

Riley Payung

11/18/19

CDS 130

WA12

## Part 1

The image shows the MATLAB R2019b student use interface. The main window displays a script named 'QuakeGuard.m' with the following code:

```
41 % then do not change the price of QuakeGuard, that is, price(t+1) =  
42 % price(t)  
43 elseif (probability(t + 1) > 0.33) && (probability(t + 1) <= 0.66)  
44 if (price(t) <= 2500)  
45 price(t+1) = price(t);  
46 else  
47 price(t+1) = price(t) + delta*(0 + price_increase_rate_1)*price(t);  
48 end  
49 else  
50 if (price(t) <= 2500)  
51 price(t+1) = price(t);  
52 else  
53 price(t+1) = price(t) + delta*(0 + price_increase_rate_2)*price(t);  
54 end  
55 end % if  
56  
57 end % for  
58  
59 % End of the script
```

The Command Window shows the output:

```
New to MATLAB? See resources for Getting Started.  
The price of QuakeGuard as of January 1, 2012 is $20166.29  
f> >>
```

The Workspace window displays the following variables:

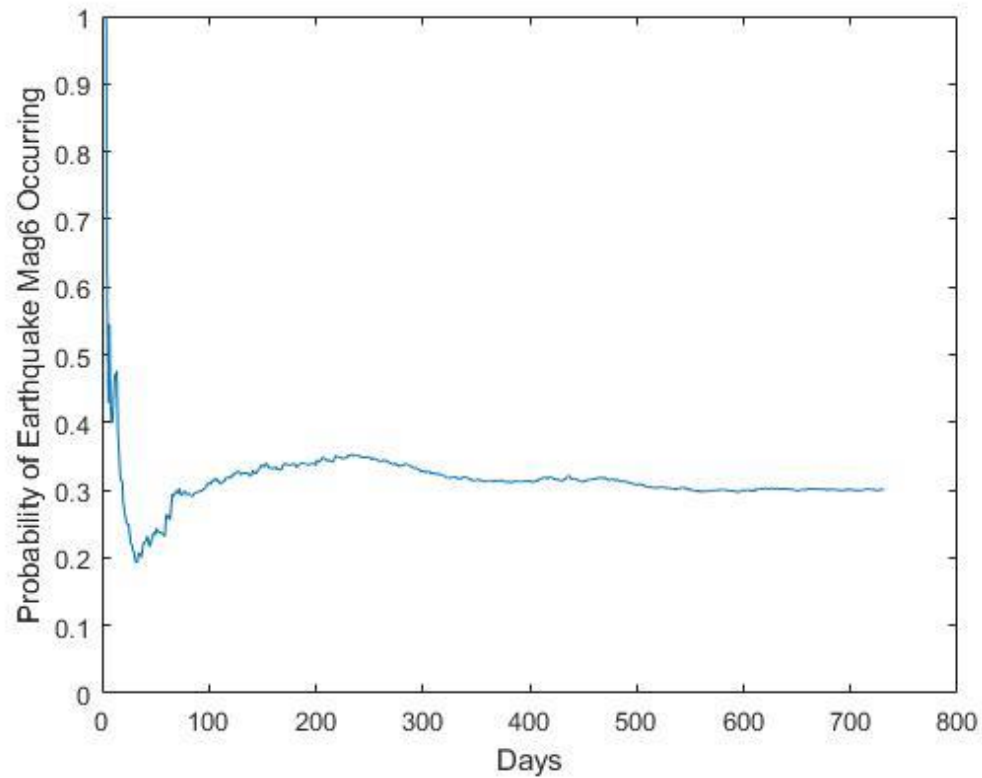
Name	Value
delta	1
formatSpec	'%yyyy-MM-dd%H%M%S'
new_date	'31-Dec-2011'
price	1x731 double
price_decrease_rate	-1.0000e-03
price_increase_rate_1	0.0050
price_increase_rate_2	0.0100
probability	1x731 double
t	(127) 40
start_date	2010-01-01
t	730
t	23412x5 timetable
time_duration	730
TR	1x1 timespan
TT	23412x5 timetable
TT2	127x4 timetable

## Part 2

A

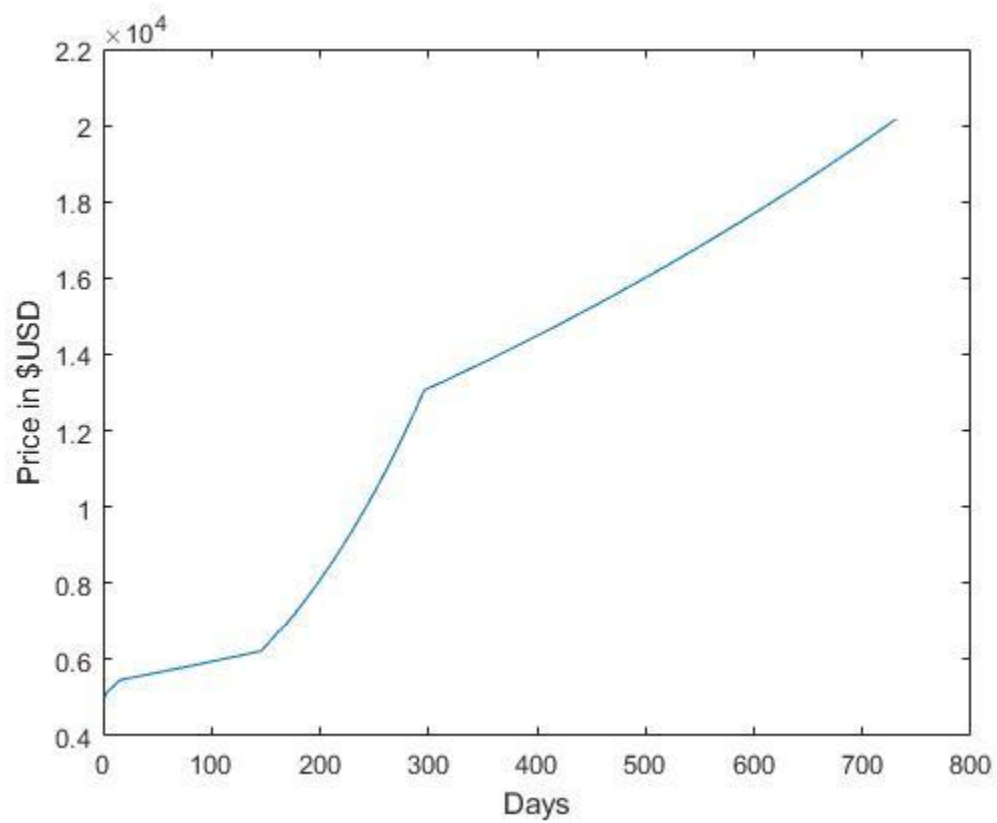
The price of QuakeGuard as of January 1, 2012 is \$20166.29

B



The probability starts very high, which would be typical since there are not enough values to provide a proper probability. Once about 25 days have passed, we are able to get a more accurate probability, and we begin to ascend in probability and then flatten as the number of days increase.

C



The price of QuakeGuard goes up and only goes up overtime, with a more staggered increase when we finally get some increased probability of earthquakes of magnitude 6 and then more steadily when the probability flattens out.