

Creating Structures

```
% clc;
% clear;
% A = struct('dept', 'CSE', 'No_of_students', 60, 'faculty', 15);
% B = struct('dept', 'ECE', 'No_of_students', 70, 'faculty', 12);
% university = [A,B]
```

Cell Array

```
% clc
% clear
%
% X{1,1} = 10;
% X{1,2} = 'Riaz';
% X{1,3} = 1:10;
% X{1,4} = magic(3);
% X{1,5} = eye(3);
%
% disp(X)
```

If else condition

```
% a = input('Enter a number: ');
%
% if a>5
%     disp('the entered no. is greater than 5');
% elseif a == 5
%     disp('the entered no. is 5');
% else
%     disp('the number is less than 5');
% end
```

for Loop

```
% b = 5;
%
% for i = 1:2:10;
%     b = b+5;
% end
%
% disp(b)
```

While Loop

```
% c = 1;
% while (true)
%     c = c+1;
```

```
%      if c >=100
%          break;
%      end
% end
%
% disp(c)
```

More About Matrices

```
% A = [1 3 5]
% max(A)
%
% B = [3 6 9]
%
% union(A,B)
%
% [minA, maxA] = bounds(A)
%
% t = "Hello World!";
%
% disp(t)
%
% q = "Something ""quoted"" and something else."
% disp(q)
```

Add Text at the end of a String

```
% f = 71;
% c = (f-32)/1.8;
% temp = "Temperature is: " + c + "C"
```

String Arrays

```
% A = ["a", "bb", "ccc"; "dddd", "eeee", "ffffff"]
%
% strlen(A)
% whos A
```

Data in Character Array

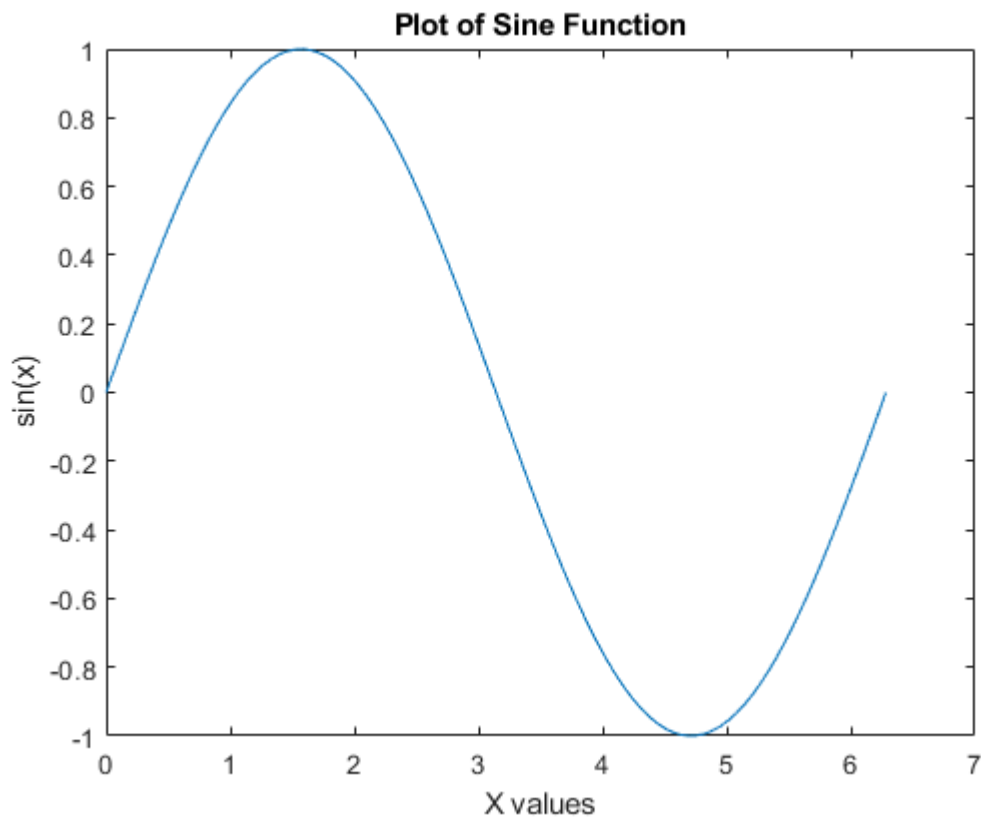
```
% seq = 'GCTAGAATCC';
% whos seq
%
% seq(5)
%
% seq2 = [seq, 'ATTAGAAACC']
%
```

Variables Based on other variables

```
% a = 2;  
% b = 3;  
% a+b  
  
% f_string = 'My Name is:'  
%  
% S_String = 'Riaz'  
%  
% f_string + S_String  
  
% d = cos(b)  
% disp(d)  
%  
% c = a*2;  
%  
% e = c +d;  
% r = 5;  
% A = 2*pi*r;  
% C = 2*pi*r;  
% x = 0;  
% curve_f = sin(x) + cos(x/3+1)
```

Plot

```
% x = linspace(0, 2*pi);  
% y = sin(x);  
% plot(x, y)  
%  
%  
% xlabel("X values")  
% ylabel("sin(x)")  
%  
% title("Plot of Sine Function")
```



Switch Case

```
% method = input('Enter the Value', 'S')
% switch (method)
%     case {'linear','bilinear'}
%         disp('Method is linear')
%     case 'cubic'
%         disp('Method is cubic')
%     case 'nearest'
%         disp('Method is nearest')
%     otherwise
%         disp('Unknown method.')
% end
```

Plot and Subplot

```
% clc;
% clear;
% close all;
% a = linspace(0,6);
% b = sin(a);
% h = figure(1);
% % plot(a,b);
% plot(a,b, 'r')
```

```

% grid on;
% c = cos(a);
% hold on;
% plot(a,c,'g*', 'Linewidth', 2);
% legend('sin', 'cos');
% xlabel('xAxis');
% ylabel('yAxis');
% title('Sample Plot');
% gtext('Text Related to the graph')

```

Image Processing:

```

% a = imread('cameraman.tif');
% imshow(a);
% impixelinfo;
% whos a;

% a = imread('rose.png');
% imshow(a);
% impixelinfo;
% whos a;
% imwrite(a, 'rose1.bmp');
% imtool(a);

% clear;
% close all;
% a = imread('rose.png');
% b = rgb2gray(a);
% c= im2bw(b);
% figure;
% subplot(1,3,1); imshow(a);
% subplot(1,3,2); imshow(b);
% subplot(1,3,3); imshow(c);
% impixelinfo;
% whos;

% Image Operations
% clear;
% close all;
% a = imread('cameraman.tif');
% b1 = imread('rice.png');
% d= imshow(a);
% c = imshow(b1);
% b = imadd(a, b1);
% imshow(b);
% k = imlincomb(1,a,1,b1,'unit16');
% figure;
% subplot(1,3,1); imshow(a);
% subplot(1,3,2); imshow(b);
% subplot(1,3,3); imshow(k,[]);

% clear;

```

```
% close all;  
% a = imread('cameraman.tif');  
% b = imread('rice.png');  
% c = imadd(a, 100);  
% d = imsubtract(a,b);  
%  
% figure;  
%  
% subplot(1,4,1); imshow(a);  
% subplot(1,4,2); imshow(b);  
% subplot(1,4,3); imshow(c);  
% subplot(1,4,4); imshow(d);
```

GUI in MATLAB

```
% clear;
```