```
clc
clear
%The above lines ensure a clean slate for creating variables and a new
%script

%%Problem 1
%Problem 1A
a=4*(pi)^2

%Problem 1B
A=[1 2 3]
B=[4 5 6]
C=[7 8 9]

AA=sum(A)
BB=sum(B)
CC=sum(C)
%The above 3 lines take the sum of the matrices stored in the defined
%variables: A,B,C and redefines them to the respective variables:
 AA,BB,CC
Product=AA*BB*CC

%Problem 1C
e=exp(1)
%the above line defines the variable e which is used in the line below
avrg=mean(2.1*[5; 17; 18]+[e; 5^(.5);1.27^(2.2)])

%Problem 1D
A1=[1 0 1 0; 0 0 1 0; 1 1 0 1; 0 1 0 0]
B2=[A1 A1 A1 A1 A1 A1]
C3=[A1; A1; A1; A1; A1; A1]
D=C3*B2
%The above 4 lines are all variables that hold contents provided to us
 in
%the lab 8 pdf file
E=nnz(D)
%The line above takes the contents stored in the variable D and
 calculates
%how many nonzero values exist then redefines that calculation in the
%variable E
```

```
a =

   39.4784


A =

     1     2     3
```

```
B =

     4     5     6


C =

     7     8     9


AA =

     6


BB =

    15


CC =

    24


Product =

        2160


e =

    2.7183


avrg =

   30.2154


A1 =

     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0


B2 =

  Columns 1 through 13

     1     0     1     0     1     0     1     0     1     0     1
 0     1
```

```
     0     0     1     0     0     0     1     0     0     0     1
 0     0
     1     1     0     1     1     1     0     1     1     1     0
 1     1
     0     1     0     0     0     1     0     0     0     1     0
 0     0

  Columns 14 through 24

     0     1     0     1     0     1     0     1     0     1     0
     0     1     0     0     0     1     0     0     0     1     0
     1     0     1     1     1     0     1     1     1     0     1
     1     0     0     0     1     0     0     0     1     0     0


C3 =

     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0
     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0
     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0
     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0
     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0
     1     0     1     0
     0     0     1     0
     1     1     0     1
     0     1     0     0


D =

  Columns 1 through 13

     2     1     1     1     2     1     1     1     2     1     1
 1     2
     1     1     0     1     1     1     0     1     1     1     0
 1     1
     1     1     2     0     1     1     2     0     1     1     2
 0     1
```

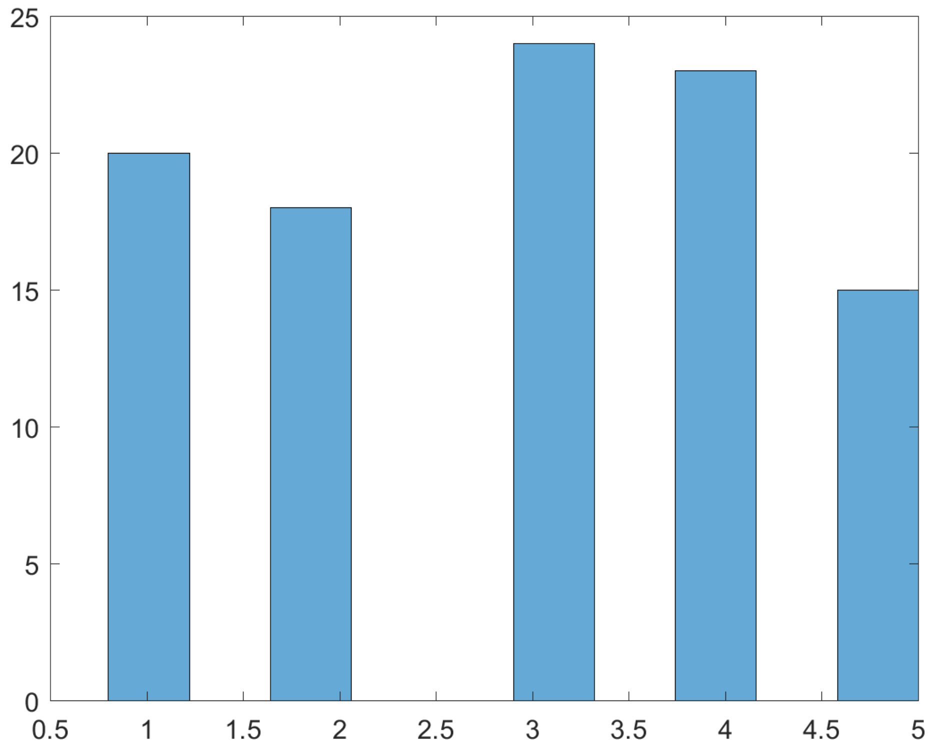
```
    0     0     1     0     0     0     1     0     0     0     1
0     0
    2     1     1     1     2     1     1     1     2     1     1
1     2
    1     1     0     1     1     1     0     1     1     1     0
1     1
    1     1     2     0     1     1     2     0     1     1     2
0     1
    0     0     1     0     0     0     1     0     0     0     1
0     0
    2     1     1     1     2     1     1     1     2     1     1
1     2
    1     1     0     1     1     1     0     1     1     1     0
1     1
    1     1     2     0     1     1     2     0     1     1     2
0     1
    0     0     1     0     0     0     1     0     0     0     1
0     0
    2     1     1     1     2     1     1     1     2     1     1
1     2
    1     1     0     1     1     1     0     1     1     1     0
1     1
    1     1     2     0     1     1     2     0     1     1     2
0     1
    0     0     1     0     0     0     1     0     0     0     1
0     0
    2     1     1     1     2     1     1     1     2     1     1
1     2
    1     1     0     1     1     1     0     1     1     1     0
1     1
    1     1     2     0     1     1     2     0     1     1     2
0     1
    0     0     1     0     0     0     1     0     0     0     1
0     0
    2     1     1     1     2     1     1     1     2     1     1
1     2
    1     1     0     1     1     1     0     1     1     1     0
1     1
    1     1     2     0     1     1     2     0     1     1     2
0     1
    0     0     1     0     0     0     1     0     0     0     1
0     0

 Columns 14 through 24

    1     1     1     2     1     1     1     2     1     1     1
    1     0     1     1     1     0     1     1     1     0     1
    1     2     0     1     1     2     0     1     1     2     0
    0     1     0     0     0     1     0     0     0     1     0
    1     1     1     2     1     1     1     2     1     1     1
    1     0     1     1     1     0     1     1     1     0     1
    1     2     0     1     1     2     0     1     1     2     0
    0     1     0     0     0     1     0     0     0     1     0
    1     1     1     2     1     1     1     2     1     1     1
```

```
     1     0     1     1     1     0     1     1     1     0     1
     1     2     0     1     1     2     0     1     1     2     0
     0     1     0     0     0     1     0     0     0     1     0
     1     1     1     2     1     1     1     2     1     1     1
     1     0     1     1     1     0     1     1     1     0     1
     1     2     0     1     1     2     0     1     1     2     0
     0     1     0     0     0     1     0     0     0     1     0
     1     1     1     2     1     1     1     2     1     1     1
     1     0     1     1     1     0     1     1     1     0     1
     1     2     0     1     1     2     0     1     1     2     0
     0     1     0     0     0     1     0     0     0     1     0
     1     1     1     2     1     1     1     2     1     1     1
     1     0     1     1     1     0     1     1     1     0     1
     1     2     0     1     1     2     0     1     1     2     0
     0     1     0     0     0     1     0     0     0     1     0


E =

   396
```

```
%Problem 2
array1 = randi(5,1,100)
%in the parenthesis above the 5 indicates the max value of the
 integers
%being created. the default minimum integer value is 1.
%the 1 indicated the amount of rows being created in the array
%the 100 indicated the amount of collumns being created in the array
histogram(array1,10)
%the above line creates a histogram using the values generated in the
 array
%the number 10 indicates we want 10 bins
avgarr1=mean(array1)
%the above line calculates the mean value of all the values generated
 in
%the array.
```

```
array1 =

  Columns 1 through 13

     3     3     5     2     2     1     5     4     3     4     3
 4     3

  Columns 14 through 26

     4     3     5     2     1     1     1     3     3     2     4
 4     4

  Columns 27 through 39
```

```
     5     5     1     1     4     1     3     3     5     3     2
 4     4

  Columns 40 through 52

     3     2     1     3     2     1     4     2     3     4     2
 4     2

  Columns 53 through 65

     4     4     3     1     2     3     2     1     5     3     5
 2     4

  Columns 66 through 78

     2     5     4     2     2     4     5     2     4     3     5
 4     1

  Columns 79 through 91

     5     5     3     5     3     1     1     3     4     5     4
 2     3

  Columns 92 through 100

     1     1     1     4     3     1     3     1     1


avgarr1 =

    2.9500
```



```
%Problem 3
filename='lab6data.xls'
%the line above sets the variable called filename to reference the
 excel
%file saves as lab6data
sheet=1
%the line above indicates that within the excel file we want to
 reference
%the first sheet

xlRange1='A98:A169'
xlRange2='B98:B167'
xlRange3='C98:C163'
%the above lines indicate the range of cells from the excel document
 we want to
%reference for each indicated 'run'. It saves the parameters for ech
 run in
%the respected variables listed above represented run 1, 2 and 3

accA= xlsread(filename,sheet,xlRange1);
MaxaccA= max(accA)
%The above 2 lines utilize the variables we specified above with the
 first range variable and then uses
%the xlsread function to pull the data from the excel document into
 matlab.
```

```
%It indicates to save this data in the variable accA, representing the
 first run, and then proceeds to
%analyze that data to find the maximum acceleration value that exists.
 It
%takes this maximum accereration value and stores it in the variable
%MaxaccA

accB= xlsread(filename,sheet,xlRange2);
MaxaccB= max(accB)
%The above 2 lines utilize the variables we specified above with the
 second range variable and then uses
%the xlsread function to pull the data from the excel document into
 matlab.
%It indicates to save this data in the variable accB, representing the
 second run, and then proceeds to
%analyze that data to find the maximum acceleration value that exists.
 It
%takes this maximum accereration value and stores it in the variable
%MaxaccB

accC= xlsread(filename,sheet,xlRange3);
MaxaccC= max(accC)
%The above 2 lines utilize the variables we specified above with the
 third range variable and then uses
%the xlsread function to pull the data from the excel document into
 matlab.
%It indicates to save this data in the variable accC, representing the
 third run, and then proceeds to
%analyze that data to find the maximum acceleration value that exists.
 It
%takes this maximum accereration value and stores it in the variable
%MaxaccC
```

```
filename =

    'lab6data.xls'


sheet =

     1


xlRange1 =

    'A98:A169'


xlRange2 =

    'B98:B167'
```

```
xlRange3 =

    'C98:C163'


MaxaccA =

   42.4000


MaxaccB =

   15.3000


MaxaccC =

    17
```

Published with MATLAB® R2017a