[**SEIS632-02**](https://stthomas.instructure.com/courses/46289)**-Assignment2**

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**Question1**: Which variables are included in the final model?

**Answer1**: Total 6 variables are included in the final model, namely IMP\_DemAffl,

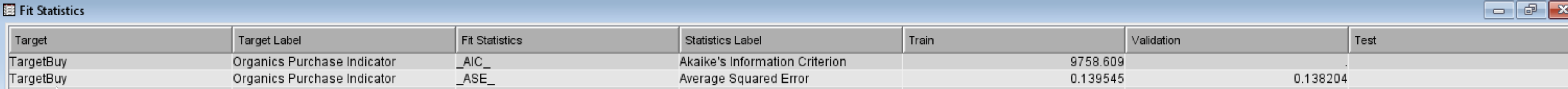
IMP\_DemAge, IMP\_DemGender, M\_DemAffl, M\_DemAge, M\_DemGender.

Table

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**Question2**: What is the validation ASE?

**Answer2**: 0.138204



**Question3**: Do the selected variables change?

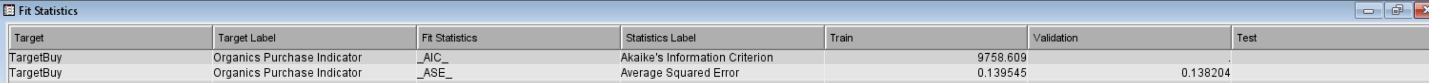
**Answer3**: Yes, now IMP\_LOG\_DemAffl and M\_LOG\_DemAffl is considered in place of IMP\_DemAffl and

M\_DemAffl respectively.

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**Question4**: How about the validation ASE?

**Answer4**: The validation ASE remains same, i.e., 0.138204.

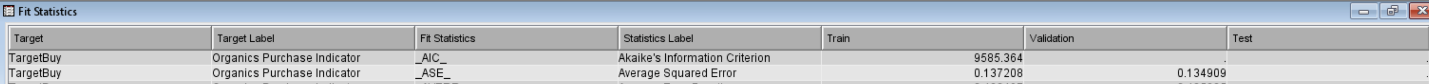
**Polynomial Regression Model**

Assumptions:

1. There is a direct relation between how much a member spends and the total time spend as loyalty card member.(PromTime ~ PromSpend)
2. There is a direct relation between time spend as loyalty card member and loyalty status i.e., tin, silver, gold, or platinum.(PromTime ~ PromClass)
3. A parabola-shaped relationship between organic purchase indicator and Age.()

Adding above mentioned interaction terms to the regression model.

**Question5**: How does the validation average squared error for the polynomial model compared to the original model?

**Answer5**: The validation ASE reduces to 0.134909 from 0.138204 after addition of few interaction terms as compared to the original regression model.

Table

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