Project 2 report

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Introduction

This project is to understand the logical operator, how to use conditional statements and loop in MATLAB. Through this project, we will also learn about how to use modulus function. Finally, we can use the data that given to make a plot.

Procedure

1/ Condition statements

Question: What are the outputs? And what is the meaning of the values?

The outputs of command window are 0 and 1.

1 mean the condition is true.

0 mean the condition is false.

if statement that checks whether x is greater than y and sets y = x, else it should set x = y. Show the code segment.
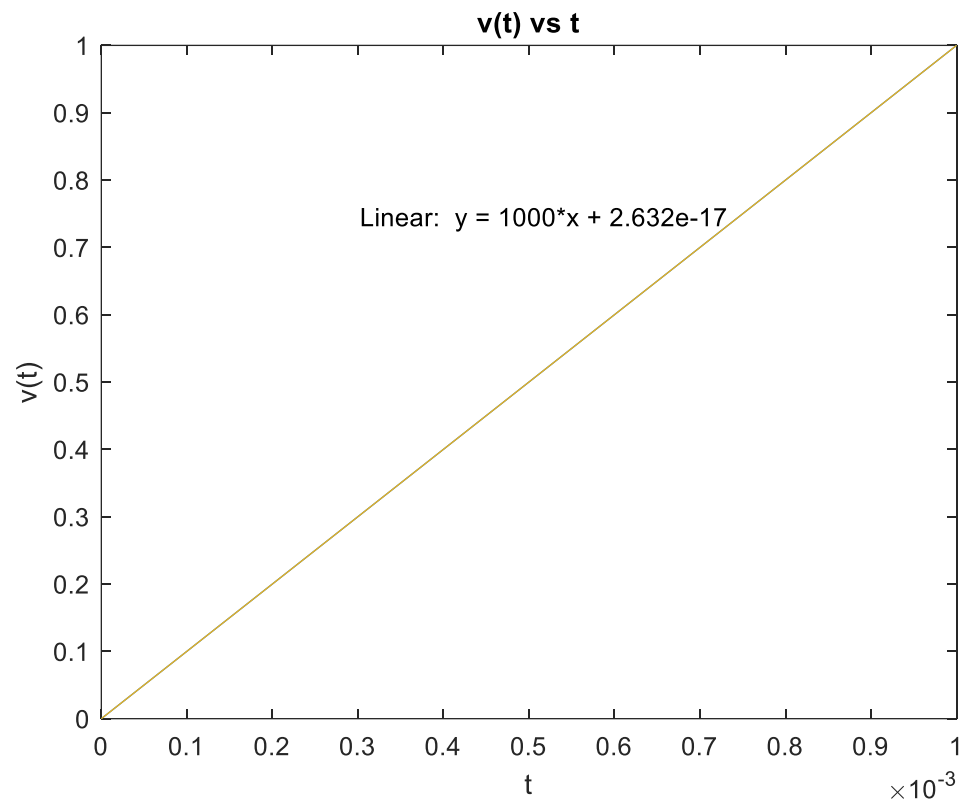
```
if x>y
    y=x
else
    x=y
end
```
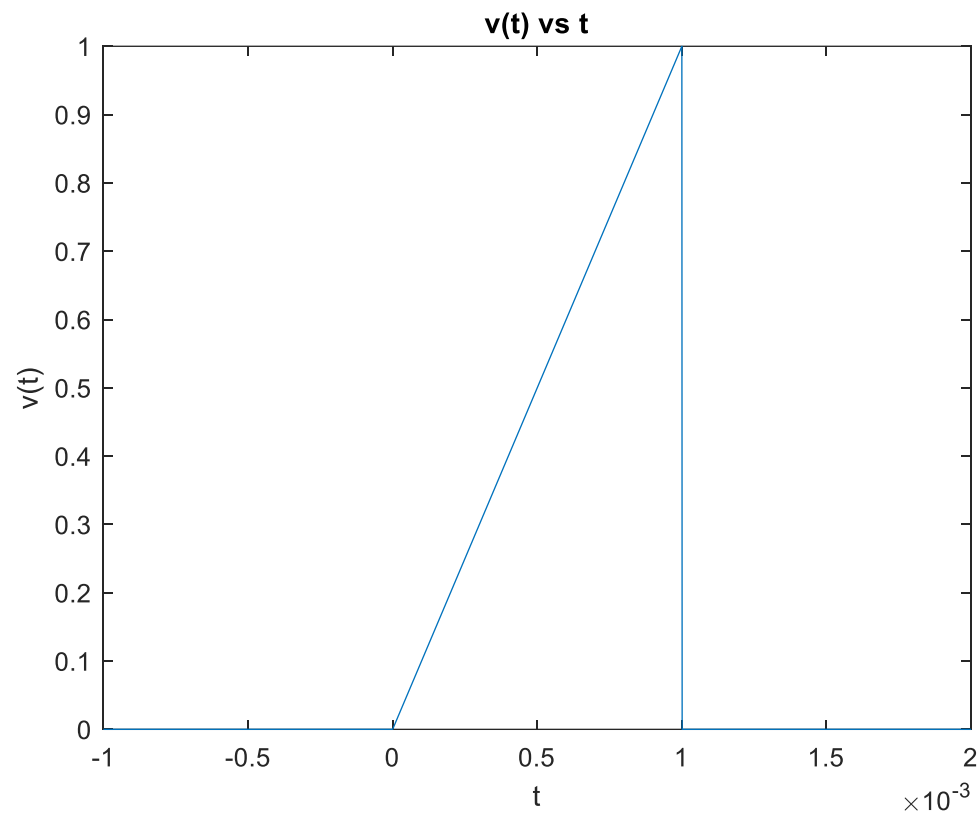

2/ For loops

Question: What is the incremental value of t?

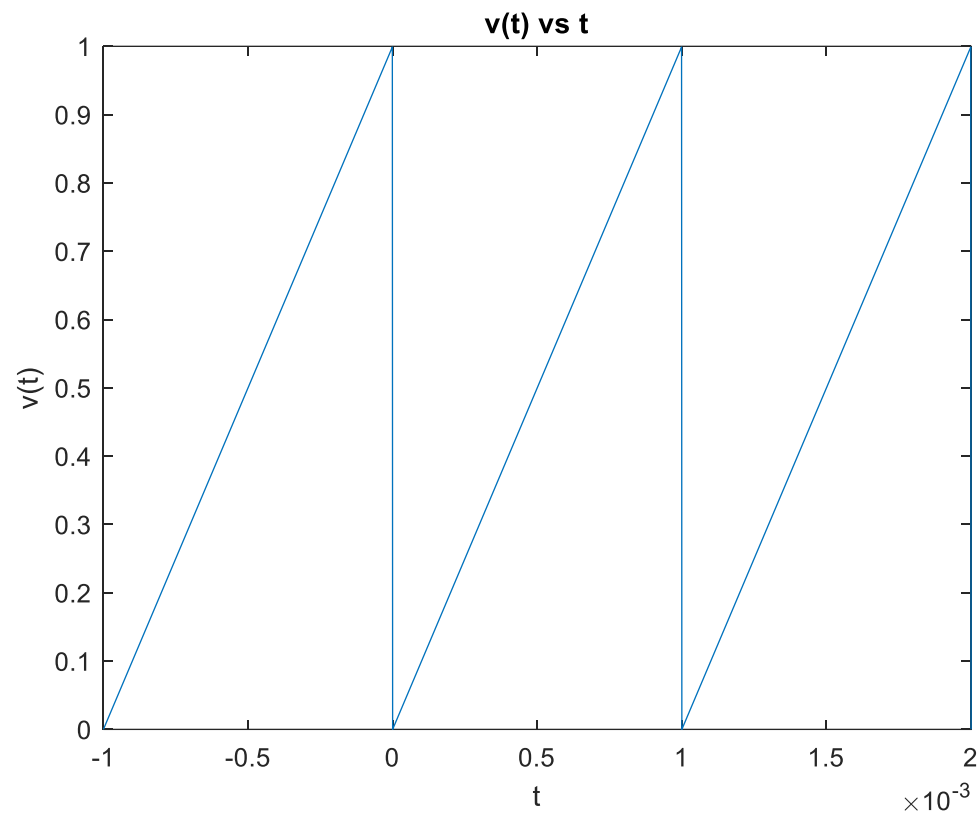The incremental value of t is timeIncrement =   1.0000e-06

Plot v vs t.

v(t) vs t

Plot v vs t over the range from -T to 2T.

Plot v vs t over the range from -T to 2T again.

Conclusion

This project helped us to understand fundamental programming syntax of MATLAB. Through this project, we are able to apply if else statement and for loop to manipulate the matrices. We also can use the modulus function to extract the period then we can create the periodic function. Briefly, this project equips us more tools to do the next projects.

Appendix

Question: What are the outputs? And what is the meaning of the values?

```
clear;clc;close all;
x = 10;
y = 5;
u = x > y
v = x < y
w = x==y
ww = x>=2*y
```

u =

  logical

   1

v =

  logical

   0

w =

  logical

   0

ww =

  logical

   1

if statement that checks whether x is greater than y and sets y = x, else it should set x = y

```
if x>y
    y=x
else
    x=y
end
```

y =

    10

Question: What is the incremental value of t?

```
T = 1.0e-03 ;
Vm = 1 ;
t = linspace(0,T,1001) ;
timeIncrement = t(2) - t(1)
```

timeIncrement =

    1.0000e-06

Plot v vs t

```
T = 1.0e-03 ;
Vm = 1 ;
t = linspace(0,T,1001) ;

for ii = 1:length(t)
    v(ii) = (Vm/T)*t(ii);
end
plot(t,v)
xlabel('t')
ylabel('v(t)')
title('v(t) vs t')
```

Plot v vs t over the range from -T to 2T.

```
T = 1.0e-03 ;
Vm = 1 ;
t = linspace(-T,2*T,3001);

for ii = 1:length(t)
   if t(ii) >= 0 && t(ii) <= T
       v(ii) = (Vm/T)*t(ii);
```

```matlab
    else
        v(ii) = 0;
    end

end
plot(t,v)
xlabel('t')
ylabel('v(t)')
title('v(t) vs t')
```

Plot v vs t over the range from -T to 2T again.

```matlab
T= 1.0e-03;
Vm=1;
t =linspace(-T,2*T,3001);

for ii = 1:length(t)
    if t(ii) >= -T && t(ii) <= 2*T
        v(ii) = (Vm/T)*mod(t(ii),T);
    else
        v(ii) = 0;
    end

end

plot(t,v)
xlabel('t')
ylabel('v(t)')
title('v(t) vs t')
```