By:
20  %           [redacted]
21  %           September 12, 2019
22  %
23  function [y] = myGAUSS(x, u, s)
24  y = (s*sqrt(2*pi))^(-1)*exp(-(2*s^2)^(-1)*(x-u).^2);
25  end
26
27
```

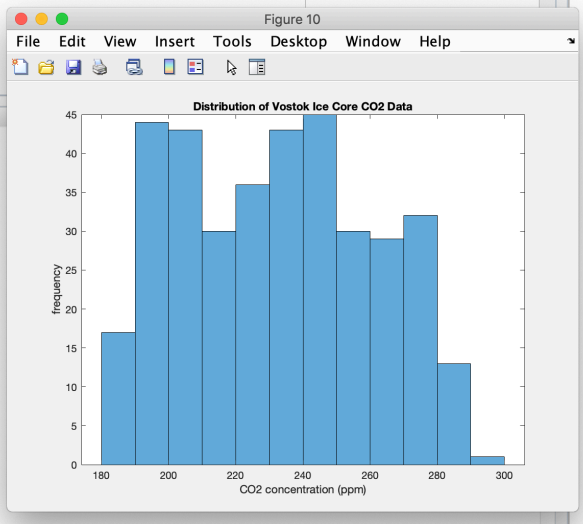
MATLAB R2019a - academic use

```
1 -    vco2 = vostokicecoreco2{:,4};
2 -    vyear = vostokicecoreco2{:,3} + 16;
3 -    figure; plot(vyear,vco2);
4 -    title('Vostok Ice Core CO2 Data')
5 -    xlabel('Years Before Present')
6 -    ylabel('CO2 concentration (ppm)')
```




```
Command Window
New to MATLAB? See resources for Getting Started.
    28.4859
>>
```

```
1 -    vco2 = vostokicecoreco2{:,4};
2 -    figure; histogram(vco2);
3 -    title('Distribution of Vostok Ice Core CO2 Data')
4 -    xlabel('CO2 concentration (ppm)')
5 -    ylabel('frequency')
6 -    mean(vco2)
7 -    std(vco2)
8 -    max(vco2)
9 -    min(vco2)
10 -   range(vco2)
```




```
Command Window
>> VostockHistogram

ans =

  232.1865

ans =

   28.4859

ans =

  298.7000

ans =

  182.2000

ans =

  116.5000

fx >>
```