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SUB : COMMUNICATION LABORATORY

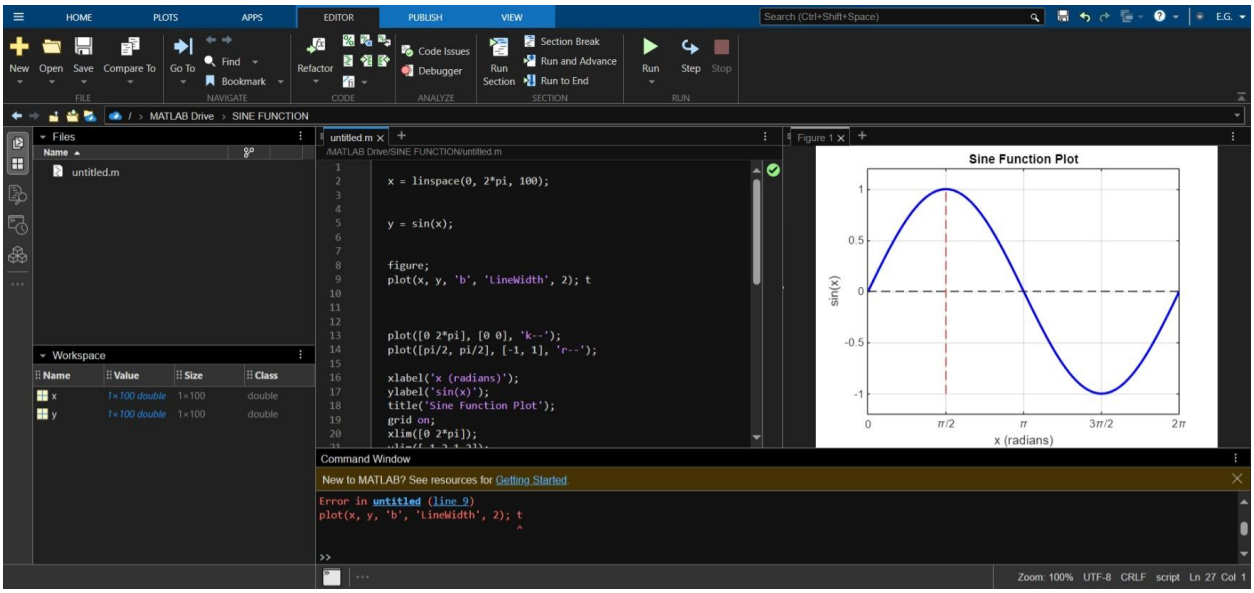
ASSIGNMENT-1

1.SINE FUNCTION

CODE:

```
% Define the range of x values (from 0 to 2π)
x = linspace(0, 2*pi, 100);  % 100 points between 0 and 2π
% Compute the sine of each x value
y = sin(x);
% Plot the sine function
figure;   % Create a new figure window
plot(x, y, 'b', 'LineWidth', 2);  % Blue sine curve with thick line
hold on;
% Add x and y axis lines
plot([0 2*pi], [0 0], 'k--');  % Dashed black x-axis
plot([pi/2, pi/2], [-1, 1], 'r--'); % Vertical line at π/2
% Labels and title
xlabel('x (radians)');
ylabel('sin(x)');
title('Sine Function Plot');
grid on;  % Add grid
% Customize axis limits
xlim([0 2*pi]);
ylim([-1.2 1.2]);
% Show important points
xticks([0 pi/2 pi 3*pi/2 2*pi]);
xticklabels({'0','\pi/2','\pi','3\pi/2','2\pi'});
% Display the plot
hold off;
```

OUTPUT:



2.STEP FUNCTION

CODE :

```
% Define the range of x values
x = -5:0.1:5;  % Values from -5 to 5 with a step of 0.1
% Define the step function using Heaviside function
y = heaviside(x);
% Plot the step function
figure;
plot(x, y, 'b', 'LineWidth', 2);  % Blue line with thickness 2
hold on;
% Add x and y axis lines
plot([min(x) max(x)], [0 0], 'k--');  % Dashed x-axis
plot([0 0], [-0.2 1.2], 'k--');  % Dashed y-axis
% Labels and title
xlabel('x');
ylabel('Step Function u(x)');
title('Step Function (Heaviside)');
grid on;  % Add grid
```

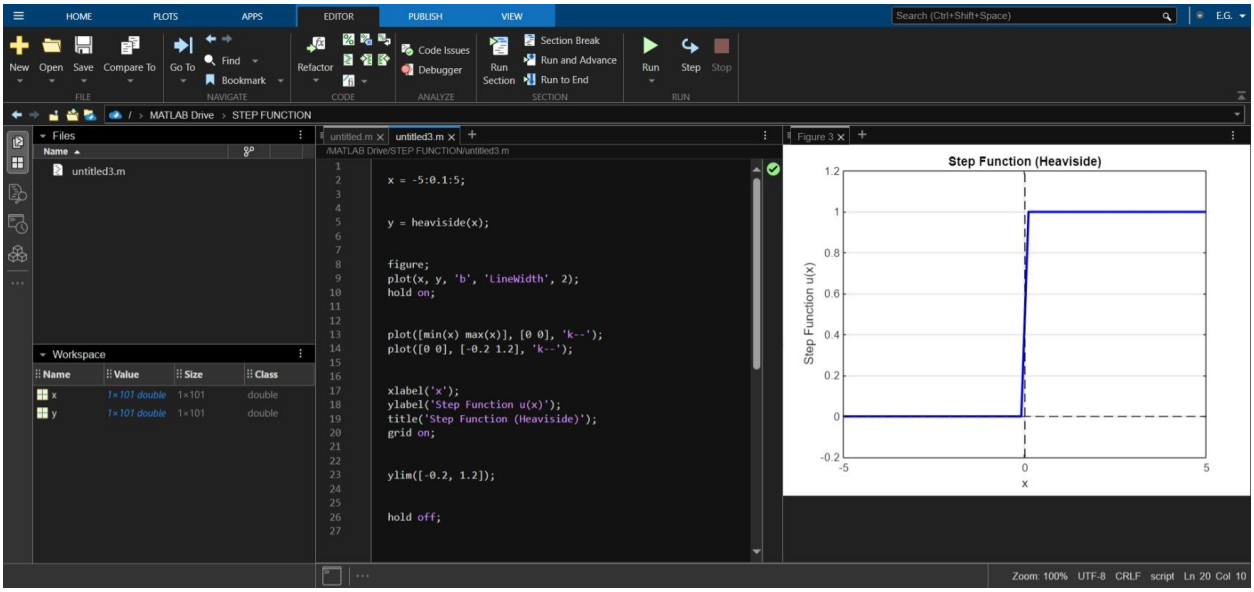
% Customize axis limits

ylim([-0.2, 1.2]);

% Display the plot

hold off;

OUTPUT:



3.RAMP FUNCTION

CODE:

x = -5:0.1:5;

y = max(0, x);

figure;

plot(x, y, 'b', 'LineWidth', 2);

hold on;

plot([min(x) max(x)], [0 0], 'k--');

plot([0 0], [min(y) max(y)], 'k--');

xlabel('x');

ylabel('Ramp Function r(x)');

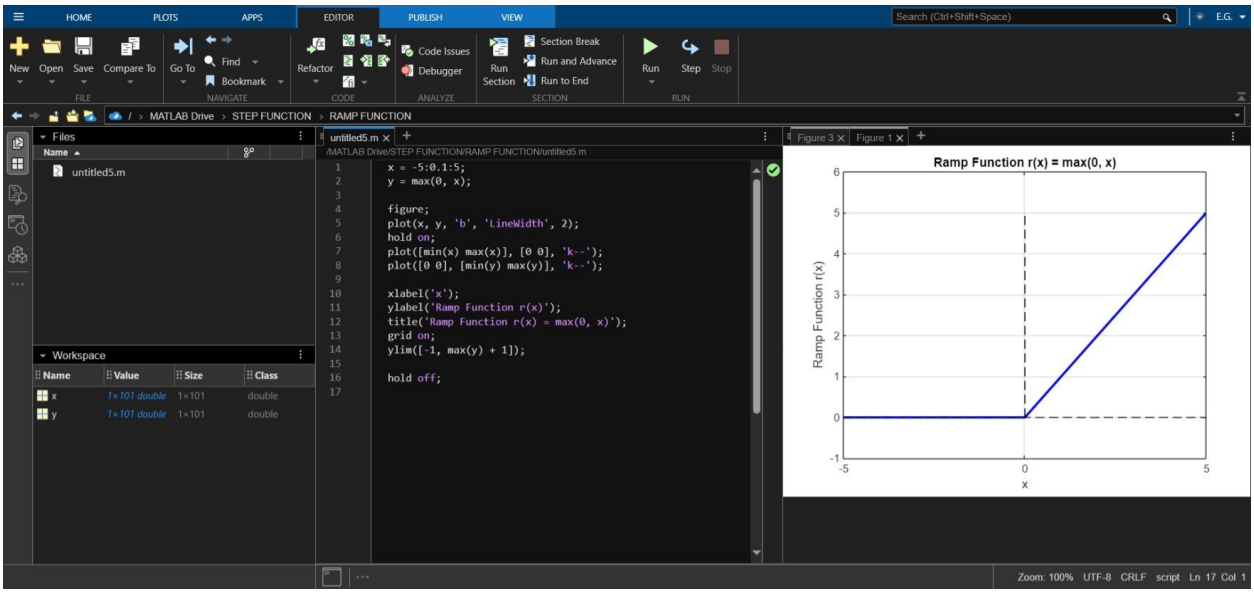
title('Ramp Function r(x) = max(0, x)');

grid on;

ylim([-1, max(y) + 1]);

hold off;

OUTPUT:

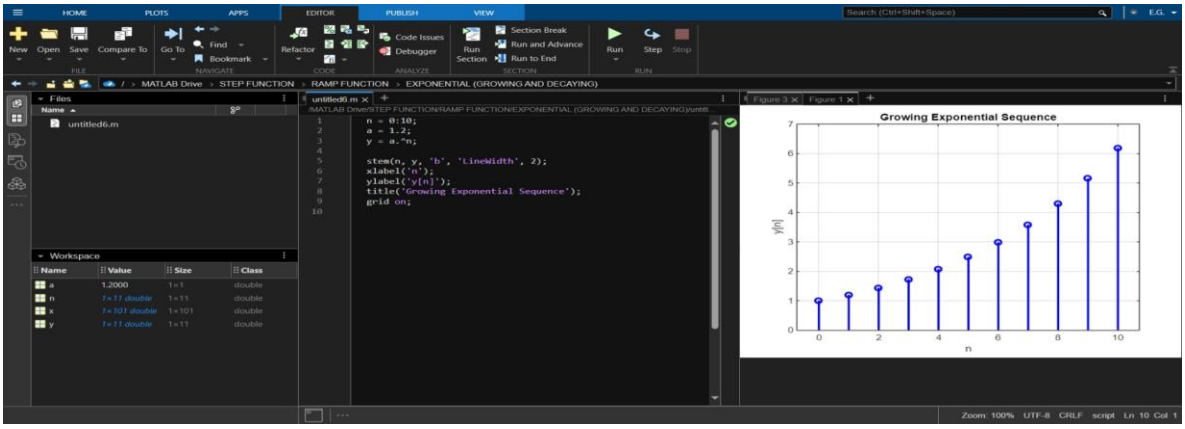


4.EXPONENTIAL(GROWING ANDDECAYING)

Code:

```
n = 0:10;

a = 1.2;

y = a.^n;

stem(n, y, 'b', 'LineWidth', 2);

xlabel('n');

ylabel('y[n]');

title('Growing Exponential Sequence');

grid on;
```

OUTPUT:



5.IMPULSE FUNCTION

CODE:

```
n = -5:5;
y = (n == 0);
stem(n, y, 'b', 'LineWidth', 2);
xlabel('n');
ylabel('\delta[n]');
title('Unit Impulse Function');
grid on;
```

OUTPUT: