

## FORECASTING WORKSHEET

Name of Participant:

Date:



### A Glimpse to What We Need to Learn

The set of data presented came from an actual forecast (in equivalent units) of a Philippine company.

- Given the demand forecast, identify two possible goods/items that follow similar demand pattern. Briefly discuss your answer.
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- Assuming that the figures represent actual demand instead of forecast, predict and graph forecast for Year 5. Attach computational details of the forecast, including assumptions, if any to the worksheet. There is no need to present all computations. Just summarize general step-by-step procedure in arriving at the forecasts.

Month	Forecast	Month	Forecast
January		July	
February		August	
March		September	
April		October	
May		November	
June		December	

Line Graph:



### Forecasting Cycles

PhilComp manufactures and exports semiconductor products used in electronic devices assembled in North America. The company realizes by experience that since it is selling products to the United States, the company's performance is directly linked to the economic cycle of the country as represented by its GDP growth (in %).

Given the 6-year data\* on the next page, the company has developed an associative (regression) model that will adequately forecast the demand for one of the company's products (in units).

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\*Data presented are fictional.



*This part of the exercise tests participant's ability to identify appropriate time-series forecasting technique.*

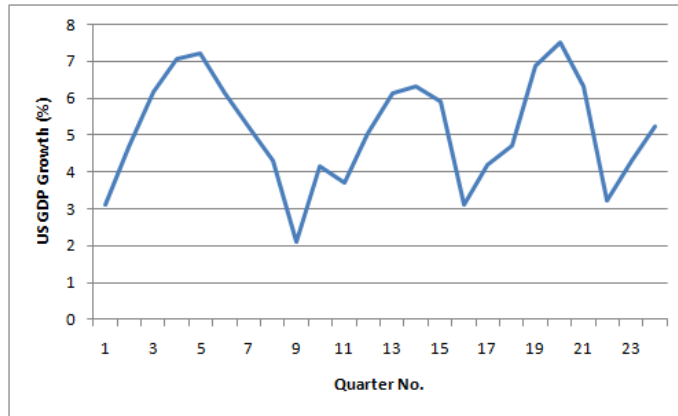
Month	Forecast
Jan-01	424,065
Feb-01	585,176
Mar-01	911,946
Apr-01	1,119,496
May-01	983,883
Jun-01	644,349
Jul-01	523,140
Aug-01	531,012
Sep-01	549,517
Oct-01	781,577
Nov-01	830,118
Dec-01	1,032,606
Jan-02	658,780
Feb-02	694,497
Mar-02	1,093,059
Apr-02	1,346,677
May-02	1,185,249
Jun-02	778,303
Jul-02	632,985
Aug-02	641,539
Sep-02	663,618
Oct-02	909,978
Nov-02	967,901
Dec-02	1,205,232
Jan-03	768,771
Feb-03	814,372
Mar-03	1,291,669
Apr-03	1,603,204
May-03	1,411,999
Jun-03	928,807
Jul-03	755,406
Aug-03	764,897
Sep-03	789,571
Oct-03	1,074,393
Nov-03	1,143,282
Dec-03	1,428,110
Jan-04	888,621
Feb-04	907,896
Mar-04	1,448,157
Apr-04	1,832,200
May-04	1,612,318
Jun-04	1,060,048
Jul-04	863,336
Aug-04	873,824
Sep-04	897,299
Oct-04	1,205,632
Nov-04	1,285,571
Dec-04	1,623,351

Year	Quarter	Actual Sales	GDP Growth
2005	1	718,944	3.12
2005	2	586,301	4.67
2005	3	821,102	6.18
2005	4	944,125	7.05
2006	5	1,231,612	7.23
2006	6	939,949	6.12
2006	7	882,542	5.23
2006	8	831,050	4.32
2007	9	862,179	2.1
2007	10	858,265	4.15
2007	11	881,057	3.7
2007	12	980,639	5.05
2008	13	1,447,280	6.12
2008	14	1,179,342	6.3
2008	15	1,156,338	5.9
2008	16	845,223	3.12
2009	17	1,401,747	4.2
2009	18	1,218,838	4.72
2009	19	1,379,925	6.89
2009	20	1,550,237	7.52
2010	21	1,717,278	6.32
2010	22	1,267,631	3.21
2010	23	1,343,088	4.31
2010	24	1,411,417	5.23



This part integrates some tools with which the participant may be familiar to forecasting. Use of Regression software (such as Excel) to develop an associative forecast is highly encouraged.

Cyclic Nature of GDP Growth Rate



- Develop your own regression model associating actual sales with GDP growth. What can you comment about your model?

- Is the claim of the company that its performance is highly related to US GDP Growth valid? Explain.

- Enumerate two possible difficulties related to using associative models in forecasting.

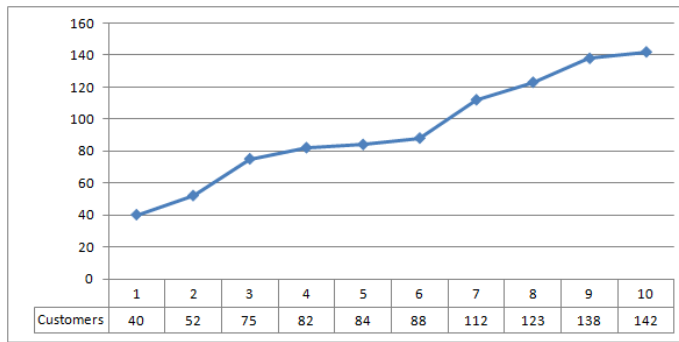
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Given below is the number of customers arriving in a newly-opened cooperative per day for ten days.



The third part emphasizes the performance metrics of forecasting techniques.



- Forecast the number of customers for the next ten days using the Double Exponential Smoothing. Use  $\alpha = 0.2$  and  $\beta = 0.3$ , the naive initial forecast for trend as 4 [142-138], and the forecast for Day 10 is 142. Complete the table below.

Day	11	12	13	14	15	16	17	18	19	20
Forecast										
Actual	148	153	157	161	166	163	159	164	167	165
Error										
MAD (Day 11-20)					MSE (Day 11-20)					

- For the case given above, which do you think will give a higher MAD for Day 11-20 forecasts, Double Exponential Smoothing or a Linear Trend Equation? Why?

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- Draw a control chart to monitor the forecast for Days 11 to 20.

- Should the Double-Exponential Smoothing be replaced? Why or why not? Identify the replacement if such is suggested.

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