Problem I

New Jersey Designs is a large merchandiser of apparel for budget-minded families. Management recently became concerned about the amount of inventory carrying costs and transportation costs between warehouses and retail outlets. As a starting point in further analyses, Mike Hancock, the controller, wants to test different forecasting methods and then use the best one to forecast quarterly expenses for 2012. The relevant data for the previous three years have been given below:

|  |  |
| --- | --- |
| **Quarter** | **Warehouse and Transportation Expense** |
| 1/2009 | $12,500 |
| 2 | 11,300 |
| 3 | 11,600 |
| 4 | 13,700 |
| 1/2010 | 12,900 |
| 2 | 12,100 |
| 3 | 11,700 |
| 4 | 14,000 |
| 1/2011 | 13,300 |
| 2 | 12,300 |
| 3 | 12,100 |
| 4 | 14,600 |

The results of a simple regression analysis using all 12 data points yielded an intercept of $11,854.55 and a coefficient for the independent variable of $126.22 (R-squared =0.19, t = 1.5, SE = 974).

On the basis of the given data, complete the following:

* Run the regression in Microsoft Excel and verify the results above.
* Calculate the quarterly forecasts for 2012 using the high–low method and regression analysis. Recommend the method Mike should use and explain the reason.
* Explain how has your forecast in the above question changed when ACME Designs is involved in global sourcing of products for its stores.

Problem II

The management of ACME Designs would like to have a better understanding of the behavior of its inspection costs. The company has provided the following data:

|  |  |  |
| --- | --- | --- |
|  | **Direct Labor-Hours** | **Inspection Cost** |
| February | 4,944 | $59,381 |
| March | 4,875 | $58,787 |
| April | 4,918 | 59,164 |
| May | 4,937 | $59,299 |
| June | 4,903 | $59,022 |
| July | 4,943 | $59,363 |
| August | 4,942 | $59,342 |
| September | 4,946 | $59,409 |
| October | 4,966 | $59,565 |

The management believes that inspection cost is a mixed cost that depends on direct labor-hours.

On the basis of the given data, complete the following:

* Estimate the variable cost per direct labor-hour using the high–low method. Show your workings.
* Estimate the fixed cost per month using the high–low method. Show your workings.

Support your responses with examples.