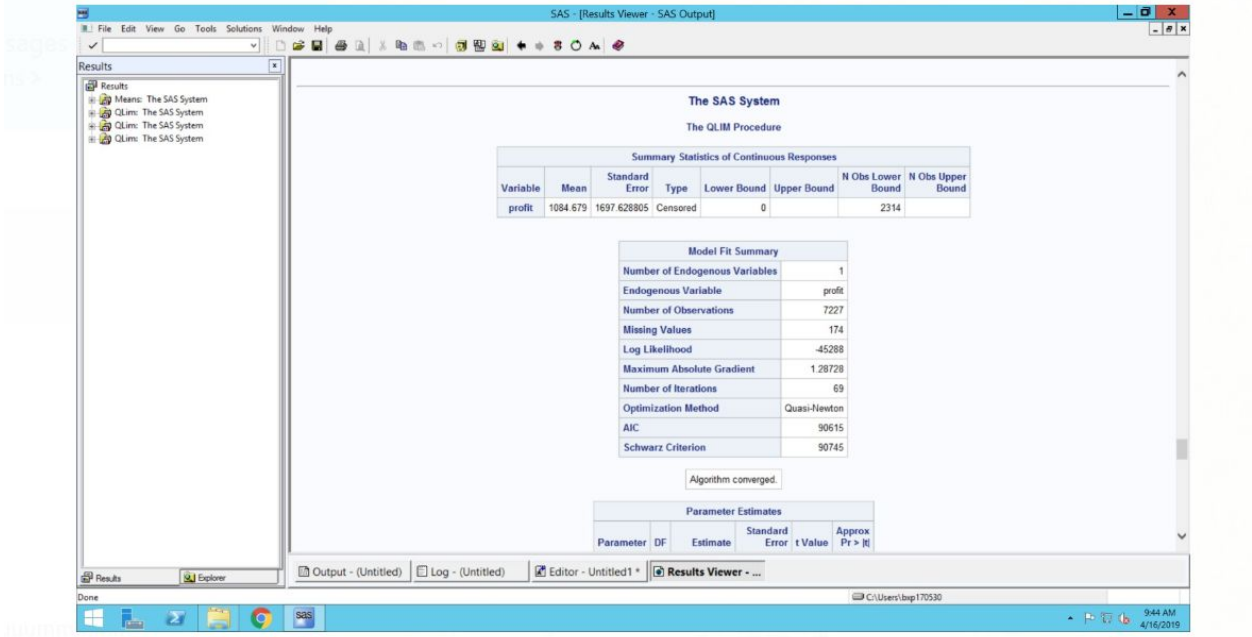
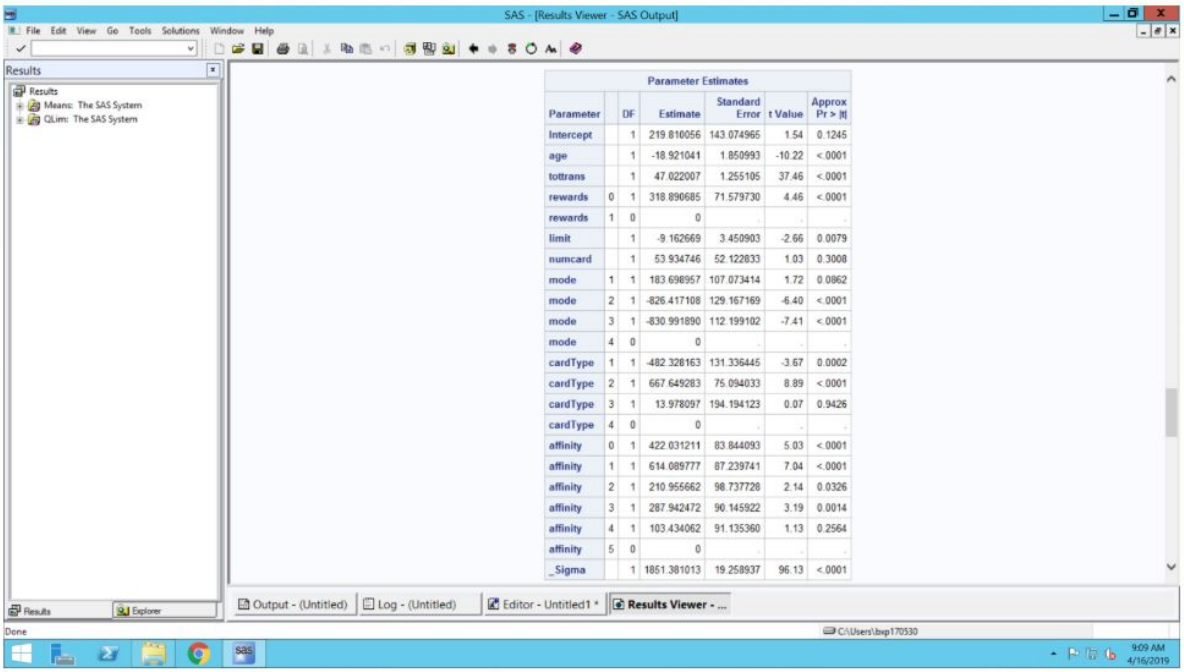
Group 7 : Assignment 6

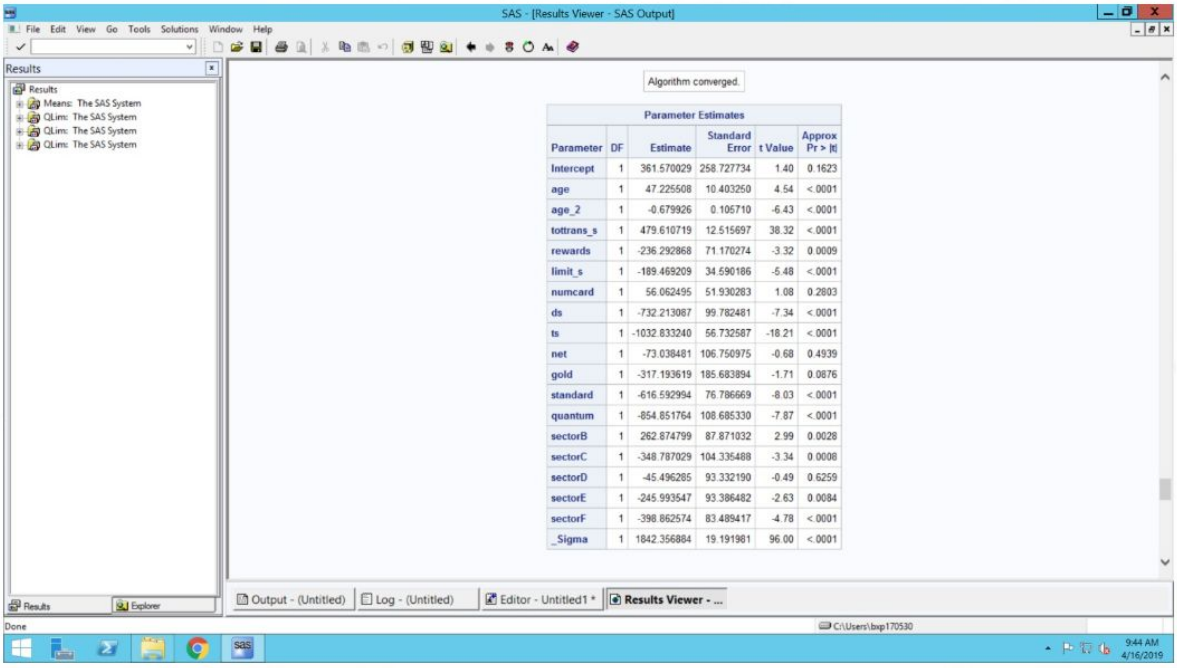
1.



- ❑ The Summary Statistics of Continuous Responses table provides a summary of the number of left- censored values

- ❑ Model Fit Summary includes information on the number of observations = 7227, the number of iterations it took for the model to converge = 174, the final log likelihood, and the AIC and SC.





- ❑ The coefficients for age, tottrans, rewards, limit, mode = ' ds' and ''ts' (with mode = 'net' as the reference category), cardType = 'quantum' and 'platinum' (with cardType = 'standard' as reference category), affinity = 'sectorA', 'sectorB', 'sectorC' and 'sectorD' (with affinity= 'sectorF' as reference category) are statistically significant

- ❑ A one year increase in age is associated with a $18.92 decrease in the predicted value of profit.

- ❑ A one dollar increase in total transaction amount is associated with a $47000 increase in the predicted value of profit

- ❑ A one dollar increase in credit limit is associated with a $9169.928 decrease in the predicted value of profit

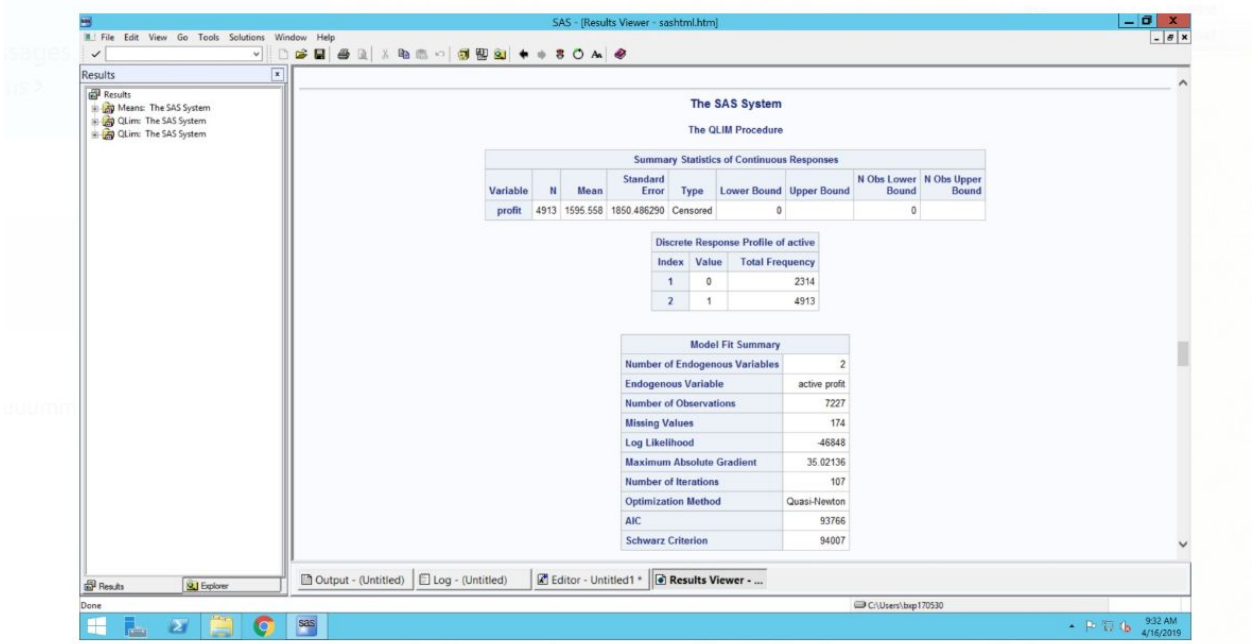
- ❑ The predicted value for profit is 318.89 higher for customers without reward card than for customers with reward card

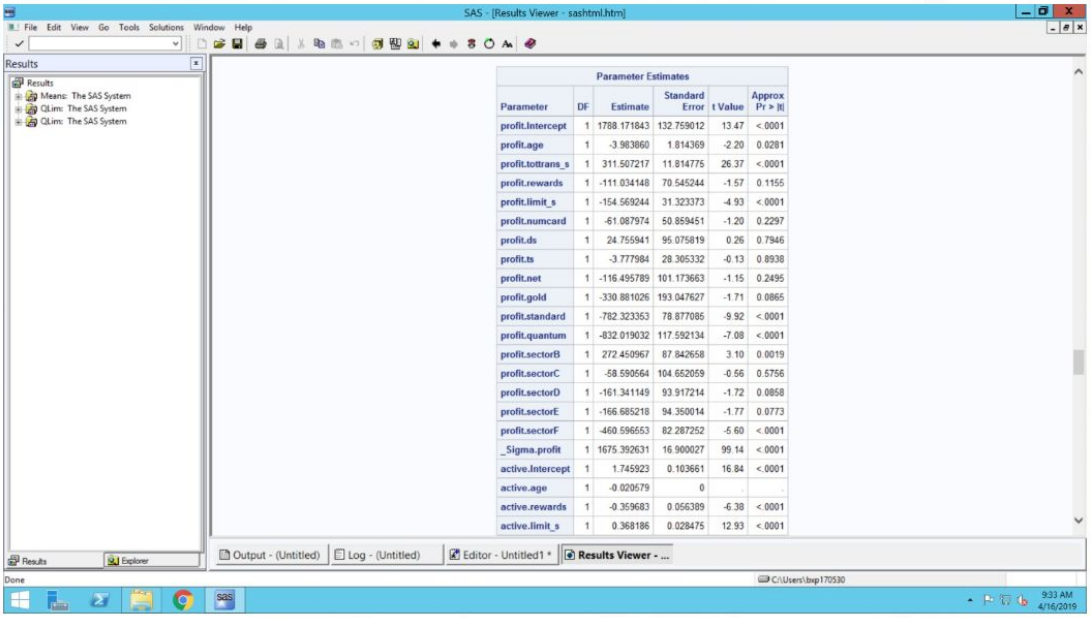
- ❑ The predicted value for profit is 826.17 lower for customers acquired through direct selling than for customers acquired through internet

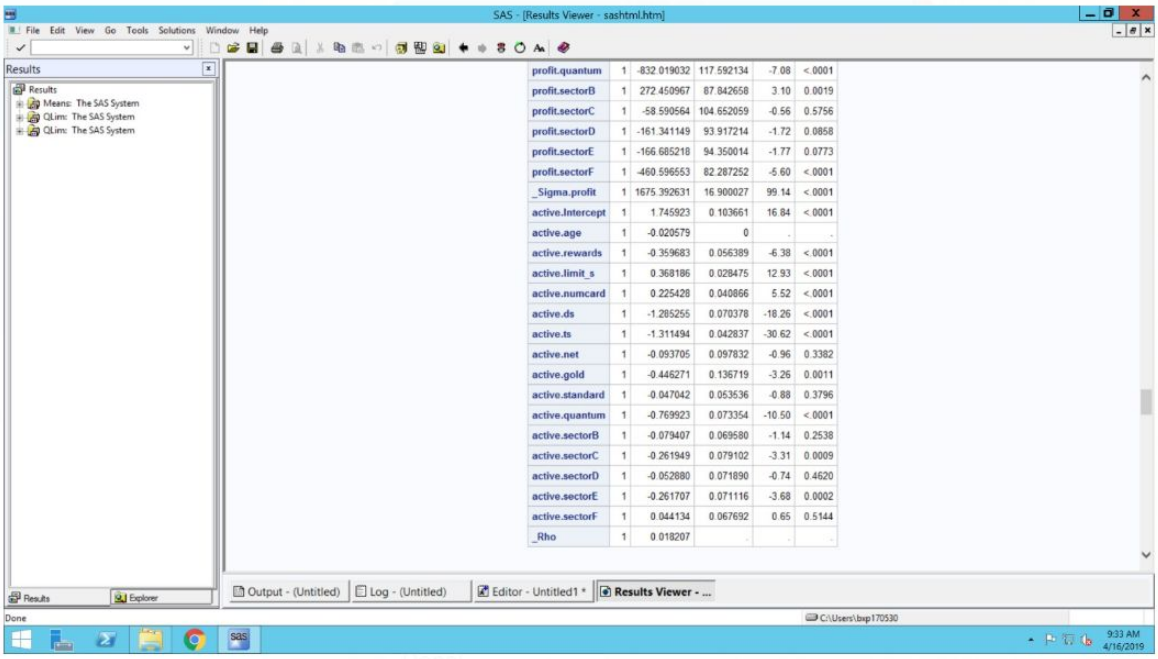
- ❑ The predicted value for profit is 830.99 lower for customers acquired through telephone selling than for customers acquired through internet

- ❑ The predicted value for profit is 482.32 lower for customers with quantum card than for customers with standard card.

2.







We can interpret the following from the above results:

- ❑ if customer credit limit increase by one unit (in ten thousand) then probability of a credit card customer being active, increases

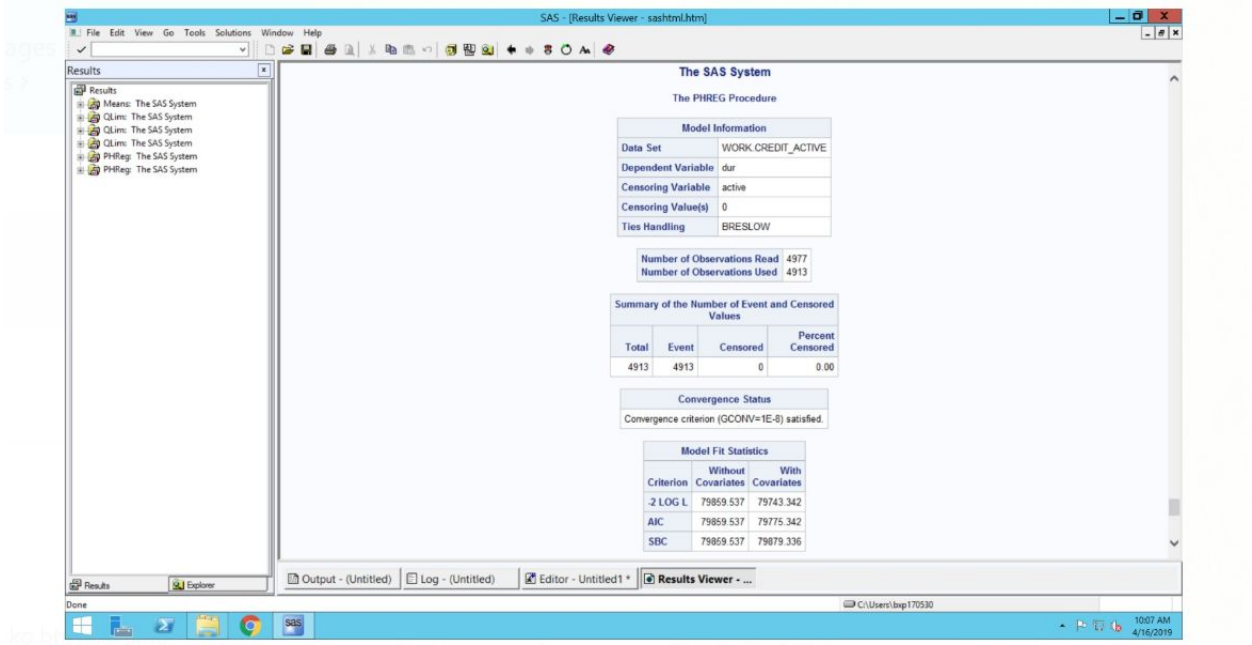
- ❑ If a customer has a gold card, then probability of a credit card customer being active decreases, as compared to a customer who has a platinum or a standard card

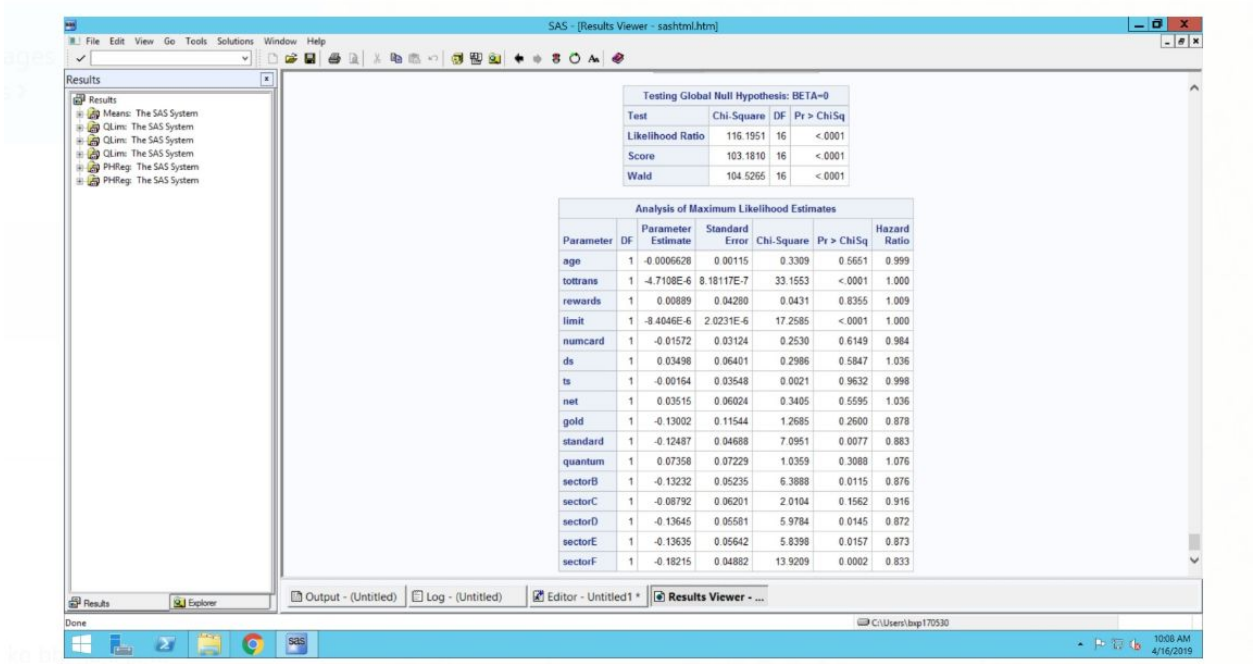
- If a customer has an affinity card associated with Sports (sector C), then probability of a credit card customer being active decreases, as compared to a customer who has no affinity card(sectorA) OR who has an affinity card associated with Professional Organization(SectorB) OR who has an affinity card associated with Financial institution(section D) OR who has an affinity card associated with commercial(sectorF)

- A one unit (in ten thousand) increase in total transaction amount spent by the customer, while keeping all other variables constant, is associated with 311.507 point increase (on average) in profit

- No dummy variables of Modes of Acquisition are statistically different from zero. Hence, it is not an influencing variable in this model.

3.





For running Survival Analysis, we first created a dummy variable to censor duration; if duration is greater than or equal to 37 months (3 years), then it is censored (0) else 1.

Factors such as Total Transaction Amount, Credit Limit of the Customer and if the customer has a STANDARD card or different types of Affinity Cards, play a significant role in deciding whether a particular customer will stay with the firm or not.

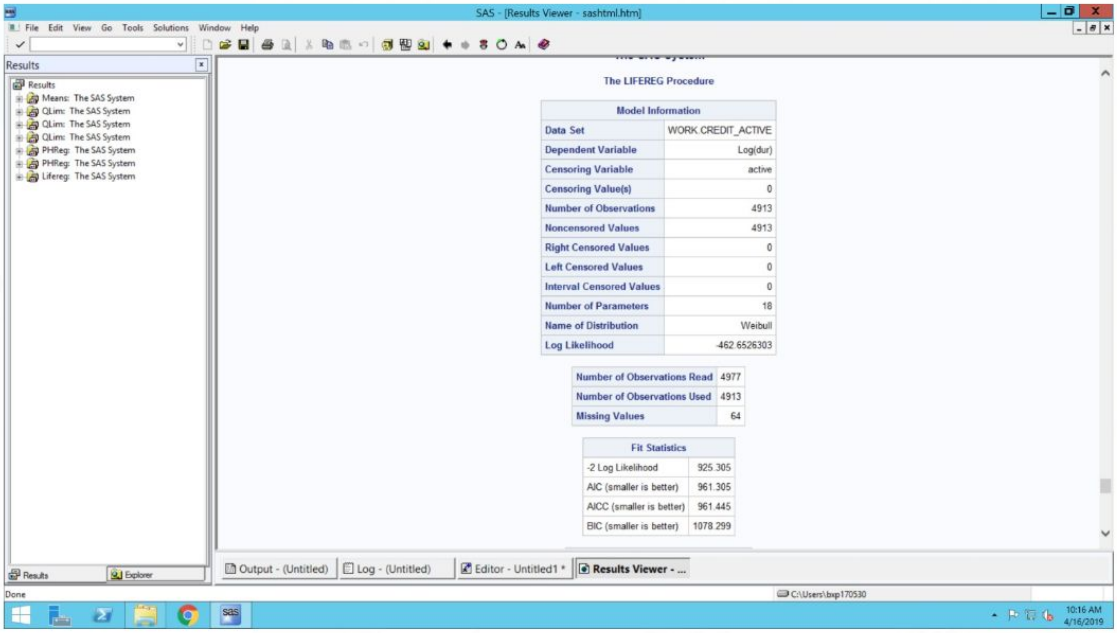
We can interpret the following from the above results:

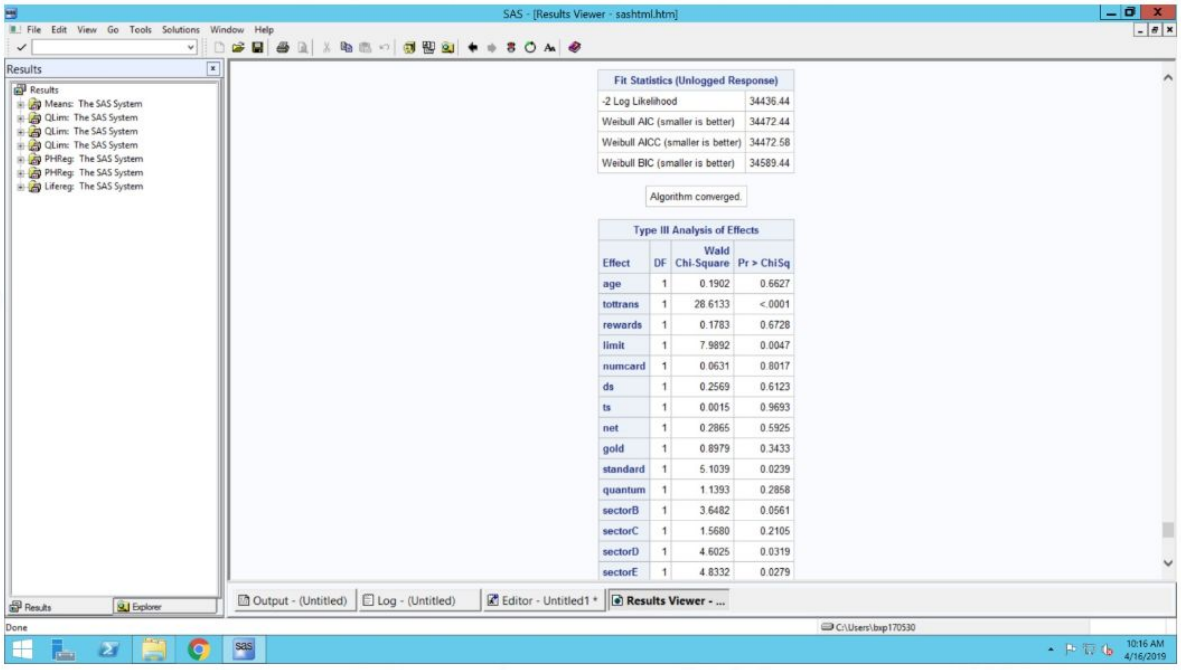
- ❑ If the total transactions made by the customer in 3 year period increases by 10000 units, then the hazard associated with the customer not being in the firm is expected to decrease by (0.750-1)*100 ~ 25%

- ❑ If the credit limit of the customer in 3 year period increases by 10000 units, then the hazard associated with the customer not being in the firm is expected to decrease by (0.802-1)*100 ~ 19.8%

- ❑ If a customer has Affinity Card associated with a Professional Organization, then the hazard associated with him not being in the firm decreases by (0.730-1)*100 ~ 27%, compared to a customer having no Affinity Card.

4.





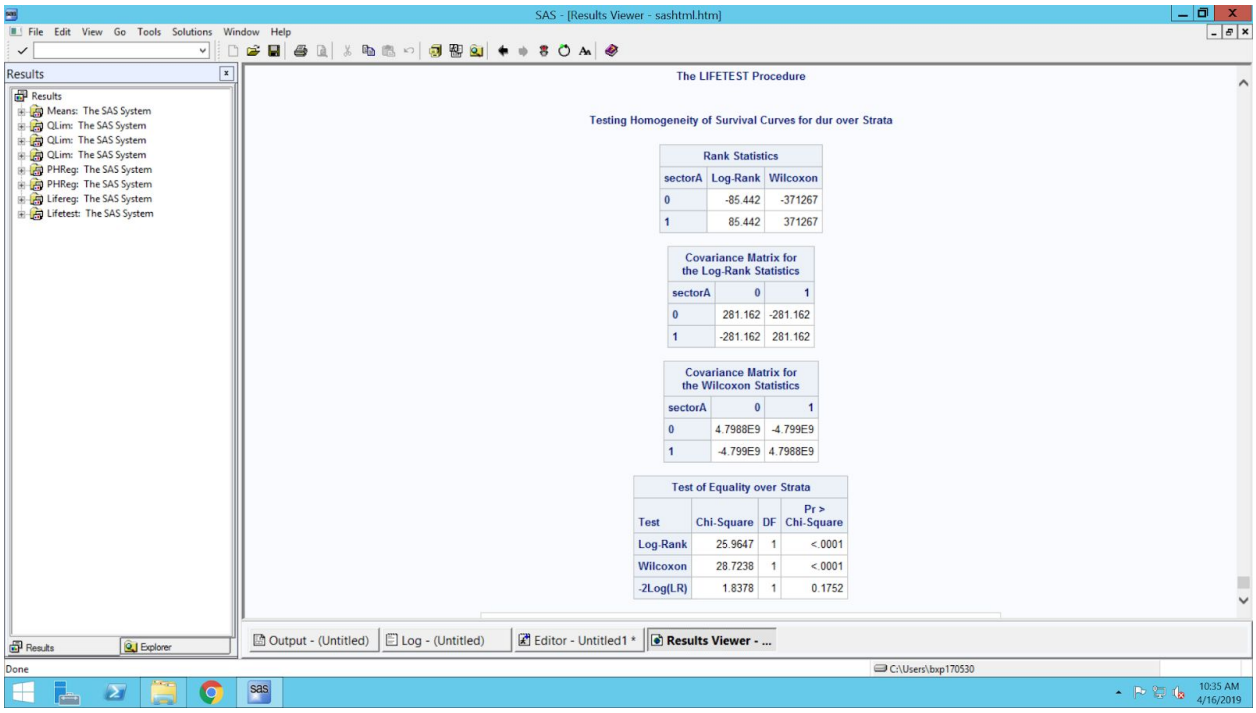
- From LIFEREG model, we can see that the same variables are significant which were significant in the PHREG model as well – Total Transactions by the customer, Credit limit of the customer, if the customer has a STANDARD card and Types of Affinity Cards that the customer has.

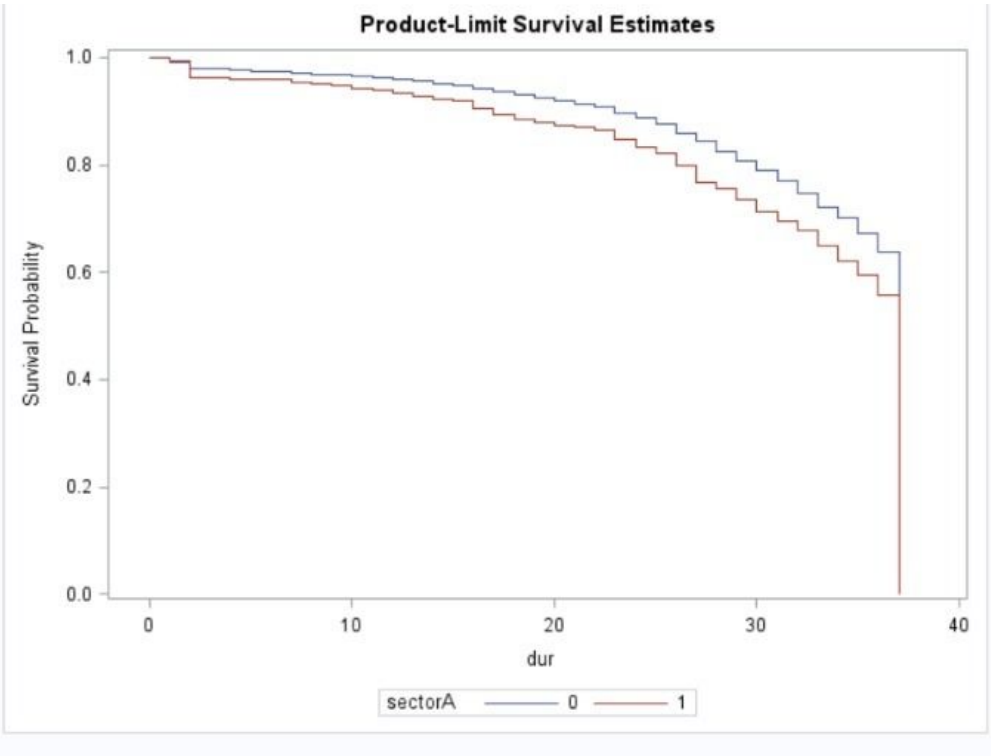
- ❑ If a customer has a STANDARD card, then expected ratio is exp(0.0084) = 1.08 which means that the customer survives 1.5 times more as compared to a customer not having a STANDARD card. So its better to have standard card type to have better survival of a customer

- ❑ The variables that had positive coefficient estimates in PHREG model have negative coefficient estimate in LIFEREG model and vice-versa

- ❑ Customer having affinity card affiliated with Financial Institution or with University or with Commercial have lower inactive duration having other factors fixed.

5.





- ❏ We can note that the survivor function for affinity groups are significantly different from that of non-affinity groups based on the Chi-Square test of the log rank.
- ❏ Hence, we can interpret that the customer who does not have an affinity card has a lower chance of survival against a customer with an affinity card based on the above graph.
- ❏ In conclusion, we can say that the survivor function for affinity groups are significantly different from that of non-affinity groups.
- ❏ Since the customers that do have an affinity card have a lower chance of survival, that is, they would stop using the card, having an Affinity Card, therefore, gives the company a better chance a retaining a customer than not having one.